PUSHING THE BOUNDARIES OF ARTIFICIAL INTELLIGENCE

... and blazing a trail to tackle global challenges
ON THE COVER:
NAO robots—autonomous, programmable humanoid robots—are used in the Rensselaer Artificial Intelligence and Reasoning Laboratory led by Selmer Bringsjord. Photo by Gregory Cherin.

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MOVE includes undergraduate and graduate students in its research. Pictured (l-r) are Colin Hamilton, Farhan Gandhi (MOVE director), Gaurav Makkar, Brendan Smith, Praneet Vayalali, and Ariel Walter.

Photo by Gregory Cherin
Vertical lift technology is undergoing a major renaissance and is at an incredibly exciting point in its development history, according to Farhan Gandhi, director of the new Center for Mobility with Vertical Lift (MOVE). A new class of both electric and hybrid electric aircraft is envisioned for a range of applications, from package and payload delivery to air taxis.

“There is a tremendous buzz around the emergent field of multi-rotor electric vertical takeoff and landing.”

— FARHAN GANDHI
The Future of Flight
Rensselaer launches new center to advance vertical lift technologies

Last October, I was pleased to welcome alumni and guests at the formal opening of the Center for Mobility with Vertical Lift, or MOVE, in the School of Engineering.

At Rensselaer Polytechnic Institute, we believe in taking on the very hardest of problems—the “grand challenges.” We also believe that to make headway against them, we must work alongside talented partners in government and industry.

The longstanding excellence of the education offered by our Department of Mechanical, Aerospace, and Nuclear Engineering is readily apparent, when one considers the degree to which Rensselaer graduates dominate the field of vertical flight.

In the last 25 years, three of our alumni have won the Dr. Alexander Klemin Award “for notable achievement in advancing the field of vertical flight aeronautics,” the highest honor bestowed by the Vertical Flight Society. They include Kenneth Rosen ’65, ’70, whose expertise in a wide range of aero-thermodynamic topics has been incorporated in the systems for many helicopters, including the UH-60 Black Hawk.

Steve Weiner ’78 is another Klemin honoree, and chief engineer of the JMR-Defiant and the X2 Technology Demonstrator. Our third Klemin honoree, Frank Harris ’56, was chief engineer of the Bell OH-58D Scout Helicopter, one of the most successful Army Aviation procurement programs.

Rensselaer graduates have been connecting people and communities since our founding. They have designed and developed canals, bridges, the transcontinental railroad, ships, aircraft, and vehicles for space exploration, as well as many foundational technologies in the digital realm—offering a previously unprecedented mobility to people, goods, and ideas—powering our economy and undergirding our military strength.

With MOVE, we are embracing the spirit to not only anticipate the future, but race forward to meet, and to shape, it. Together, all of us can envision the opportunities: The “future of Vertical Lift platforms” is one of six key modernization priorities of the United States Army.

In the private sector, with the emergent field of multi-rotor electric vertical take-off and landing (VTOL) aircraft—we are moving far beyond hobbyist drones into the realm of air shipping and air taxis. Uber and Cora are both developing air taxi networks and air taxis. And Terrafugia, under the leadership of Chris Jaran ’78, is developing personal air vehicles—cars that can both drive and fly!

VTOL aircraft are going to help us to address many challenges, including national security and emergency response—which is especially important, given the increasing frequency of natural disasters.

E-VTOL aircraft, in particular, represent a new form of sustainable aviation that can help us to replace greenhouse-gas-emitting vehicles with a cleaner form of transport, as well as ease the congestion on our roads, and improve people’s lives by cutting long commute times down to size.

However, to make potential revolutions in vertical lift a reality and to create larger, faster aircraft—both piloted and autonomous—with greater endurance and the ability to navigate unpredictable conditions, both on battlefields and in urban environments, many fundamental research questions await us.

We require advances in aeromechanics and aerodynamics, nanotechnology and advanced materials, energy storage and management, autonomy and control systems, and real-time diagnostics and decision-making.

At Rensselaer, we have a special opportunity to contribute to vertical flight the emerging technologies in artificial intelligence and machine learning, data analytics, edge computing, and immersive systems—areas in which Rensselaer is making significant investments, along with our research partner IBM.

Under the leadership of Professor Farhan Gandhi, our Rosalind and John J. Redfern Jr.’33 endowed chair in aerospace engineering, MOVE is convening faculty and students in many different disciplines, and leaders in both the private sector and government, to focus on advancing vertical lift technologies.

To end, I quote Igor Sikorsky, the great pioneer of vertical lift: “According to the laws of aerodynamics,” Sikorsky said, “the bumblebee cannot fly. But the bumblebee does not know the laws of aerodynamics, so it goes ahead and flies.”

At Rensselaer, we do know the laws of aerodynamics, and with the advent of the Rensselaer Center for Mobility with Vertical Lift, we bring together many bumblebees among our faculty, students, and partners who will invent new ways to fly—and to change the world.

“With MOVE, we are embracing the spirit to not only anticipate the future, but race forward to meet, and to shape, it.”

— PRESIDENT SHIRLEY ANN JACKSON

“With MOVE, we are embracing the spirit to not only anticipate the future, but race forward to meet, and to shape, it.”

— PRESIDENT SHIRLEY ANN JACKSON
Running for Autism Awareness

I was delighted to see the article about predicting autism from blood samples in the recent issue of the alumni magazine (“Success of Blood Test for Autism Affirmed,” Fall 2018). It is a great step forward in early detection of this disability. The recent article about Juergen Hahn’s research is encouraging.

I am the father of a 29-year-old with autism. I feel it is imperative we find the cause of autism before it becomes the disability of, not only a couple decades, but the century.

To this end I am in the process of running 3,000 miles to raise awareness and help fund research to find the cause of autism. I was in the Rensselaer Class of ’74 of the Hartford Graduate Center and am now 73 years old.

I am proud and delighted my alma mater is active in researching this disability. I hope Rensselaer continues significant research on early detection and eventually helping find the cause(s) of autism.

Please visit 3000MilesForAutism.org or my Facebook page (facebook.com/3000MilesForAutism) for more information and to help achieve the goal of an autism-free world.

Robert “Nick” Nickerson ’74
Chapel Hill, North Carolina

Water Bottle Project Gathers Attention

Regarding the plastic water bottles project for disaster relief (“Recycling Plastic Bottles for Disaster Relief”): We at Friendship Bottles are getting quite a bit of wind in our sails after the Maker Faire in NYC last fall. CBS is wanting to discuss doing a story in spring, we’re talking to Cooper Hewitt Museum in New York about having a permanent exhibit on the bottle project next year, we heard from a STEM teacher who wants to do a project in his classroom, and a parent volunteer wants to include an exhibit at a science fair that their school is doing.

And it was so fun to watch the kids build with the bottles; the experience center that RPI came up with was fantastic and a huge hit! And it wasn’t just young kids; parents were building with their kids; kids in their early teens were building things. I overheard a couple different parents trying unsuccessfully to coax their kids into leaving the play area to go on to other exhibits.

We so appreciate the tremendous collaboration with RPI; it’s fueling tremendous opportunities for environmental and humanitarian impact.

Tim Carlson, Creator of the Interlocking Water Bottles
Arlington, Virginia

Applauding Art_X at Rensselaer

I applaud the introduction of the new Art_X program at Rensselaer (“Crossroads of Creativity,” Spring 2018). It has been known for a long time that music and science had an affinity for each other, as witnessed by the fine musical productions at RPI in the past.

I hope that the program will at some point include pipe organ design as part of the curriculum. The pipe organ is essentially a mechanical instrument of considerable complexity, some components of which have remained unchanged for centuries. Maybe it’s time for fresh eyes to look at the way pipe organs are built—and played.

Susan LaGrande ’68
Wappingers Falls, New York

We’d love to hear from you!

To provide space for as many letters as possible, we often must edit them for length. Address correspondence to: Rensselaer Magazine, Strategic Communications and External Relations, Rensselaer Polytechnic Institute, Troy, NY 12180; email to alum.mag@rpi.edu; or call (518) 276-6531.
WHILE TEMPERATURES IN THE TROPICAL forests of northeastern Puerto Rico have climbed two degrees Celsius since the mid-1970s, the biomass of arthropods—invertebrate animals such as insects, millipedes, and sowbugs—has declined by as much as 60-fold, according to new findings published in the *Proceedings of the National Academy of Sciences*. The finding supports the recent United Nations Intergovernmental Panel on Climate Change warnings of severe environmental threats given a 2.0 degree Celsius elevation in global temperature. Like some other tropical locations, the study area in the Luquillo rainforest has already reached or exceeded a 2.0 degree Celsius rise in average temperature, and the study finds that the consequences are potentially catastrophic.

“Our results suggest that the effects of climate warming in tropical forests may be even greater than anticipated,” says Brad Lister, lead author of the study and a faculty member in the Department of Biological Sciences. “The insect populations in the Luquillo forest are crashing, and once that begins, the animals that eat the insects have insufficient food, which results in decreased reproduction and survivorship and consequent declines in abundance.”

“Climate Driven Declines in Arthropod Abundance Restructure a Rainforest Food Web” is based on data collected between 1976 and 2013 by the authors and the Luquillo Long Term Ecological Research program at three mid-elevation habitats in Puerto Rico’s protected Luquillo rainforest. During this time, mean maximum temperatures have risen by 2.0 degrees Celsius.

Cold-blooded animals living in tropical climates are particularly vulnerable to climate warming since they are adapted to relatively stable year-round temperatures. Given their analyses of the data, which included new techniques to assess causality, the authors conclude that climate warming is the major driver of reductions in arthropod abundance in the Luquillo forest. These reductions have precipitated a major bottom-up trophic cascade and consequent collapse of the forest food web.

Given that tropical forests harbor two thirds of the Earth’s species, these results have profound implications for the future stability and biodiversity of rainforest ecosystems, as well as conservation efforts aimed at mitigating the effects of climate forcing.

Andres Garcia, of the Universidad Nacional Autónoma de México, was co-author on the study, which was funded by the National Science Foundation.
**NATIONAL RECOGNITION**

**Engineeii9g Program Ranked Sixth in the Nation**

Rensselaer ranks sixth nationally in its overall engineering program, according to rankings published by College Factual, a source of data analytics and insights on college outcomes.

In addition to the overall engineering ranking, eight individual engineering disciplines at Rensselaer rank in the top 10, including Aerospace Engineering (ranked 3rd), Materials Engineering (4th), Environmental Engineering (6th), Mechanical Engineering (7th), Industrial Engineering (8th), Nuclear Engineering (8th), Chemical Engineering (9th), and Civil Engineering (9th).

The College Factual rankings are based on data collected by the National Center for Education Statistics and by PayScale, a company that analyzes salary and benefits. Factors considered include student body caliber, educational resources, graduation and retention rates, and graduate earnings, both early and mid-career, as well as strength within majors, accreditation, and overall school quality.

“At Rensselaer Engineering, we are defining 21st-century technological education and performing multidisciplinary research linked to global challenges,” says Shekhar Garde, dean of the School of Engineering. “Through leadership in industry, academia, and government, our graduates are shaping a better world. This ‘outcomes-based’ ranking recognizes the value of a Rensselaer education.”

One of five schools at Rensselaer, the School of Engineering is home to seven departments offering 12 undergraduate and 19 graduate degrees. Currently more than 3,650 undergraduate and 550 graduate students are enrolled. The school attracts over $50 million annually in external research funding in areas closely aligned with those of the Institute, aimed at addressing some of the world’s most pressing technological challenges, from energy security and sustainable development to biotechnology and human health.”
A team of four computer science students from Rensselaer once again took home top honors at the 15th anniversary edition of Cyber Security Awareness Week (CSAW), the world’s largest student-run cyber security event. The event was hosted by the New York University Tandon School of Engineering.

For the second year in a row, students from the Rensselaer computer security club RPISEC took first place in the week’s main event, a notoriously difficult “Capture the Flag” competition that tests the hacking and protecting skills of undergraduate teams. The RPISEC team also came in third place in the Security Quiz Bowl, a fast-paced competition covering technology, current events, and history.

“I am very proud of the Rensselaer computer science students in cybersecurity (RPISEC), who once again came out on top of the extremely competitive CSAW contest,” says Curt Breneman, dean of science. “Given the large number of competing teams and the difficulty of the tasks involved, this accomplishment illustrates the incredible level of skill that the RPISEC team members were able to apply to master these challenges. Their futures will be very bright.”

Two team members—Jack Dates and Josh Ferrell—returned from last year’s winning team. They were joined by Aidan Noll and Jack Phillips. To earn their spot in the final rounds of the competitions, this year’s contestants beat out nearly 20,000 competitors worldwide.

An RPI team also won a side contest put on by Red Balloon Security in which CSAW participants were challenged to hack a real ATM machine and make it dispense nearly $2,000 in small bills. Red Balloon uses similar tests to evaluate job applicants.

NYU welcomed 130 student finalists in seven separate competitions, and another 267 competed in the final rounds hosted by schools in France, India, Israel, and Mexico.

Students participated in a career fair and networking events designed to introduce them to mentors and peers who can form strong networks for their later careers. Industry experts and judges were able to engage in professional development opportunities via the Frontiers of Cyber Security Workshop, which focused on security analytics and secure deployment of machine learning.

(Left to right): Aidan Noll, Josh Ferrell, Jack Phillips, and Jack Dates.
October 2018 marked the 50th anniversary of the Rensselaer Newman Foundation’s Chapel and Cultural Center, known by most as the C+CC. It was the vision of then Catholic Chaplain Thomas Phelan, who only five years later would become dean of the School of Humanities and Social Sciences. Supported by a board of trustees that included Professor Steve Wiberley ’48 and many Rensselaer and local community leaders, the C+CC was dedicated in October 1968. The Foundation’s charter by the New York State Education Department as an educational organization has provided great opportunity for the C+CC to be more than a building.

Architect Peter Levatich ’55 designed an energy-efficient building ahead of its time. It immediately garnered attention and recognition both for its outstanding design and unique blend of being a center for religion, education, and the arts. By February 1969, multiple national and international publications had written articles on the C+CC, including feature articles in Progressive Architecture and The New York Times. An article by Franklin Whitehouse published in The New York Times on Dec. 8, 1968, lauded the utilitarian simplicity of its design. This unique marriage of architecture and purpose would lead to the C+CC receiving many awards over its 50 years. On Feb. 22, 2011, the United States Department of the Interior recognized the C+CC’s architectural and social significance by adding it to the National Register of Historic Places, making it the “youngest” structure on the registry.

The impact on the campus and local communities was immediately evident. The dedication celebration was highlighted by not only New York City Ballet’s principal dancer Melissa Hayden and contemporary liturgical music by Father Clarence Rivers, but also student performances including the RPI Players.

In 1970, the C+CC provided a “safe space” for students to discuss and debate what would have great impact on Rensselaer, such as “The Requisites for a Technological University” and national and international issues such as the Vietnam War and a student strike at Rensselaer. A home for discourse between the community and campus continues to this day with the McCarthy-Wiberley Town and Gown Breakfast.

The education program morphed over the years from the “Free School” that offered classes such as Tai Chi, discussion groups, and craft classes to the current Lenten Speaker Series, always exploring the intersections of culture and religion. Visual arts exhibitions have also been important in exploring how arts and religion are inextricably linked, reflecting the culture of the time.

The performing arts are always at the C+CC’s core. In the early years, professional performances by groups such as the innovative dance and movement of Pilobolus, the Warsaw Mime Theater, and the Dinizulu Dance Company were presented to the campus community through the Festival of Religion and the Arts. Adapting to today’s needs of Rensselaer, the arts program of 2018 now has a student performance focus with many of the Rensselaer student vocal groups using the C+CC as their performance home. Concerts by a cappella groups are regularly a highlight for the campus community.

Under the leadership of Rensselaer coordinator of religious affairs and Catholic Chaplain Father Ed Kacerguis, the C+CC continues to be true to its purpose. It is a place of worship as the home of the Christ Sun of Justice Parish, personal reflection, education, the arts, and community-building. The success of the first 50 years is a prelude to the next 50 years, demonstrating how the C+CC, its people, and programs can create a better experience for students, the campus, and the local community.—Rick Hartt ’70.
Preparation of Data-Driven Leaders

A new undergraduate degree program in business analytics is coming to Rensselaer this year. The major, approved by the New York State Education Department, will be offered through the Lally School of Management beginning in the fall of 2019.

The new program will equip students with a unique combination of data science skills and fundamental business skills as they enter the workforce.

“As part of the country’s first technological university, the Lally School of Management has always offered technologically driven business programs,” says Thomas Begley, dean of the Lally School. “Our new program advances this effort by teaching students how to analyze and think critically about data in order to make decisions that improve and grow businesses.”

The new degree offering builds upon the data dexterity requirement for Rensselaer students that was announced last year. With the first such requirement in the nation, Rensselaer strives to produce graduates who can use diverse datasets to solve complex problems regardless of their field of study.

“With the rise of social media and related technologies, 21st-century businesses have access to more data than ever before,” says Chris Meyer, director of Lally undergraduate programs. “These businesses are in strong need of leaders who can analyze and apply data to make strategic business decisions.”

“Over the last several years, with the advances in computing power and the pervasiveness of data, the potential value of analytics and data sciences has become clear to businesses globally,” says Ed See ’84, partner at McKinsey & Company, a global management consulting firm. “Companies are now looking to data science programs to create data science professionals who not only can develop and create the analytics but also can translate those into business actions and business impact.”

Students enrolled in the program will gain direct experience working with complex datasets, powerful visualization resources, and real-world applications. The program also includes a capstone course, where students work on real-world projects with industry partners.

“Students who complete the program will enter the workforce ready to make meaningful contributions to their chosen organizations,” says Begley.
On the second floor of the J. Erik Jonsson Engineering Center in the heart of the Rensselaer campus, a room has been created that—not unlike Hogwarts’ Room of Requirement—has the potential to be almost anything. Students who enter could find themselves standing on the wing of an airplane, managing a failing nuclear reactor, or designing the crystalline structure of a molecule.

It is called the Rensselaer Augmented and Virtual Environment (RAVE), a new laboratory for researchers and students to experiment with different uses of virtual and augmented reality. The former immerses users in a computer-generated environment, while the latter adds a layer of computer-generated enhancements to the real world.

“Virtual and augmented reality can be used to perform experiments and provide learning experiences that were previously impossible due to scale, cost, or safety,” says Rich Radke, co-director of the RAVE and a professor of electrical, computer, and systems engineering. “The RAVE presents unprecedented opportunities for how we study and incorporate this technology at Rensselaer.”

With state-of-the-art equipment and an extremely flexible physical space, the RAVE can be configured and adjusted according to the needs of whoever is using it.

A materials science and engineering class might gather around large molecular structures visible to them only through smartphones and tablets. A researcher wearing a virtual reality headset might explore a distant celestial object and be able to move around it as if she were actually there. Radke and co-director Jason Hicken, an associate professor of mechanical, aerospace, and nuclear engineering, hope that Rensselaer faculty members and students make use of the lab to explore new ways in which these technologies can enhance their work.

After its ribbon-cutting in November, the RAVE began its first full semester in operation in January, supporting several undergraduate research projects related to engineering pedagogy, and being written into several faculty research proposals.

“We are only beginning to discover the RAVE’s potential,” Hicken says.
Making a Difference

Investing in well-rounded students

Scholarship is very important to Linda Szabat Sanford ’75G, trustee emerita. After earning a bachelor’s degree in mathematics at St. John’s University, it was a full scholarship to attend Rensselaer that played a major role in her decision to earn a master’s degree in operations research and statistics. Sanford’s recognition of the importance of scholarship led her to create the Linda Szabat Sanford ’75 Scholarship in 2006 for female students enrolled in the School of Engineering, School of Science, or those pursuing a degree in information technology and web science. Since its establishment, there have been six student beneficiaries. Her most recent commitment will provide additional resources for those students, and will extend the support to female students pursuing the new bachelor of science degree in music.

Sanford grew up on her grandparents’ potato farm in Long Island, New York, with her parents and four sisters. Each of the Szabat sisters enjoyed math and science, and today have successful careers in the STEM fields, after having earned master’s and doctorate degrees. “We used a lot of math on the farm,” says Sanford, “whether it was figuring out how many rows to move the irrigation pipes or what discount to give at the end of the day to make sure all the vegetables were sold.”

Although they didn’t have a lot of resources, and never attended college themselves, her parents were determined that each of their daughters attend college. “At that time, it was rare for women to pursue higher education,” she says. “If it wasn’t for scholarship and our parents’ encouragement, we wouldn’t have been able to receive the education we did.”

But the sisters didn’t focus on just math and science. Each of them took singing and piano lessons from a neighbor who had performed at the Metropolitan Opera. They would take what they learned in lessons and put it into practice—performing regularly at the annual Lions Club talent show. “I love how Rensselaer has added music and the arts to their curriculum,” Sanford says. “Focusing on music helped us to get comfortable in front of people at a very young age. This well-roundedness is a critical piece of preparing our graduates for success. We are able to leverage technology with the arts—a perfect demonstration of what transformation is.”

Throughout her 39-year career at IBM, Sanford, senior vice president, enterprise, became deeply familiar with transformation. During the last 10 years of her career, she led the transformation of IBM. “I set up an internal team on how to transform an organization—one very important element was creating a team of smart, great statisticians with analytic capabilities who mastered the leveraging of data and analytics,” Sanford states. “I was so excited to have the opportunity to create this team that is still very much a critical part of IBM today.”

Sanford already sees intuitive analytical traits in her two granddaughters, 9 and 4. “Interest starts early. Young girls interested in math or science want to solve a problem. As we move forward, we need to figure out how to keep that natural curiosity and instinct growing. The world needs it.”
History was made in New York City at the Rensselaer Scholarship Gala and debut performance of the Rensselaer Orchestra at Carnegie Hall last October. The evening’s events highlighted student scholarship, honored distinguished leaders, and encouraged visionary philanthropy at Rensselaer.

A highlight of the evening was the historic performance at Carnegie Hall from the 80 students, alumni, and alumnae of the Rensselaer Orchestra, led by Maestro Nicholas DeMaison. The performance was a celebration of the recent launch of the new Bachelor of Science in Music degree.

“The Rensselaer Orchestra performance is a concrete example of how we are implementing our vision for Rensselaer as The New Polytechnic,” says President Shirley Ann Jackson. “This vision is inherent in everything we do—it establishes Rensselaer as a vital crossroads for student, faculty, and alumni and alumnae collaborations across disciplines, sectors, geographies, and generations.”

“Our students were tremendously excited to have the opportunity to perform in such a world-class, iconic venue,” says Mary Simoni, dean of the School of Humanities, Arts, and Social Sciences. “And, many of those performing are future engineers, scientists, architects, and entrepreneurs. They are drawn to the orchestra because music is an essential part of who they are. Our students gracefully cross the divide between the arts and sciences.”

At the Scholarship Gala prior to the performance, Helen-Jo Kelly and Rensselaer Trustee John E. Kelly III ’78G, ’80 Ph.D.; Gail Kodosky and Rensselaer Trustee Jeffrey L. Kodosky ’70; and the Boeing Company were honored with Presidential Lifetime Achievement Awards for their extraordinary service, philanthropy, and partnerships, which enable Rensselaer to continue being transformative in its third century. Several foundations and individuals also were recognized for their exceptional student scholarship, faculty, and research support.

Underwriting was provided by IBM and supported by major corporate sponsors United Airlines, The Boeing Company, and Sodexo.

“Many of those performing are future engineers, scientists, architects, and entrepreneurs... Our students gracefully cross the divide between the arts and sciences.” — MARY SIMONI
NIH Awards $4 Million for Light and Health Research to LRC

THE NATIONAL INSTITUTE ON AGING OF the National Institutes of Health has awarded a five-year grant totaling more than $4 million to the Lighting Research Center (LRC) to support research that could benefit the more than 5.7 million Americans living with Alzheimer’s disease. Mariana Figueiro, LRC director, will serve as the principal investigator and will work with the Icahn School of Medicine at Mount Sinai to study whether a novel tailored lighting intervention designed to promote circadian entrainment can reduce metabolic impairment in Alzheimer’s and mild cognitive impairment (MCI) patients.

DoE Awards $900,000 for Engineering Fellowships

THE U.S. DEPARTMENT OF EDUCATION (DoE) 2018 Graduate Assistance in Areas of National Need (GAANN) Program has awarded Rensselaer nearly $900,000 to support an interdisciplinary Ph.D. program in aeronautical engineering and mechanical engineering. According to DoE, grants are awarded to programs and institutions to sustain and enhance the capacity for teaching and research in areas of national need. The GAANN programs provide opportunities to students who demonstrate financial need and superior ability.

Preparing the Next Generation of Health Data Experts

TO HELP ADDRESS THE GROWING NEED for a larger workforce of health data analysts and technologists, Rensselaer and the United Health Foundation are expanding access to health informatics educational opportunities and applied health data science research experiences through the Rensselaer Institute for Data Exploration and Applications (IDEA). The three-year, $1.1 million grant from the United Health Foundation supports the creation of the “Rensselaer Health Informatics Challenges in Technology Education (INCITE) Pipeline” to prepare students for careers in health data science.
Data scientist and Tetherless World Constellation Chair PETER FOX was elected a fellow of the American Association for the Advancement of Science, in recognition of his “distinguished, innovative, and sustained fundamental contributions in Earth and space science informatics and data science research, education, and service.”

JOHN T. WEN has been named the Russell Sage Professor and head of the Department of Electrical, Computer, and Systems Engineering (ECSE). He was most recently head of the Department of Industrial and Systems Engineering and a professor of ECSE with a joint appointment in the Department of Mechanical, Aerospace, and Nuclear Engineering. From 2005 to 2013, he served as director of the Rensselaer Center for Automation Technologies and Systems, a New York state designated Center for Advanced Technology.

JOHN CHRISTIAN, assistant professor of mechanical, aerospace, and nuclear engineering, has been elected an associate fellow of the American Institute of Aeronautics and Astronautics. Christian focuses his research on spacecraft navigation, computer vision, astrodynamics, and space systems. He is director of the Rensselaer Sensing, Estimation, and Automation Laboratory (SEAL), which is developing new spacecraft technologies that will enable scientific missions to new and unexplored destinations.

The American Chemical Society (ACS) has recognized biocatalysis expert and Constellation Chair RICHARD GROSS with the 2019 ACS Award for Affordable Green Chemistry, bestowed for outstanding scientific discoveries or chemistries that lay the foundation for cost-competitive environmentally friendly products or manufacturing processes that are less expensive than existing alternatives. A professor of chemistry and chemical biology, Gross seeks to use the molecular building techniques of whole cells and enzymes to create polymers, peptides, and surfactants that are useful, environmentally friendly, and economically competitive.

Paleoclimate expert MORGAN SCHALLER received the 2018 Houtermans Award from the European Association of Geochemistry. The award recognizes early career achievements. An assistant professor of earth and environmental sciences, Schaller studies the history of the Earth system and changes in the climate over long timescales. The Houtermans Award recognizes a single exceptional contribution to geochemistry, published as a single paper or a series of papers on a single topic.

JAMES HENDLER, the Tetherless World Professor of Computer, Web, and Cognitive Sciences, was selected by the National Academy of Public Administration for inclusion in its 2018 Class of Academy Fellows. Fellow status recognizes outstanding contributions to the field of public administration and policy. Hendler is the director of the Rensselaer Institute for Data Exploration and Applications (IDEA) and the RPI-IBM Center for Health Empowerment by Analytics, Learning, and Semantics (HEALS).

JENNIFER HURLEY, assistant professor in the Department of Biological Sciences, has been named the Richard Baruch M.D. Career Development Professor of Biological Sciences. Hurley studies the mechanism that underlies the proper timing of the circadian clock as well as the human health implications of a disrupted clock by studying how clocks in model organisms behave.

Board of Trustees member JEFFREY L. KODOSKY ’70 has been named to the National Inventors Hall of Fame. Kodosky was named along with National Instruments’ co-founder James Truchard for “Virtual Instrumentation – LabVIEW.” LabVIEW is a graphical programming language that enables user-defined testing and measurement and control systems. National Instruments is recognized as an industry leader in instrument control. Kodosky holds 68 patents associated with LabVIEW technology and was inducted into the Electronic Design Engineering Hall of Fame for his invention.

LESTER A. GERHARDT, professor emeritus of electrical, computer, and systems engineering, died on Sept. 20, 2018. His career encompassed significant accomplishments in both industry and academia. At Bell Aerospace, he was awarded a number of patents and helped develop the visual simulation for the first lunar module used to train Apollo 11 astronauts. His academic career of more than 45 years at Rensselaer continuously combined teaching, research, and administration. His research specialty was digital signal processing emphasizing image and speech processing and brain-computer interfacing. He championed international exchange opportunities and received many awards for his work and contributions to engineering education, at Rensselaer and globally.
DELVING
Deep into Artificial Intelligence

Rensselaer is at the forefront of AI research and education. World-renowned faculty—working with new tools, infrastructure, and world-class environments—are pushing the boundaries of exploration in AI.

—Contributors: Jodi Ackerman Frank and Mary Martialay

Artificial intelligence (AI) is everywhere. It helps us navigate our daily computer searches for work, school, and leisure time. It serves as the basis of the mesmerizing efforts to make cars, trucks, and drones fully autonomous.

It is used in computer simulations to enhance the human experience and benefit society at large, including gaming and learning in new ways within a three-dimensional computer-human environment. AI is expected to revolutionize the health care and financial industries, the way we garner new knowledge about climate change, and even in the efforts to develop an autonomous electric grid.

Groundbreaking work is being conducted in labs and classrooms across the campus. Rensselaer researchers, as well as students, are collaborating in some of the most advanced platforms in the world. These facilities and spaces include the Cognitive and Immersive Systems Laboratory (CISL), a multiyear...
collaboration with IBM Research that is leading the frontier of research and development in immersive environments.

Another partnership—the Artificial Intelligence Research Collaboration—is a multiyear effort between Rensselaer and IBM that involves multiple graduate students, postdocs, research scientists, and faculty working closely with IBM researchers to push the frontiers of AI research and apply their results to some of the world’s key global challenges.

Recently, Rensselaer was named a partner in a new $2 billion IBM Research AI Hardware Center, designed to further accelerate the development of AI-optimized hardware innovations.

And there are numerous researchers using AI to tackle problems in a variety of fields. In his Sensing, Estimation, and Automation Laboratory, John Christian, assistant professor of mechanical, aerospace, and nuclear engineering, is using it to help spacecraft navigate the solar system more effectively. Rich Radke, professor of electrical, computer, and systems engineering (ECSE), is working to develop conference rooms that can actually facilitate meetings. Fellow ECSE professor Qiang Ji is using AI to enable robots to recognize human behaviors and emotions, and to interact with them more naturally.

PUSHING BOUNDARIES, EXPLORING LIMITATIONS

Selmer Bringsjord, whose research spans several disciplines, including AI, cognitive science, and computing, is conducting groundbreaking humanoid research in the lab he directs, the Rensselaer Artificial Intelligence and Reasoning (RAIR) Laboratory.

RAIR uses robotics and computational capability platforms for researching applications of reasoning.

“The RAIR Lab compels overall society to ask fundamental questions about AI,” Bringsjord says. “For instance, will machines ever mimic the complexities of the human mind?”

In working toward that long-term end goal, Bringsjord has led teams of students and researchers in the development of tabletop robots with initial levels of self-awareness.

“These humanoids are able to sense and to reason, and because of it, to pass a new and difficult test of machine self-awareness,” Bringsjord says.

In this test, three robots were programmed to understand that two of them had been given a special “dumbing pill” (activated by a push of a button) that would not allow them to speak. The third one received a placebo. The one who could still speak had to figure this out on its own, which it did once it heard its own voice. Initially, one robot responded, “I don’t know,” when asked which of them received the pill. Then, upon hearing its own voice, it realized that it had not been silenced by the dumbing pill, and answered correctly.

Bringsjord is also exploring whether ethics can be engineered into robots as part of a multimillion-dollar AI project. The project, funded by the U.S. Navy, is a collaboration among researchers from Rensselaer, Tufts University, and Brown University to develop autonomous robots that can make automatic ethical judgments on their own when faced with ethically “thorny” circumstances, which often occur on a battlefield.

“We’re talking about robots designed to be autonomous—meaning you don’t have to tell them what to do,” he says. “When an unforeseen situation arises, a capacity for deeper, on-board reasoning must be in place, because no finite rule set created ahead of time by humans can anticipate every possible scenario.”

Still, in all the AI innovation taking place at Rensselaer and elsewhere, the field of AI has a long way to go to mimic humans in even the simplest of ways.

“In our enthusiasm and quest for AI technologies, we have to be aware of how little machines can really do compared to the human brain,” says Bringsjord. “Even a tiny child knows that the feelings of others ought not to be trampled, but a machine doesn’t have feelings, and hence can’t empathize.”

James Hendler, a renowned expert in the Semantic Web, artificial intelligence, and agent-based computing, agrees. Hendler is the director of the Rensselaer Institute for Data Exploration and Applications (IDEA).

“The AI advancements that are now beginning to enter into mainstream societal use—speech recognition, natural language chatbots, improved computer vision systems, the things that are coming from deep learning systems—work very well in a narrow context,” Hendler says. “But when you try to stretch them into a new situation, they break down.”

In other words, AI technologies are able to meet or exceed human performance in areas that exploit the computer’s large memory, mathematical
algorithms, and various search techniques. But there is a vast gulf between the current capabilities of AI and the omniscient machines envisioned in science fiction.

For computers, understanding the world we live in, comprehending the historic and social contexts of situations, and using common sense reasoning are still daunting obstacles.

“These are not necessarily insurmountable hurdles,” Hendler adds. “In fact, a more pervasive, seamless interaction with AI is inevitable.”

AUTONOMOUS TRANSACTIONS

Despite major hurdles to overcome, it is fairly clear that AI is expected to transform health care as we know it.

For their part, computer scientists Oshani Seneviratne and Lirong Xia are focusing on the world of blockchain smart contracts to create new ways to improve patient health care and communications.

A “blockchain is nothing more than a data structure—a block of data—that enables a transaction ecosystem,” Seneviratne says. “It is a bulletproof mechanism to hold people accountable for whatever agreement they’ve made.”

Seneviratne is the director of health data research for the Health Empowerment by Analytics, Learning, and Semantics (HEALS) project.

HEALS is a five-year collaborative research initiative that exploits innovative capabilities in cognitive computing, coupled with human behavior, smart-device development, and semantic data analytics to solve the world’s biggest health-care challenges in diagnosing disease, making accurate prognoses, and addressing other multifaceted patient care concerns.

The blockchain was invented to support cryptocurrency, but Seneviratne and Xia are interested in its applications in health care. This security facilitates transactions that would ordinarily rely on traditional market safeguards, such as established reputation or a centralized authority.

Blockchain may one day enable AI agents to autonomously arrange maintenance in a smart home, trade in products—such as prescription drugs—in which provenance is important, or arrange for the transfer of sensitive information—like your health records—between appropriate parties.

“Anything that can be written as a contract can be recorded in a blockchain, and applications built to trade autonomously based on that contract would only complete a transaction if it adhered to the terms coded in the blockchain,” Seneviratne says.

Once organized, the block is sealed with a computational lock that is based on the previous block, and that lock in turn used to generate the lock for the next block in the chain. To break into any given block, one would have to unpackage all the later blocks in the chain, which, given computational hurdles imposed by blockchain protocol, is not currently possible.

The strength of the blockchain is that, once coded into the chain, the contents of a contract can be shared among peers but are nearly invulnerable to alteration. This means transferring health records could benefit immensely from the power of blockchain to reduce inefficiency and red tape.

Imagine a future, made possible by the applications Seneviratne is helping to build, where automatic access to your health records is brokered by contracts protected by blockchain. AI agents would move necessary information between you, your doctors, and insurance companies, eliminating delay and inefficiency.

“The RAIR Lab compels overall society to ask fundamental questions about AI. For instance, will machines ever mimic the complexities of the human mind?”

— SELMER BRINGSJORD
She is also testing approaches to autonomous solutions, and she envisions a future where the impenetrable security of blockchain would combine with a new flexibility to respond to unanticipated contingencies.

For example, if you are involved in an accident and sent unconscious to an emergency room in which doctors don’t have immediate access to your medical records, how could an AI-based system autonomously determine whether to provide them?

“We’re trying to figure out how we would handle and execute such unknowables in the future,” she says.

**MIMICKING NEURAL NETWORKS**

Mohammed Zaki, professor of computer science and a project lead on the HEALS team, is also hoping to imbue AI with greater flexibility through associative memory, in which a network of artificial neurons or a neural network stores interconnected facts and relationships for later recall with partial cues. Neural networks are computational constructs that mimic the web of interconnected neurons found in biological brains. The idea of neural networks was conceived long before technology was up to the task, and Zaki says the concept is now experiencing a resurgence.

If you wanted to look up Mohammed Zaki, but misspelled his name, for instance, a computer might not find him.

“Computers basically store and retrieve data from databases—cells, columns, and rows,” he says. “And we retrieve it using a structured query. But we can only return exactly what we’re looking for. And if you don’t know what you’re looking for, or if the data gets corrupted, then it’s pretty much useless.”

“Humans, however, are very good at what we call ‘associative recall,’” Zaki adds. “You think of one thing and it triggers a memory. One piece triggers another, and humans can trigger a pathway from a small part to a whole, and from one aspect to all sorts of unexpected associations. Our computer systems are unable to tackle this kind of retrieval.”

Neural networks are commonly known for their success in pattern recognition. When you hear about computers being “trained” to recognize faces, or speech, or tumors, chances are neural networks are involved.

Using a technique called deep learning, artificial neural networks can extract and cluster the relevant features of the input they are being trained to recognize. So, how would this work if you were still trying but struggling to look up “Mohammed Zaki”? To begin, he wants to encode simple associations into the network—Mohammed, Zaki, Rensselaer, professor, computer science.

To do this without changing the simplicity of artificial neurons, Zaki must make it possible for the neurons to store data and change how neurons are connected, the weights between them, and the levels of layers used to process a query, from granular to abstract.

The computer would now contain a network of features that define “Zaki,” a network that could be retrieved with a variation on the theme, and potentially retrieve other webs connected to the theme. Due to the “memory” being distributed throughout the neural network, we can still retrieve relevant facts even if parts of the network get damaged.

Such capability would be a potent tool in health care, which is his principal application. And a system that begins to have a representation of “Zaki” may also have the capacity to develop representations of abstract concepts that even humans have a hard time defining, such as “justice” and “freedom.”

**IMMERSIVE ENVIRONMENTS**

Major Rensselaer platforms and centers, such as CISL, are enabling researchers to combine advances in artificial intelligence and cognitive computing, using sensor- and actuator-rich immersive technologies.

“The goal is to vastly improve group decision-making—in many different fields,” says Hui Su, who leads CISL.

CISL bridges human perception with intelligent systems in an immersive, interactive setting—enabling environments such as a cognitive design studio, boardroom, medical diagnosis room, or classroom.

The lab supports the groundbreaking Mandarin Project, the first of many “Situations Rooms” to be developed that uses mixed reality and immersion, as well as a semester-long multiplayer game, to teach Mandarin Chinese.

PAGI World (“pay-guy”), which stands for Psychometric Artificial General Intelligence World, is another simulation platform, which allows AI researchers and students to test out their
ideas on a wide variety of tasks, and also to create their own tasks, in a real-time environment with realistic physics.

Many real-world elements have been created within this platform that don’t exist in other simulation environments, such as those based on water/fluid dynamics and vision. The program also allows AI agents to be written in virtually any programming language.

Another contributor includes the Collaborative Research Augmented Immersive Virtual Environment Laboratory, or CRAIVE-Lab, headed by Jonas Braasch, professor of architecture and expert in architectural acoustics. It already is being used by architecture students for human-scale group design.

To further support discussions among small groups of people, Senior Research Engineer Eric Ameres of EMPAC has developed something called Campfire—a virtual firepit that serves as an interactive interface for visual information, representation, and collaborative analysis.

Hui Su

“...humans can trigger a pathway from a small part to a whole, and from one aspect to all sorts of unexpected associations. Our computer systems are unable to tackle this kind of retrieval.”

— MOHAMMED ZAKI

LANGUAGE MODELS

Such cyber-physical interactions require a laborious handcrafting of the topics and the language model. Hendler has joined forces with Heng Ji, the Edward P. Hamilton Development Chair Professor, and Mei Si, associate professor of cognitive science, to tackle this area.

The idea is to automate the creation of cognitive agents able to use “living information extraction,” which will, among other things, pull information from the Web about entities and events, analyze the relationships between them, decide what is interesting about them, and use storytelling techniques to present the information to the user.

Deborah McGuinness, Tetherless World Senior Constellation Professor, who plays an integral role in Rensselaer IDEA research, is also a leading expert in machine knowledge representation and reasoning languages, which are cornerstones in the development of the Internet of Things (IoT).

AI is crucial in the development of the IoT; a wireless infrastructure that connects devices and systems, from our phones and kitchen appliances to roads, vehicles, and the electric grid, to obtain and share data, adapting to changing conditions along the way.

McGuinness is developing knowledge bases of both metadata and data for initiatives such as the National Science Foundation’s Ontology-Enabled Polymer Nanocomposite Open Community Data Resource and previously for the Jefferson Project at Lake George. Metadata, essential for realizing the big data potential in IoT, interpret, integrate, and determine relationships among all the basic data generated from research at various times and locations. Data resource websites allow users to share and reuse the data across applications, enterprises, and community boundaries.

McGuinness is one of the founders of an emerging area of semantic eScience—introducing encoded meaning, or semantics, to virtual science environments. Within this intersection of artificial intelligence and eScience, she incorporates semantic technologies in a range of health and environmental applications.

In one epidemiology project, McGuinness is leading the data science efforts of the Child Health Exposure Analysis Repository in collaboration with the Icahn School of Medicine at Mount Sinai to advance the understanding of environmental exposure on children’s health and development.

The data center is one of three components funded by the Children’s Health Environmental Assessment Resource (CHEAR), a program established by the National Institute of Environmental Health Sciences.

A large part of her role is to develop foundation and methodologies for combining data from a wide range of environmental health studies. These methodologies include creating precise vocabularies and ontologies for use in integrating the data and ontology-enabled services.

Ontologies define a set of concepts and the relationships among them. For example, the term “infant” is not defined the same as “child,” but could be considered a subclass of “child.” The same holds true for different types of interrelated chemicals. These ontologies will be essential to creating the smart search and browsing capabilities that scientists in the CHEAR program will have access to.
The same ontology-enabled data service approach is being developed by McGuinness’ team along with materials scientists for the nanocomposite data community and now has expanded to include additional types of materials with a new award for meta materials as part of the NSF Harnessing the Data Revolution program.

REINFORCEMENT LEARNING
In 2016, an artificial intelligence company developed a computer program that was able to beat a human grand master in the abstract strategy game of Go. It did this by combining neural networks and “reinforcement learning,” an approach that mimics how biological systems learn from their past experience in order to improve behavior.

A similar system was able to learn to play a suite of classic Atari 2600 video games. While it excelled at some games, it was bad at others. It could dominate in Pong, for example, but could be outperformed by even novice human players in Ms. Pac-Man.

What accounts for this mixed bag? According to Chris Sims, assistant professor of cognitive science, what is missing is a computational theory of generalization that can guide us in building AI systems that learn better from their past experience.

“While neural networks and reinforcement learning are able to show some forms of generalization, we don’t really have a deep scientific basis for understanding how past experience should extrapolate to new situations,” he says.

In a 2018 paper in Science, Sims took a step toward solving this problem by bridging two disparate fields: Information Theory, a branch of mathematics that underlies modern communications technology by making it possible to predict the best possible performance of an artificial communication system given the limits of the system, and the Universal Law of Generalization, a canonical law of cognitive science that describes the likelihood that a biological system will extend a past experience to new stimulus.

By combining these two approaches, Sims developed a computational theory of how intelligent systems should generalize. His work successfully explained a wide range of classic psychology experiments on human generalization. The goal now is to turn this same approach toward improving the generalization abilities of AI.

Exploiting the bridge he discovered, Sims is developing new reinforcement learning algorithms to reflect theories of biologically inspired generalization. In a small-scale demonstration, Sims trained an AI system to navigate a “grid world”—the digital equivalent of a mouse running a maze in order to find a piece of cheese.

After training the artificial agent, he changed the maze by adding or moving walls. Solving the modified maze requires a basic form of generalization, because previous routes to the goal might now be blocked. Sims showed that his new algorithms were able to generalize better compared to standard approaches to reinforcement learning. His work provides a theoretical understanding of how and why the systems were able to better extend their past experience to new environments.

He’s currently working on scaling this work up to larger and larger domains, such as the suite of Atari video games that has proven so challenging for past AI systems.

“AI and cognitive science have a long history of leapfrogging each other,” Sims says. “Sometimes advances in understanding biological intelligence drive progress in building smarter machines, and sometimes it goes the other way. The key to progress,” he says, “is the ability to recognize, and combine, good ideas from across widely different fields.”
A boundary-breaking student-run club is preparing future generations of computer scientists.

{By Regina Stracqualursi}

Gonzalez recalls the moment that changed her life forever and sparked her desire to create more diversity in the computer science industry, a moment that came when she was only a sophomore in high school. That defining moment was the day her robotics teacher pulled her aside and encouraged her to apply for a Girls Who Code program. Girls Who Code, an organization dedicated to growing the number of women in computer science, provides a variety of opportunities for young women to learn computer science including clubs, coding courses, and summer programs. Up until this moment, Gonzalez had never thought that coding, something that seemed like a fun hobby, could transform into an empowering and rewarding career. Her initial reaction is indicative of the significant gender gap that exists in the computer science industry, and Girls Who Code leaders work every day to reverse the ongoing decline in female computer scientists.

After she was accepted to a Girls Who Code summer immersion program, Gonzalez spent seven weeks learning about computer science, working on coding projects, listening to guest speakers, and visiting some of the most thriving tech companies in Silicon Valley, such as Facebook and Google. After those seven weeks, Gonzalez knew not only that she wanted to pursue a STEM degree as a computer science major but also that she wanted to continue to advocate for more diversity and representation in the field.

“I really fell in love with the program and its mission. I liked that they were advocating for so many people,” says Gonzalez. “Their emphasis was on women, but I think there needs to be a stronger emphasis on all underrepresented groups.” Gonzalez went on to found a Girls Who Code club at her high school in San Ramon, California.

One year later and nearly 3,000 miles away in the small city of Ogdensburg, New York, Natalee Ryan was anxiously preparing for her first year away at college. After participating in PREFACE, a two-week summer program in which underrepresented students learn about technological professions, she knew that Rensselaer Polytechnic Institute was a place where she could be passionate about technology. Ryan's defining moment came when she received an email from a friend who’d remembered her interest in computers. The email invited those who enjoy working with technology to
“...a student-run club with a mission to close the disparities in educational opportunities, specifically in computer science education, related to race, ethnicity, gender, and socioeconomic status.”

Wondering about the club’s name?
In coding, curly brackets are used to show a grouping of code into a block and a double ampersand is the logical operation for “and,” indicating that both “coding” and “community” have to be included.
apply for Google’s Computer Science Summer Institute, a coding boot camp for underrepresented students about to embark on their collegiate journeys.

After being accepted into the program, Ryan spent three weeks of her summer vacation at the Google Cambridge Campus, where she learned the fundamentals of computer science and what a career in computer science might look like. She fell in love with the discipline and decided to pursue it over her originally declared major, biomedical engineering. “I went home and started learning as much as I could about computer science before coming to RPI,” she says.

Connecting on Coding
Paths crossed for Gonzalez and Ryan the second semester of freshman year when they both enrolled in Arts, Community, and Technology, a course that examines the intersection between art, education, and technology. The students were tasked with a semester-long project that needed to address art and technology, be interdisciplinary, and benefit the Troy community. Gonzalez, who had already been trying to start a club similar to Girls Who Code, saw this as the perfect opportunity to advance her vision. Ryan felt a personal connection to the cause and was eager to join forces with Gonzalez.

“We both had the past experience of having the community passionate about helping us succeed, so we wanted to do the same thing,” Ryan says. The two women spent the remainder of the semester attending meetings with student leaders and administrators, drafting and finalizing their club's constitution, and recruiting club members. As the semester progressed, their dream finally turned into a reality.

In spring of 2017, coding&&community launched as a student-run club with a mission “to close the disparities in educational opportunities, specifically in computer science education, related to race, ethnicity, gender, and socioeconomic status.” The club strives to accomplish its mission by hosting classes each semester and hackathons, workshops, and other events each academic year, all at no cost to students and their families. In fall of 2017, the club began teaching classes every Saturday to students participating in the New York State Science and Technology Entry Program (STEP), a program funded by the New York State Education Department to prepare disadvantaged and underrepresented students for scientific, technical, and health-related fields.

Coding&&community’s addition to this program has opened up the world of computer science to secondary school students across the New York Capital Region. “We strongly believe that you cannot be what you cannot see, so we want to be that presence for our students,” says Gonzalez. “We all deserve the opportunity to have a seat at the table.”

The club gives underrepresented students a brighter future by not only exposing them to computer science and computational thinking, but also providing them with the vital skills needed to succeed in college, their careers, and society. Each Saturday class begins with an hour enrichment session, where coding&&community members lead activities to enhance students’ public speaking, critical thinking, and other essential skills. The remaining two hours focus on a computer science lesson during which students are exposed to a variety of in-demand programming languages such as Python, HTML, CSS, and JavaScript, and introduced to platforms such as Sonic Pi, GitHub, and Arduino. “Our goal is not to make all students computer science majors. We want to show them what they are able to do with technology and what types of opportunities are out there for them,” says Gonzalez.

While a typical classroom has one teacher among many students, coding&&community maintains a ratio of at least one instructor for every two students, with one main instructor leading each class. “The number of instructors we have is actually the biggest advantage we have,” says Ethan Graf, vice president of the club for the 2018-2019 academic year. “We’re able to give one-on-one time to every single student, every single day.”

As soon as the lead instructor finishes introducing an activity, students find coding&&community instructors sitting right beside them. The instructors, ready to support and guide the students as they complete a practice exercise, have one important rule to follow—don’t touch the keyboard. “They’re not there to code
“We all deserve the opportunity to have a seat at the table.”

{Milena Gonzalez}

{350+} Total Youth Served

{1:1} Average Student-to-Instructor Ratio

{~25} Active Club Members
"You can’t create something that works for everyone if everyone is not involved..."

{Natalee Ryan}
for them,” says Grace Roller, the club’s current president. “They’re there to provide support and help them through any hurdles they are facing.” The goal is that by working on these activities with coding&community instructor support, the students will walk away from the classes confident in their abilities, with a physical portfolio of the work they’ve completed.

When the coding&community team first set out on their mission, they quickly experienced firsthand the barriers students face that stand in the way of technological career paths. The student leaders, who had mentally prepared for all the challenges they might face in the classroom, were surprised when the biggest hurdle for students wasn’t comprehending the logic associated with computer science but instead, was finding the semicolon on the keyboard. “We learned that it’s not just that students don’t have exposure to computer science, it’s that some don’t even have exposure to computers,” says Graf. “You can’t be expected to learn to program if you don’t have the opportunity to first learn how to type effectively.”

Gaps in Computer Science
As they reflect on their personal experiences in computer science education, Gonzalez and Ryan remember knowing which of their classmates had prior exposure to the discipline and which did not, based on their behavior in the classroom. As they watched once overfilled lecture halls empty as peers dropped the major, it was many of the students who had no pre-collegiate exposure to computer science that were ill-prepared for the intensity of the field and the depth of the material. Gonzalez, who is reminded of the gap in computer science every day as the only woman and minority in many of her classes, knows how discouraging it can be to not see role models with similar backgrounds finding success in the field.

“We need to keep breaking that glass ceiling to make sure that the next generation of computer scientists represents more inclusion and diversity,” she says. “We want our students to have a seat at that table.”

In telling the alarming story of an automatic soap dispenser released to market that only worked for light skin tones, anger fills Gonzalez’s eyes. Aside from computer science having a strong job market and vast career opportunities that many students miss out on due to barriers beyond their control, the lack of women and minorities in the field poses challenges in further developing the technology that impacts everyday life. In order for new technology to be successful, it must be accessible and provide an intuitive, seamless experience for all groups of people who are using it.

“You can’t create something that works for everyone if everyone is not involved,” says Ryan. “You have to have everyone’s perspectives involved from the start.”

Throughout the past two years, coding&community has grown from five club members to nearly 25. The club serves roughly 15 students every Saturday and up to 80 at one-day events and workshops. What started as one course on Saturday mornings has now grown to two, one for beginners and one for students with prior experience.

However, coding&community’s work is not yet finished; the student leaders have big visions for what their club can evolve to be and how many students they can serve. Currently, the club is working to host a Girls Who Code after-school program at Capital Region middle schools and high schools, as well as create professional development workshops for teachers interested in bringing the world of computer science into their classrooms.

With class size limited to the number of computers they have access to and a pledge to keep all services free of charge, coding&community members are constantly recruiting company sponsors, applying for scholarships, and volunteering with other organizations on campus in order to secure funds for additional laptops for the club. They hope that with newer laptops and updated software, they can one day introduce students to advanced topics such as application development, game development, augmented reality, and virtual reality.

As Gonzalez, Ryan, and many of the other club leaders get closer to the end of their journey at Rensselaer, they place a strong focus on knowledge transfer and are giving younger club members the opportunity to work in leadership positions to ensure that the club’s mission lives on long after their graduation.

“I am confident that this club will surpass me and go on to reach many more students than I ever could have imagined,” says Gonzalez.
Researchers are integrating innovative technologies to create next-level processes and lead in the acceleration of the manufacturing sector.
ADVANCING
MANUFACTURING

BY JANE GOTTLIEB
JOHN WEN is excited by the prospect of using robots to monitor illness and help disabled individuals with household chores.

“I’m thinking about a home assistant you could ask to get something from the fridge or put in the microwave, to give people a level of independence,” explains Wen, the Russell Sage Professor, who heads the Department of Electrical, Computer, and Systems Engineering. “And I think some form of this is even possible in five to 10 years.”

Sam Chiappone ’99 is inspired by the students who go on to influence the way our products, tools, and technology are made.

“We’re not just teaching somebody ‘this is what manufacturing is.’ We teach them lessons they use to work for Regeneron, Apple, or wherever they go,” says Chiappone, director of manufacturing innovation at the School of Engineering.

Steve Rock is eager to see New York industry benefit from the new generation of lightweight parts that can be 3D printed in small quantity.

“I’m really interested in how digital information can drive the manufacturing process, to make complex components better, faster, at a reduced cost,” says Rock, M.S. ’91, Ph.D. ’00, director of digital manufacturing at the Rensselaer Center for Automation Technologies and Systems (CATS).

And Morgan Locandro ’20 wants nothing more than to see her work launched into space.

“I’d love to see the parts I’ve been working on used in space satellites,” explains Locandro, a Rensselaer junior majoring in mechanical engineering, who does actually work on space satellites as an intern with NASA’s Jet Propulsion Laboratory.

All are driven by the legacy and future of manufacturing.

A devotion to innovating how a wide variety of materials are made permeates the culture at Rensselaer—from the highest-level research in biomedicine, data analytics, materials science, robotics, nanoscience, and smart manufacturing, to the instrument-filled labs where products and processes are formulated.

Advanced manufacturing—rapidly applying the newest technologies of science to produce goods—encompasses dozens of Rensselaer departments, programs, and research centers. The goals are just as broad: help companies become more competitive, extend our reach into space, fight disease at home, and make life easier for individuals with disabilities.
And students at all levels make things. “Our students are not going to go on to run the machines,” explains Chiappone, who has supervised scores of student manufacturing projects in 38 years at Rensselaer. “They’ll be the ones to design the process, do the research into new processes, and figure out ‘How do I take this idea and make it a reality? How do I manage people?’ They need to understand how it’s done. They might be in charge of a whole company, or starting a new one.”

NO LONGER DULL, DIRTY, OR DANGEROUS

The Manufacturing Innovation Learning Laboratory (MILL) at Rensselaer is among the collection of spaces in the George M. Low Center for Industrial Innovation (CII) where products are made and processes tested. One morning last fall, a team of students in Chiappone’s Manufacturing Processes and Systems class met to discuss their challenge: a six-by-nine-inch plastic pinball machine that needed to be produced the following semester.

“It’ll work! It’ll work!” said Benjamin Spooner, a senior majoring in mechanical engineering, studying the design on his laptop, as teammates added input.

Getting this far had meant using computer-aided design to come up with a concept and simulate it, developing a budget, a project management plan, and supporting documentation, all while making modifications.

They would later input the information into a computer numerical control machine, which “tells” the printer—a machine housing a vise, laser, reamer, and drills—to create a metal mold of the pinball machine components. The mold would go into a machine that injects it with plastic to make the game parts.

If all went well, the digital data and age-old tools would produce 400 miniature, perfectly functioning, games.

“There are a lot of parts. The first design was more elaborate. We learned how to simplify how we made it,” noted Rachel Stagnitti, a senior majoring in mechanical engineering.

A hundred years ago, production of basic machine tools transformed society. Manufacturing entailed lines of workers doing repetitive tasks, often in dangerous conditions. Factory work faded as operations moved offshore. But in the past 20 years, Chiappone has seen something of a rebirth. Computers, often programmed remotely, have increasingly taken on the job of running the machines.

Today, much of manufacturing happens in clean, often quiet, settings like the MILL. Factory work means understanding datasets, cloud computing, and simulation. Engineers seek control at all phases.

Researchers across campus leverage funding from the National Science Foundation, NASA, the Department of Defense, the Department of Energy, the National Cancer Institute, and Empire State Development’s Division of Science, Technology and Innovation. They partner with other leading universities and they collaborate with large companies like GE and Boeing, as well as many small businesses.

But the school is perhaps most distinctive for the opportunity it gives students to experience, and even influence, the field.

Undergraduate and graduate students assist with grant-funded research, work with industry, and take part in internships and co-ops, as well as manufacturing-themed competitions and clubs. Rensselaer recently won state approval to offer a graduate certificate focused on advanced manufacturing.
“Things should be done in unison,” Chiappone explains. “We shouldn’t have a designer just do his design and give it to someone who says, ‘we can’t make that.’ If the design-build is done together, we’re prototyping what we’ve created together. We simulate before committing.”

AngioDynamics, Boeing, GE Global Research, and other companies support the MILL in hopes of cultivating new talent.

“They’re looking for engineers with an understanding of basic processes, coupled with skills in digital manufacturing, process simulation, and an integration of augmented reality and virtual reality technologies in manufacturing, all to gain efficiencies related to production,” Chiappone says.

ADVANCED MANUFACTURING ADVANCED

As it stands, the Manufacturing Institute projects a two-million worker shortage by 2025. Not only are baby boomers retiring, but there are not enough qualified science, technology, engineering, and math students coming out of colleges and universities.

In response, companies are investing in K-12 STEM education and training community college students in the jobs they most need. They offer wage incentives and on-site daycare for employees who relocate.

Rensselaer is among the universities playing an aggressive role in strengthening the manufacturing sector. Across campus, research scientists do everything from developing nano-engineered materials to training massive robots. It would be challenging to list all the stakeholders devoted in part or fully to advanced manufacturing.

Among them, the Scientific Computation Research Center simulates physical, chemical, and biological systems to foster product design and process optimization. The Center for Biotechnology and Interdisciplinary Studies experiments with pharmaceutical agents to create disease-fighting drugs. The Center for Lighting Enabled Systems & Applications studies the design, manufacturing, and impact of LED systems.

Faculty in business, economics, cognitive science, architecture, and the humanities, meanwhile, tackle problems of efficiency, supply chain, fault detection and mitigation, facility design, and the intrinsic human variables.

In addition, Rensselaer actively boosts New York industry. The CATS, which opened in 1989, for example, is one of 15 centers designated by the New York State Foundation for Science, Technology and Innovation to work with client companies. The Rensselaer Center for Future Energy Systems is another.

And when President Barack Obama created the blockbuster Manufacturing USA initiative, Rensselaer was ready.

Funded by government and industry, the initiative links early research to product design through 14 research institutes. Rensselaer plays an active role in three: the Advanced Robotics for Manufacturing Institute, the National Institute for Innovation in Manufacturing Biopharmaceuticals, and the Smart Manufacturing Innovation Institute.

Like a huge tree with countless branches, these institutes have spawned still more partnerships and regional hubs, putting millions of dollars into advanced manufacturing. Rensselaer’s efforts have already produced results.

As a regional leader in the Smart Manufacturing Innovation Institute, for example, Rensselaer was tapped to launch a chip manufacturing center at GlobalFoundries, in Saratoga County, to test software and train future semiconductor workers. Researchers devoted to next-generation robots were also ready to leverage the new opportunities.

ROBOTS THAT COLLABORATE

In a caged manufacturing test facility in the CII, a hulking orange robot located a large composite panel, moved it across the tight space, and placed it down within a millimeter of another piece. The panels lined up perfectly. Guided by sensors and cameras, the robot did this repeatedly.

“It took about a minute for the image processing, motion planning, and motion execution,” says John Wen, who spends much of his time devising algorithms to get robots to take on human tasks. “We’d like to speed it up.”

If robots can maneuver panels and similar items, he reasons, wind turbine blades and other large structures can be built in segments and assembled more efficiently in the factory. This will
Today, much of manufacturing happens in clean, often quiet, settings like the **MILL**. Factory work means understanding datasets, cloud computing, and simulation. Engineers seek control at all phases.

significantly reduce cycle time, minimize human labor, improve quality, and make wind turbine blades and other components more cost effective.

This project, a collaboration with GE, is funded through the Advanced Robotics for Manufacturing Institute (ARM). It has been less than two years since the federal government named Rensselaer a founding ARM member. But Wen's team is now just months from submitting results. These will be shared with other ARM members, and the open source software made available to the public.

“GE will evaluate it and decide whether to take it to the factory level,” he explains.

Robots have worked American assembly lines for at least 50 years, says Wen. Today, they build most car exteriors. The interiors, however, like so many functions, still demand the visual acuity and dexterity of humans.

He and his Rensselaer colleagues see robots becoming intelligent collaborators, like the orange device moving panels, thanks to sensors, cameras, and advanced computation. The ARM initiative also wants robots scaled, and priced, for small companies.

“Small businesses still do a lot of work by hand and invest a lot of time and money to trick out a problem or rely on the one person who is computer savvy,” he explains. “How do you make a robot truly plug and play? How do you train the workforce to see that robots will free humans up to pursue other things?”

In a nearby lab, a student at a computer works on a NASA-funded project to get robots to capture space satellites for refueling. Students also work here with Baxter robots, the human-friendly devices with arms. Outfitted with wheelchair wheels, the so-called Baxter on Wheels has even retrieved a water bottle off a shelf and fetched an item from the fridge.

Wen envisions robots that bring an elderly person food, remind her to take medicine, and even monitor congestive heart failure and other medical conditions. The barriers are significant—and include teaching robots to respond, say, to a person with dementia.

But he is quick to note that it wasn’t long ago that simply installing a home computer was a feat.

“Making an impact in society is in Rensselaer’s culture,” he points out. “Our founding principle from 200 years ago included ‘applying science to the common purposes of life.’”

**ADDING LAYERS TO THE EQUATION**

Manufacturing has long relied on churning out as many can openers or door knobs as fast as possible. Today, though mass production remains the norm, Rensselaer researchers see promise in producing less of something.

“Automation does the same thing over and over. But there’s also automation that is highly programmable and can be used to tailor the manufacturing process to each unique set of customer wants,” says Steve Rock of the CATS. “The question is, how do you get hard tooling out of the process and gain flexibility?”

In a departure from the traditional practice of creating a can opener or soap dish from a larger chunk of metal or plastic, Rock’s lab builds highly
specialized parts layer by layer. Additive manufacturing, as it is known, uses thousands of thin layers of metal or plastic powder that are shaped by digital information and a powerful laser.

As a result, Rock notes, parts that formerly required dozens or even hundreds of other parts to produce can be made as a single piece. They can be produced one at a time and evaluated. Additive parts not only reduce waste, but are lighter, adding up to significant cost savings for aerospace and other industries. Using additive manufacturing, the CATS has helped New York companies create 376 jobs and retain 374 more in the past decade.

Other Rensselaer researchers also rely on this customized manufacturing. Biomedical engineers, for example, use the additive process to print living cells and create precise 3D tumor models. Among the goals: examine the disease of an individual patient.

Rensselaer and Albany Medical Center are now using a $3.7 million National Cancer Institute grant to develop breast tumor models that capture cellular complexity and new imaging techniques that can show how drugs interact with the cells.

Associate Professor of Biomedical Engineering David Corr, one of the principal investigators, hopes to minimize the variability that makes cancer research daunting.

“If the same tumor cells are implanted into 10 mice, you could get 10 unique tumors,” he explains. “Even people with the same cancers respond differently to the same drug. We want to create patient-specific models that capture important 3D biologic complexities, and do so in a controlled and reproducible manner. This can ultimately lead to tailored diagnostic tests to determine which treatment holds the most promise for a given patient.”

While Rock makes tools that build aircraft and Corr makes human tissue, their work is surprisingly similar.

“Most people probably picture manufacturing as welding robots on assembly lines,” Corr says. “They’d be surprised that manufacturing can also involve automated cell printing and tissue engineering. This is really straight-up additive manufacturing—we use a CAD/CAM-based process to print materials. The only difference is that we are printing living biologics.”

THE NEXT LEADERS

Morgan Locandro lost little time finding the additive lab after arriving at Rensselaer as a freshman. She landed an undergraduate research grant to work there, and has been helping build and improve the lab’s metal additive printer ever since.

“I designed a magnetically coupled actuator to spread metal powder back
MORGAN LOCANDRO ’20
wants nothing more than to see her work launched into space.

and forth for each layer of printing, while holding a vacuum seal,” says Locandro, now a junior, pointing out hardware in a chamber roughly the size of a stackable washer-dryer packed with gears, wires, and tubes. “My design was able to transfer the motor’s torque into a sealed chamber, while maintaining vacuum.”

Rensselaer students have, in fact, designed many components of the three-dimensional printer and made improvements to the open source software that drives the system. “At a lot of schools it might take a few years before you’d be able to utilize all that you’ve learned,” says Locandro, who like other student researchers in the additive lab does classwork here when she’s not clocking hours.

It would be difficult for students interested in manufacturing to avoid the opportunities available. When students are not in classes, or taking part in internships and undergraduate research, they might engage in robotics competitions and spark their interest at campus manufacturing forums and events. There are even manufacturing-themed clubs such as The Forge, where a community of students work on class projects and simply share their interest in designing and manufacturing things.

For Locandro, the array of experiences at Rensselaer has made all the difference. “At a lot of schools it might take a few years before you’d be able to utilize all that you’ve learned,” says Locandro, who like other student researchers in the additive lab does classwork here when she’s not clocking hours.

There, Locandro wrote programs to test the torque and speed needed on the actuators of three satellites scheduled to launch in 2020. From the beginning, she says she felt confident in her abilities, thanks to “the numbers-crunching aspect” and hands-on opportunities she has at Rensselaer.

“The experience I gained here put me a step ahead of the game since I was already well-versed in many common engineering programs and practices,” says Locandro, who has been invited back to Pasadena for the summer. “I got to jump straight into the technical work. I took all the little things I’ve been learning all the way and brought them to NASA,” she says.

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FOOD for Thought

Rensselaer Dining Services has transformed campus dining, with an emphasis on healthy options and sustainability.

By Tracey Leibach
On a cold November morning, the line for the omelet station at the Commons Dining Hall is by far the longest. Members of the men’s lacrosse team have just finished practice and are lining up for replenishment.

Freshman Ricky Bokavich ’22 places his order for an omelet with ham, sausage, mushrooms, spinach, cheese, and onions. “I really like the omelet station—it’s one thing that’s always better than everything else. They have a pretty good variety,” he says.

“The students definitely have moved healthier,” says David Wilkerson, lead daytime lunch cook, who has been at Rensselaer for three years. “They ask for more grain dishes and salad dishes; overall, just more variety. We always have at least one gluten-free option and a vegan or vegetarian offering.”

“Variety” is a common theme for dining options on campus, as students, faculty, and staff have become increasingly focused on what they are eating. Nutrition plays a big factor in their food choices, and sustainability is a major concern.

“With such a broad range of diversity here at RPI, the tastes that the students bring are so eclectic,” says Aaron Pouliot, Rensselaer Dining Services’ new campus executive chef. “The students are educated in food and they are not afraid to try new things. They have a strong global palate. They want authentic cuisine, and I am hoping to bring that to the operation.”

“RPI is such a diverse campus,” says Mollie August, marketing coordinator for Rensselaer Dining Services. “There’s a stigma that college kids just want burgers and fries, but at Rensselaer that is not the case. They are looking for variety and customization.”

STIRRING THINGS UP

Rensselaer’s dining options have undergone a major transformation in the last decade, driven in large part by student demand. Students are surveyed yearly about their dining preferences.

In recent years, Rensselaer Dining Services has refreshed and updated the dining locations across campus, adding additional serving and seating options in the major dining halls, extending the hours of operation, expanding offerings in the retail locations, and increasing the choices for grab-and-go meals.

The campus is home to four dining halls and 12 retail locations, including a new full-service Panera located in the Student Union.

“The Commons Dining Hall on Freshman Hill is open until 9 p.m. daily (weekends are most popular). The dining hall in the Burdett Avenue Residence Hall (BARH), located near the East Campus Athletic Village, now stays open until 9 p.m. to better accommodate athletes’ schedules. Before the time change, athletes had to choose between showering after practice or eating dinner before the dining hall closed.

In addition to Panera, one of the first to be operated fully by a university, the Student Union features the wildly popular Thunder Mountain Curry, alongside Collar City Grill, Cusato’s Pizza, and the new Halal Shack, which offers what is known as “American Halal,” an amalgam of Mediterranean flavors, savory Middle Eastern spices, and classic American style. Rensselaer is also home to the first Moe’s Southwest Grill on a university campus, thanks to student demand.

At the Commons and Russell Sage, the two largest dining halls on campus, students can make a one-time purchase of a reusable to-go container that they can fill with whatever the dining hall is offering that day. They can bring the box back and exchange it for a new one as many times as they want.

And the BARH dining hall has transitioned to performance-based menus. “The menus are focused on foods that enhance optimal athletic and mental performance—things like lean proteins, whole grains, steamed vegetables, and cauliflower and whole wheat crust pizzas,” says Kimberly Mayer, registered dietitian-nutritionist and dietitian for Rensselaer Dining Services. “We want to provide the food that athletes and students need to fuel their bodies and minds to keep them at the top of their game.”

“The students definitely have moved healthier. They ask for more grain dishes and salad dishes; overall, just more variety. We always have at least one gluten-free option and a vegan or vegetarian offering.”

DAVID WILKERSON
Last fall, more than 1,800 new students joined Rensselaer—the largest class yet. To accommodate Rensselaer’s growing student body, both the Commons and Russell Sage will be expanded in the coming year to add room for more seating and serving space. Russell Sage will gain 160 additional seats, while the Commons will add seating for 200 and will be transformed into a restaurant-style location, where every station will have its own restaurant concept.

HEALTHY CHOICES

Health and nutrition are significant priorities for Rensselaer Dining Services, and the Institute has made a special effort to meet the needs of students with food allergies. Mayer was honored by AllerTrain with its 2018 Best Food Allergy Innovations for Universities award. This training organization, which promotes best practices for university food allergy and gluten-free food management, recognized Mayer for going above and beyond in providing new ways to cater to students with food allergies and special diets. In addition to introducing Rensselaer as the first campus in New York to stock epinephrine in the dining halls, Mayer facilitated the first “entity” course to train staff on a college campus.

“We want these issues top of mind for everyone on staff. It’s something we have to stay in front of,” she says. Since coming to Rensselaer in 2014, she has led a number of food-allergy initiatives to ensure that every student with food allergies or intolerances, celiac disease, or other special diets has access to food that is safe, healthy, and tasty.

Vegan diets are also gaining in popularity, “so we’re offering more plant-based menu items,” she says. “Hummus, falafel, tempeh, tofu, and edamame are big sellers.”

Rensselaer was the first university in the nation to offer “My Zone,” a secured, gluten-free, peanut- and tree-nut-free “kitchen pantry” in the dining halls where students access a room with a special ID. Inside, they can get fresh meals, bread, wraps, frozen items, and snacks that are free of the most common allergens.

Additionally, a purple, color-coded kitchenware system has been implemented in campus dining locations to prevent cross contact with common food allergens. To make life easier for those with peanut and tree-nut allergies, Rensselaer Dining Services no longer cooks with peanuts or tree nuts in any of the four dining halls on campus.

At the “Simple Servings” food stations, students can select ingredients that are free of seven of the eight most common food allergens. The station occasionally serves fin fish. The server who works the station is AllerTrain-certified in food allergies and serves each meal to prevent cross contact.

KEEPING IT GREEN

It’s no surprise that a commitment to sustainability practices has inspired many of the changes at Rensselaer. The university has put into place a number of sustainable initiatives and programs across the campus, and Rensselaer Dining Services is no exception.

Tray-less dining service was introduced four years ago, helping to minimize water and energy usage, while creating a more sustainable food service. It also has resulted in much less food waste.

Working with the Student Sustainability Task Force, Rensselaer Dining Services now offers a reusable coffee mug to all incoming freshmen. Whenever possible, food is sourced locally. Recent local partners include Byrne Dairy, Carioto Produce, and Purdy & Sons Meats.

Reducing food waste is also a priority. Leftover unused food is shared with local nonprofits, including Joseph’s House in downtown Troy. The Panera location donates all day-old baked goods to Joseph’s House.

“We place great value on RPI’s food donations, as it’s always fresh and delicious food that our guests enjoy. It helps us feed those that we might not be able to.”

The Dining Services team is aiming for zero waste, utilizing compost, recycling, and donations.
Although Rensselaer Dining Services is taking the lead on the renovations and upgrades, there are a number of clubs focused on food and nutrition, and the Student Senate now has a 10-member Hospitality Services Advisory Committee (HSAC), which surveys students to identify what specific improvements they would like to see.

According to Student Senate member Advaith Narayan ’21, a mechanical engineering major who chairs HSAC, “I joined this committee to increase its impact on the student body and also because campus dining/food was one of the biggest concerns for my constituency.”

One of committee’s new initiatives is a program called Fresh Pantry. “This would work like Blue Apron or Hello Fresh, where students would be able to pick up a pre-proportioned meal that they can then cook at home. We are working closely with Rensselaer Dining Services to figure out the details of what meals we can offer, and we plan to roll out a pilot program next semester,” he says.

The student club Terra Café has been making an impact on campus for more than a dozen years. Now located in Evelyn’s Café in the Curtis R. Priem Experimental Media and Performing Arts Center, Terra Café is a sit-down or take-out restaurant committed to providing locally sourced and organic food to the campus community every Wednesday. The group often partners with Rensselaer Dining Services and other organizations on campus to co-host events. Each week features a new menu with a meat option, vegetarian/vegan option, and dessert with drinks.

Joerene Aviles ’19, a senior biomedical engineering major, is president of Terra Café. “In terms of sustainability, I’ve learned the importance of sourcing local food, to both support the local and state economy and reduce environmental impact, through reduced travel of ingredients,” she says. Her favorite Terra Café lunch is shepherd’s pie, and her favorite vegan dessert is Black Forest cake.

A new Student Union-funded club is the Nutrition Club, founded by Wan Na Chun ’19 and Sydney Noldin ’20, who serve as co-presidents. “Many RPI students are so focused on school and grades that they don’t devote enough time to thinking about nutrition and their well-being,” says Chun, a senior majoring in chemistry. “I believe that with a nutrition club on campus, we will soon see many changes in the health of RPI students.”

So far, the club has co-hosted an event with Terra Café, where members helped serve healthy local food at one of the weekly lunches. They also plan to collaborate with Mayer to host workshops for members covering topics such as how to make different pre- and post-workout meals, Chun says. “Furthermore, we plan on hosting nutrition trivia and tabling in the Union in order to educate people about nutrition.”

“The students at RPI are different than other schools I have worked at or supported,” says Pouliot, who has been a chef since 2005 and who joined Rensselaer last August. “They are a very interesting group of people. They are quiet, and they carry themselves with a good feeling of respect, to themselves and each other, but also to our staff. They seem like school is first; they all seem to have a plan, and will work extremely hard to get to the end goal.”

AARON POULIOT

“The students are educated in food and they are not afraid to try new things. They have a strong global palate. They want authentic cuisine, and I am hoping to bring that to the operation.”

A CHANGING PALATE

Allison Douglas, Class of 2021, is Terra Café’s webmaster.
When the Association of Rensselaer Graduates held its first meeting in 1869, its members had a vision for a strong network of alumni who would support the Institute, assist fellow graduates, and aid current students. The group became today’s Rensselaer Alumni Association (RAA), and as the celebration of the 150th anniversary approaches, the same strong commitment remains to building the Rensselaer network.

Today, there are more than 103,000 living alumni and alumnae around the world. They are in more than 130 countries, and work for more than 13,300 employers. The RAA supports and creates local, national, and virtual programs for current and future alumni and alumnae to support their personal and professional needs, such as:

**Regional Chapters**
More than 30 regional chapters around the world provide programs serving their local areas, bringing the spirit and tradition of Rensselaer to their members. Chapters build a network where alumni and alumnae work and live.

**Investing in Rensselaer’s Future**
Through the creation of the RAA Scholarship Fund and Endowment, the RAA has raised more than $2 million, approximately $1 million for each fund. The RAA Scholarship is awarded to a student who demonstrates financial need and academic excellence. It was first awarded last year to Jocelyn McConnon ’21, and the second recipient, Rafsan Hamid ’22, was named this past fall. The Endowment supports chapter and network activities, and provides an annual Emerging Leader Award given to outstanding sophomore or junior members of the Red & White Student Organization. The 2018 winners were Savannah Crooks ’20, Matthew Beaudoin ’19, and Madeline Montero ’19.

**Student Outreach**
Connecting with future alumni—our current students—has always been a top priority. Programs such as the Navigating Rensselaer & Beyond Welcome Barbecue, where alumni come to campus to welcome new students to Rensselaer, or the Zero Year Reunion, where the graduating class is formally welcomed to the ranks of alumni, allow students to meet alumni and learn about the powerful network they are a part of.

**Career and Professional Services**
The RAA provides access to information and advice for alumni and alumnae at every stage of their careers. The program serves those who are seeking a job, looking to make a career change, or hire within their company. The RAA is also currently in the process of identifying opportunities for alumni and alumnae to serve as advocates and champions of Rensselaer within their corporate organizations in collaboration with Rensselaer’s corporate relations team.

**Join Us!**
These are just a few of the ways your RAA Board is seeking to build connections among alumni, students, and the Institute. Visit the website at alumni.rpi.edu/raa, or reach out to one of your RAA Board Members (listed on the website) for more information on ways to get involved.

Get to Know Your Rensselaer Alumni Association

*A Message from RAA President Kareem Muhammad ’01*
Celebrating Our China Partners

Last fall, President Shirley Ann Jackson, together with Rensselaer Alumni Association (RAA) leadership and members of the faculty, paid a weeklong visit to Shanghai and Hong Kong. The trip was part of an ongoing series of international trips designed to strengthen engagement with alumni and alumnas, build relationships, and forge new partnerships with companies and institutions.

During a series of special events, President Jackson and the Rensselaer team met with more than 125 members of the expanding RAA Shanghai Alumni Chapter, and more than 60 from the RAA Hong Kong chapter.

At Tongji University in Shanghai and the Hong Kong Jockey Club, President Jackson delivered a State of the Institute address, followed by a Global Game Changer Series panel discussion on artificial intelligence, big data, and fintech featuring distinguished alumni and corporate partners from the region.

She also met with leaders from Tongji University and the University of Shanghai for Science and Technology to discuss opportunities to create additional student and faculty exchanges, as well as ways to expand opportunities for students interested in working and studying in China through The Arch program—a central topic discussed throughout the trip.

The successful visit was due in large part to the generous sponsorship support and participation of Rensselaer Trustee Jackson Tai ’72 and David Chi-Hoo Ho ’86, Rensselaer Hong Kong Alumni Chapter president.

In addition to Ho’s commitment to building a vibrant alumni chapter in Hong Kong, his family made a generous commitment to the Rensselaer capital campaign. The David Chi-Hoo Ho ’86 and Liann Ho Endowment for The Arch will help ensure Rensselaer students are able to pursue professional and personal development opportunities that will prepare them to meet the multifaceted challenges of the 21st century.

For more information on the China trip, visit giving.rpi.edu/rensselaer-in-china.

Save the Date!

Reunion & Homecoming Set for September 26-28

Come back to Rensselaer for an immersive campus experience that will demonstrate the exciting paradigm of The New Polytechnic. Join with classmates, teammates, Greek brothers and sisters, family, and friends for what is sure to be an extraordinary weekend. Rensselaer is especially excited to welcome back the Class of 1969, who will celebrate their 50th Reunion.

The weekend will feature academic programs such as seminars, tours, and research presentations that will showcase how our faculty and students collaborate to address today’s complex global challenges. You can also enjoy student performances, RPI football, and more.

Reunion & Homecoming is for all alumni and alumnas, but of special note are the classes ending in 4 or 9, who will celebrate milestone reunions in 2019. Special thanks to the 2018 Reunion classes, who, together, raised more than $22 million toward the Rensselaer Annual Fund and Transformative: Campaign for Global Change.

Visit alumni.rpi.edu/reunion for hotel listings, volunteer opportunities, a preliminary schedule, and to tell your friends if you plan to be there!

RAA Awards Nominations

Do you know alumni/ae whose volunteer work for Rensselaer is worthy of recognition?
Nominate them for an RAA award at alumni.rpi.edu/RAAawards. Nominations are due May 9, 2019.
This past year marked the 30th anniversary of Rensselaer magazine’s class correspondents program. Starting in 1988, alumni celebrating their Reunion year signed on to write their class columns. Today, nearly 70 class correspondents, who are located around the country and the world, work to keep classmates in touch with each other and the Institute. The notes refresh memories and friendships and, as Frank Griggs ’56 wrote, “It is this kind of rekindling of old friendships and experiences that the Class Notes are intended to foster.”

Amazingly, a handful of alumni who were among the first to volunteer are still writing their class columns!

Among them is Arthur Goldstein ’53, who says he volunteered because he was happy to find another way to be involved with Rensselaer and to keep in touch with his classmates.

“Allumni are the only ones who have the history and perspective of their own class,” says Goldstein, president of AGA Associates, an investment counseling firm. “We can identify with all the changes over this period of time related to work, family, social causes, school, and worldly events.”

Class correspondents do their part to keep this section of the magazine thriving, but they can’t do it without your help. Send them your news!

1945

Charles Peters sent his life history beginning with college; here are excerpts:

After his sophomore year at Syracuse University he received Naval orders to report to RPI in Troy. “You know the full routine we experienced there. I remained at RPI on a continuous schedule without vacation or downtime from July 1, 1943, to October ’44 and completed sufficient credits for my 3rd and 4th year of college, and then was awarded a B.Ch.E. in chemical engineering with honors.

“I then went through midshipman school on an old cruiser refitted for training berthed on the Hudson River and affiliated with additional classes at Columbia University. With my commission in January ’45, I had more training in Washington, D.C., and Hingham, Mass. Beyond all this training, my only duty assignment was at an ammunition depot in Port Chicago, Calif., supervising the loading of ammunition aboard merchant ships for transport to the Pacific. We did get to handle a top secret shipment known as ‘big boys,’ which we found a month later to be the atomic bombs on their way to Japan. My only sea duty was aboard LSTs after the end of the war when returning ammunition declared obsolete or unusable was transferred to a LST, taken three miles out from the Golden Gate Bridge, and disposed of by lowering the bow ramp and discharging into the sea. I chose to be discharged in October 1946.” Charles then drove a 1935 Plymouth across country with three buddies, buying each one out as they arrived at their destinations.

He took a job at St. Regis Paper Co. in northern NY, and after two years, married the boss’s secretary, Elinor. For her health, they moved to Florida, where Charles began a 36-year career with W.R. Grace & Co. “I worked in all phases of process planning, engineering, construction, and operating of sulfuric and phosphate acid plants and related fertilizers manufacture prior to about 10 years as the chemical plant manager. My final 10 years involved travel around the country and part of Europe in liaison with customers, engineers, and contractors developing new joint ventures and improved facilities. This was a very satisfactory and exciting job.”

Following Elinor’s death in 1996, Charles met and later married Jean. “She had three daughters and a son who readily accepted me, so all of a sudden I inherited a grown family.” He and Jean thoroughly enjoyed traveling throughout the U.S. in a small motor home and outside the U.S. on small cruise ships and river boats. After Jean’s death in 2003, he stayed active in the Kiwanis Club holding all leadership roles including president. “A special function that I much enjoyed was leadership of a group that provided wheelchair ramps for anyone in need. I prepared most of the construction drawings.”

In late 2017, Charles, still in essentially good health, invited his oldest stepdaughter and her husband to move in with him. He lives in Plant City, Fla.

Fausto Hidalgo writes: “In 2013 I sent you a summary of my activities after graduation from RPI up to that date. That summary ended with a reference to my granddaughter, who was then a student at RPI (third-generation Hidalgo). I was able to attend her graduation and tour the many new buildings that have made RPI what it is now. In addition to the 10 grandchildren mentioned in the previous summary, my wife and I now have two great-grandchildren.

“There are not many new activities to add due to our age. We continue to exercise in moderation. Last January, right after celebrating my 94th birthday, I was diagnosed with colon cancer and had surgery on January 25th. The surgery was successful and there was no need for follow-up treatment, but the recovery process was necessarily slow. I am now getting back to my normal activities.”

And lastly, we heard from Fred Greenberg, who writes: “Any alumni residing in southeast New Hampshire (Portsmouth) or northeast Massachusetts (Amesbury) want to gather for one occasion to swap a few lines? Contact me at fredthecellist@yahoo.com or (603) 868-7303.”

—Herb Asbury ’45

1950

I received clippings about two of our class members. The first provides insights into the saga of Max Bleck (B.M.E.) and his career of musical chairs in the aviation industry. For 30 years Max provided executive leadership and engineering expertise to the general aviation industry. At various times in his career he served as president of Cessna, Beechcraft, and Learjet in Wichita, Kan., as well as Piper Air-
craft in Vero Beach, Fla. He also served as chairman of the Aviation Manufacturer’s Association and as president of Raytheon Corp. during the time Beechcraft was a Raytheon subsidiary. In 1992 he was inducted into the Kansas Aviation Hall of Fame.

Entering RPI at age 16, his tenure was interrupted in 1945 by service in the U.S. Navy as a radar technician.

Max was a licensed 1,300-hour private pilot with single engine, multi-engine, and instrument ratings. He flew an experimental biplane of his own design which he constructed in his Wichita basement and garage. He was an avid tennis player and, in retirement, returned to his youthful fascination with golf.


Burl Wilder (B.M.E.) was interviewed on the June 25, 2018, anniversary of the Korean War on which date he turned 90 years. The Citrus County Chronicle, Crystal River, Fla., newspaper coverage contains his reflections on choosing enlistment over the draft upon RPI graduation. His service did not take him to the war zone but provided contrasting adventures out of Key West and Norfolk. He tells of making a winter icebreaker trip supplying bases in Greenland. This in seas full of ice sometimes occupied by polar bears.

“Wilder moved to Crystal River in 1970 and is a former owner of Twin Rivers Marina. He and his wife, Nancy, enjoy the quiet living but is a former owner of Twin Rivers Marina. He and his wife, Nancy, enjoy the quiet living but Burl says he’s feeling a little old—he no longer has the physical ability to take out the sailboat. ‘I think it is amazing that I got this far,’ he said. ‘I have no regrets.’”

Alpha Chi Rho fraternity at RPI was chartered in October 1948. Its 70th anniversary was celebrated a month early to coincide with Reunion & Homecoming Weekend. Staged at The Desmond Hotel Albany, in excess of 100 attended. Of 26 charter brothers, three survived, Bill Statesir (B.Ch.E.), charter president, Bill Goffe (B.Physics), and me. Both Bills live in retirement communities with their wives; Statesir in Portland, Texas, and Goffe in Webster, N.Y.

It was my good fortune to be able to represent the founders and I enjoyed the support of Alan McKersie ’52 and his wife, Jane (Russell Sage). Alan lives in Chelmsford, Mass., and was a member of our first pledge class. The next oldest attendee was from the Class of 1965.

I left Seneca Falls early enough to meet freshman roommate Jack Haefeli (B.C.E.) for lunch after which I visited Susan, the widow of fraternity roommate Frank Kolesinskis ’51 (B.Ch.E.). Frank died in 1994.

We had lost charter brother Tom Donnelly (B.Chem.) in April 2018 a week after his 90th birthday and two weeks after our last personal exchanges. Tom was NROTC,
On the Bookshelf: Recent Books by Rensselaer Alumni Authors

**Poetry for the Neon Apocalypse**  
Jake Tringali ’96 • Transcendent Zero Press, 2018

This full-length collection from Boston poet Jake Tringali is a mysterious reflection on the life process. Written with an intellectual punk rock attitude, it leads readers through scientific concepts, dives and hangouts, lustful abandon, and openness to new experiences. Many of these poems have been published in independent journals.

Jake Tringali ’96 is a poet and restaurant manager, who writes about the edges of society. With a strong background in cyberpunk and the hard sciences, he has a focus on the intersection of technology and human interaction. His poetry has been published in such publications as Boston Poetry Magazine and Indiana Voice Journal.

**WonderWeb2**  
David Lagone ’74 • Amazon Digital Services, 2018

*Wonder Web 2...Bridging the Sales Void* provides the strategy necessary to transform websites from passive sleep inducers into powerful sales tools. The book features innovative ideas and strategies that will transfer your personal sales expertise to your website, and help inspire a dramatic growth in your website and direct sales. The strategies, ideas, and concepts presented may also be applied on a personal level to achieve a new level of confidence and success.

David Lagone ’74 is the leader of the firm Strategic Vision Business Consultants. He has served as CEO and president of several companies involved in manufacturing, reselling, and retailing.

**Geotechnical Site Characterization**  
Anirban De ’96 • Momentum Press, 2016

The topic of site characterization is unique to geotechnical engineering and owes its significance directly to the variability of the natural geologic deposits on the Earth’s surface. Proper site characterization requires an understanding of various field and laboratory investigation methods. This book discusses the suitability of various methods under different site conditions and presents the procedures to derive design parameters based on interpretation of test results. Recent developments in specialized site characterization methods are also included.

Anirban De, Ph.D. ’96, P.E., is professor and chairman of civil and environmental engineering at Manhattan College in New York City.

**Wicked, Incomplete, and Uncertain**  
Jason Swarts ’02 • Utah State University Press, 2018

In this book, the author shows how to document technologies that may hybridize into forms that not even their designers would have anticipated, and offers insight into the evolving role of a technical writer in an age of increasing user reliance on YouTube tutorials, message boards, and other resources for guidance. He identifies a new set of contributions that technical communicators can make—shaping conversations, and opening channels of knowledge creation for users and software developers.

Jason Swarts, Ph.D. ’02, is professor of English at North Carolina State University, specializing in technical communication.

and earned his chemistry Ph.D. at Cornell in 1955. Tom’s career included research and management at Swift & Co. In 1979 he turned to teaching at Loyola University, Chicago, and Mundelein College. A holder of patents in his field, he served as a member of a food enzymology delegation to China People to People in 1985.

Tom was a founder of the St. John of the Cross Parish, Western Springs, Ill., where he served in several capacities including cantor, member of two choirs, and a chorale. He was known at RPI for his singing, especially in quartets. He was a dedicated family genealogist, publishing his research. He and Jean had three daughters and one son along with a large and close set of relatives.

Another AXP brother, first pledge class, Tom Bent, now 93, is going strong in Florida. An Air Force aviator at the end of WWII, his “retirement” career was as advanced flight instructor offering experience in a Pitts and a Decathlon. Now 93, Tom decided at 90 that time for that was past. He lost his wife, Ellie, in 2016 but is supported by the Port Saint Lucie aviation community in which he has been living and by nearby family.

—Robert L. Pfeiff ’50

**1952**

In December 2017, Frank Wolz (BME) and his wife, Jean (née Mylner), celebrated their 65th wedding anniversary and Frank’s 90th birthday. Jean is a 1953 graduate of Russell Sage, where she majored in organic chemistry. Frank designed electrical and mechanical systems for commercial enterprises during his last dozen years of employment in the Orlando, Fla., area. They are now living in the Westminster Winter Park retirement community.

I received a most interesting article, which I will send to anyone interested as an email attachment, titled “Who was first to fly across Atlantic Ocean from America to Ireland?” It was prepared by a friend of Lewis Dewart (BAE), who resides in Nottingham Village, Northumberland, Pa. Lewis, who served as a 1st Lt. in the Air Force during the last two years of the Korean War, assembled the information about the early attempts to fly across the Atlantic in 1919 and provided it to his friend. Spoiler alert! One of four teams was successful.

If you have any news to submit before the next issue—Fall 2019—please send it to me. Also, please update and send your email address to me so that I can keep you updated between our newsletters.

—Harry (Bud) Hovey ’52

**1953**

Our 65th Reunion took place the weekend of Sept. 27, 2018. In attendance were Bob Goldberg and Marge, Al Birks and Joan, Charles Bucci, Harry Carlson, John Kaestle and Louise, Warren Rasmussen, Brooke Schumm, Gordon Kilby and Judy, Jack Newton, and Stephen Puzier.

President Shirley Ann Jackson presented a stimulating talk on campus life. Some highlights! We are preserving our Greek System; however, we need to control hazing, drinking, drugs, and other distractions. We had over 20,000 applicants to the college with scores that are higher than ever. RPI is considered one of the best STEM and architecture schools and is now planning to offer new music and academic programs. Diversity among male and female students is at an all-time high.

Our school is deeply involved in health informatics using AI, intelligent machines, and large-scale data accumulation and processing. We partner with IBM and the famous Watson
computer system affecting electronic health data. An excellent panel of experts in health care followed the president’s presentation.

The weekend also included “RED” Talks (similar to TED Talks) on subjects where RPI is influential in biotechnology and interdisciplinary studies.

Participants attended the 50 Year Club Luncheon at Heffner Alumni House and an elegant dinner at the East Campus Athletic Village. There were many stimulating choices of events to attend and people to mix with on campus.

Bob Goldberg provided an excellent summary of the weekend. Bob and Marge live in Portland, Maine, in an adult community. They celebrated their 65th wedding anniversary and make use of the cultural and physical facilities of the area. They keep in touch with Jacques Stanlea (Switzerland), Warren Rasmussen (Florida), Harris Siegel (Rochester), and Harry Carlson (Altamont, N.Y.). Bob’s advice is to downsize while you are still able to.

Gloria and I were not able to attend due to a severe cold. So sorry we missed the event.

A wonderful source of information is the ability to stream speeches on the RPI website. Go to: president.RPI.edu and look for the September 2018 speech. Very, very stimulating!

—Arthur Goldstein ’53

65th Reunion: Sept. 26-28, 2019 Back in Florida for the winter season, I have lunched with Zev Rosen ’54 and Phil Gross ’62, and have been playing bridge with Martin Rogers ’56 and with Mel Hirsch ’57, and regularly conversing with my son, Ross Meyers ’84. I was still awaiting the arrival of Jerry Schneider ’59, and looking forward to a visit from Henry Rosenblatt ’54, who keeps me informed of exploits of the RPI football team, which has now won five times as many games as the team won in our entire four years—but then again, RPI won national championships in lacrosse and hockey during those same four years.

—Bob Meyers ’54

Ernest Berger spent three years in the Navy and then joined his father’s firm, designing kitchens and selling appliances. He recently retired, has much more free time, and has started to work out with a personal trainer. A bachelor, he lives with his sister.

Prof. Eugene Byrnes earned his Ph.D. at the U. of New Hampshire and taught organic chemistry at Assumption College in Worcester. After retirement, “I like to get outside of chemistry and do many other things.” In the past he has been very active in his church and helping elderly and infirm neighbors, but now has had to stick closer to home. “Mostly I am taking care of my wife. She needs help, and I need help remembering.”

Phil Carroll registered to run another Detroit full marathon in October but had to skip it when he didn’t have enough time to train. “I figure I could have walked it in 10 hours. But the finish line stays open for only six and a half. My worst finish has been 6:25.” He has run more than 60 full marathons and hopes to run another this year. Ann Arbor has no central park, and Phil is busy campaigning to convert a parking area to a park rather than a high-rise. He is not yet ready to downsize, but, “I have a 10-year plan to continually reduce the amount of stuff in the house.”

Joel Feinberg says he is in pretty good health, still drives, and works out at the gym. He lives alone and is getting ready to sell his house and downsize. His second wife died four years ago, and he has a new girlfriend. “I’ve pretty much given up things I used to do, like collecting cameras and raising fish.” In earlier years Joel taught computer services for senior citizens, led discussion groups for seniors at Iona College, and was a master gardener.

Age has slowed Ronald Harris, but not much. After retirement from MIT, he and his wife bought a 17-acre property near Saranac Lake in the Adirondacks. “It’s a lot of work, and a lot to maintain.” He has stopped rock climbing but still hikes, climbs slopes, and skis. Until his wife's death two years ago they traveled widely around the western U.S. and Alaska, including a visit with Chuck Parker in Arizona. They towed a jeep behind their motor home, for exploring off-road trails.

Stephen Jaff has lived in NYC all his life, currently in a condo he bought 20 years ago. “I couldn’t afford it now.” When we spoke in October, the Jaffs had just returned from three weeks in Paris and were planning a similar trip to London in March—“God willing, and if we get the bathroom renovated.” He was also looking forward to seeing the latest Harry Potter film, after he and his wife took turns reading a Potter book to each other: “I’ve not completely gotten the boy out of me.” The Jaffs are active attendees at concerts, theater, and lectures. Another favorite is the Met Opera HD series, performed in a nearby theater whose entire interior was rebuilt by Stephen years ago when he operated his family’s interior renovation business. The Jaffs have two daughters, both
in Manhattan. “I wish them well, and I wish they’d get married.”

Prof. Willy Lick continues to spend much of his time painting, turning out many lovely works in oil. He exhibits at galleries in Santa Barbara. “I get lots of compliments but few sales. I mainly do it because I enjoy painting. It’s a learning process. I never had art classes.” He does a painting of his granddaughter at least once every year. “It’s sort of a record.” Willy still consults for the government on environmental problems, mostly for the EPA. In the past he and his students worked extensively on pollution of the Hudson River by PCBs, modeling sediment transport, chemical absorption by sediments, effects of storms, etc.

Lois and Sal Magnano moved to a retirement community in Nashua, N.H., five years ago. “We get fed very nicely.” Sal serves on the facility’s resident council and on its board of trustees. He has also served on the board of Nashua’s Boys and Girls Club for an incredible 36 years. “Our major task is raising money. The club serves about 500 kids each day.” Lois has been slowed by arthritis, but Sal still works out on the treadmill and enjoys walking.

George McBride reports that he is still enjoying life despite some back problems. “I walk around the block, and I can still drive. I do a lot of reading, including biographies of all of the U.S. presidents through Lincoln.” Growing up in the Detroit area made him a lifelong Lions fan, and in October he and Nan drove there from Maryland to see a game, joining their children for a family reunion. They also met with Steve Whitman and Herb Schaeffer and their wives for the group’s annual production of pickles, canning about 80 jars. Steve now has residences in Connecticut and Texas, the latter near his children.

Pete Nicholson earned an M.S. at Cornell and then worked at the Naval Research Lab in Washington, where he founded and developed a satellite ground facility, earning two Meritorious Civilian Service Awards. He had a second career at the Department of Defense working on satellite communications for troops in the field, finally retiring two years ago. Pete keeps active by maintaining the family homestead in Maryland and reminiscing with last friends from work. He remembers his RPI roommate Spiro Pappas and Professors Spiegel, Guilford, and Weaver, who were most influential during his academic life. He and Beth have two children, including a son who is emergency backup goalie for the Washington Capitals, and a grandson who they think is heading for engineering, perhaps at RPI.

Ted Sargent has a third generation at RPI. Both his son and son-in-law attended, and his granddaughter is now a freshman. “She loves the campus and the people she’s met.”

When I spoke in October with Gordon (Russ) Wilmot, he was getting ready to turn his four-bedroom house over to his son and move to a nearby apartment. “We built the house, and I have 55 years worth of stuff to get rid of.” A lifetime amateur clarinetist with local orchestras and bands, he stopped playing recently to become a full-time caregiver for his wife. “Once we get settled, I might pick it up again.”

—John Schmidt ’55

1956

Another six months has passed and I am still plugging along. I got a new knee in July and am still getting used to it. As some of you are aware, my hobby and passion for the past 30+ years has been the restoration of iron and wooden bridges. I was presented with the Civil and Environmental Engineering Department Distinguished Alumni Award for 2019 at the RPI Center for Infrastructure, Transportation, and the Environment at the Transportation Research Board annual meeting on Jan. 14, 2019, in Washington, D.C. It was a great honor.

Jerry Reinter writes: “I’ve had a very busy year: Lois and I spent some time in Costa Rica visiting my son and his family. We recently returned from a trip to India. I must say that it was the least enjoyable trip that we have taken.

“I retired from Wall Street two years after my wife, Madeleine, died of cancer in 1992 at age 54. I moved to Boca Raton, and two years after that I met Lois. We have been together ever since. My first 10 years in Florida we spent doing philanthropic work, and teaching at Lynn University. I hope that all of you will be healthy and strong enough to attend our 65th Reunion in 2021. That goes for me as well. Try to stay healthy, enjoy life, and to those of you who are still working, it’s time to quit.”

Dave Bonnar wrote: “I have been playing lots of tennis in retirement in Florida. I am captain of two tennis teams in the Space Coast Tennis Leagues in Brevard County near the Cape. In 2015 my doubles partner and I won the qualifier to represent Florida in the National Seniors Tennis Tournament in Minneapolis, Minn., at their main college campus. We played four days of round robin and came in sixth place out of 14 states who played. In 2017 (they play every two years in the Nationals) we had a similar experience in Birmingham, Ala. We won two matches outdoors on clay courts, and lost the bronze medal indoors on hard courts due to rain. So we came in fourth out of 12 states represented.

“Now, we are getting ready to qualify again in Florida for another shot at the 2019 Nationals. These matches will be held in Albuquerque, N.M., next June. We are now in the 80-84 age bracket. My partner is older, so we can’t quite make the 85-89 bracket this time. This may be our last time playing in the Seniors Nationals.

“After working 47 years in CA and FL one year, retirement is painting and playing tennis and doing yard work. I also spent the last 10 years delivering food for Meals on Wheels in our county.”

Marvin Menzin wrote: “I am still enjoying retirement and being very busy. Peggy and I are still skiing at Killington. My free over-80 season ticket helps though we are taking it easier on the slopes now. Still helping to teach engineering in elementary school, a blast working with K-2 kids on fixing their projects that didn’t quite work as planned. My engineering projects also didn’t work as planned, even with 40 years of experience! Started mentoring college startups at Northeastern University. Amazed at how many are trying startups at NEU. Not all technies either. Been lucky healthwise, falling apart from age of course, but very gradually and most key components still work. Been lucky familywise too. Five married kids and most of my 13 grandkids still live in Boston area and we see them often. Never thought life could be this good at 84.”

Peter Goetz wrote: “I am living in Cold Spring, N.Y., but still practicing construction law on a limited basis. Still flying and playing tennis on a regular basis but gave up skiing as I
find getting into my ski boots too much effort. I started raising designer chickens, which is a lot of fun except for the coop cleaning aspect; however, I found a local man who took on that chore for a small remittance. My three children still live in the NY area so I see them regularly. I am still very sad losing my close friend Sam Heffner. We worked together along with Jack Broadbent ’59 three years ago to start up the new DKE house on campus.”

While poking around the internet for information on my classmates, I found in the October 6, 1955, issue of the Times Record in Troy, N.Y., an article that stated, “A 1956 RPI Cadet Top Ranked for the second straight year. An Army ROTC student is reported as the outstanding cadet among 231,900 or more attending the summer camp training period at Fort Bragg, N.C. He is Charles W. Buttz of Aberdeen, N.D., a senior in civil engineering...Cadet Buttz is the cadet commander of the Army ROTC battalion at the institute.” Charles has been the class historian for many years and has attended most of the class reunions over the years. He and his wife, Teresa, the sister of our classmate Art Castro, live in Buck Hill Falls, Pa. Art was a longtime class correspondent.

I got an email from the son of Leonard A. LeSchack as follows: “Unfortunately, my dad passed away last year. December 15, 2017. With full honors, caisson, and 21-gun salute, he was buried in Arlington National Cemetery in May of this year. He thought of you guys fondly and was really happy to catch up the last time he was there.” Some of you may recall Leonard was a captain in the U.S. Navy and attended our 60th Reunion. He prepared a fascinating PowerPoint program titled “From RPI Cheerleader to Cold War Hero” for our reunion and it can be viewed on our class website (to access, just Google, RPI Class of 1956 wik).

I was also informed that Robert A. Knapp died on March 13, 2018. Bob served in the U.S. Army during the Korean War, and was a loyal employee of General Electric for over 30 years, retiring in 1987.

—Frank Griggs ’56

1957

It is with great regret that I note the passing of Bob Aldrich this fall. Bob will be remembered by all for his very active support for our ’57 Reunion activities, including the acquisition for our class. The last was for our 60th, our red vest as our ’57 uniform. It was only in mid-year thinking about this column that while rummaging through my ’57 column file I ran across Bob’s “Slim-Ericks—Light Limericks for Well-Versed Dieters.” Finding it, I had spent some time smiling and chuckling with his limericks...including one written on the inside cover to me and our years of the ’57 column.

We also regret, from an all-points message from Doug Hasbrouck at the end of October, the passing of Don Howey, our football co-captain and lacrosse defenseman. That email was followed within the hour by Dave Murphy noting the passing of his Pi Kappa Phi fraternity brothers Paul Presta and Charles Carter Rich. Doug also mentioned that he’d like to be made aware of these happenings to keep his class records up to date, as he works closely with RPI to help keep those records straight. I should add that it would be good to keep this scribe copied on those class alerts, not just for ’57 but for others who read these class columns.

On a lighter note, Doug mentioned our winning football team, with a 7-0 record and ranked 14th in the nation, as of October 29 and with the St. Lawrence and Union games remaining. At Thanksgiving, and not knowing how things had turned out, I mentioned this to my granddaughter who is a senior at Union. With a broad smile she quickly told me that “Union had just beaten RPI”...oh, my!...to which I quickly whispered to Taylor that “RPI was RPI when Union was a Pup” (as I recalled it)...to which she responded, “No, Papa Buzz. Union was started in 1795 and was older than RPI.” A bit of fun with a millionell!

In mid-July, Dave Brunell notes that he and Pam hosted a Class of ’57 — Five Guys Mini Reunion with Chuck Gould, Dick Kaeber, Bogie Bogdonavic, and Jack Bluestein for two days at his Bass & Bee Farm, near the Appalachian Trail in western Maryland...“It was a real blast and hell of a lot of fun exceeding even our elevated fantasies...indoors and outdoors, swapping all kinds of stories, heart/mind/spirit sharings, and belly laughter galore...a group favorite was a ‘Yin’ Yoga session with a master teacher, regenerating body parts/connections long forgotten (e.g., lower back and joints), discovering others never known, and re-inflating athletic exploits of yesteryear. We were stunned how instantly our separate 61-year life journeys re-merged and melted into common themes of exploration, transformation, challenges, stumbling, learnings, conscious/unconscious choices, epiphanies, revelations of faith, meaning...and brotherhood...And how little of that was planned or could have been predicted back in 1957. Everyone’s enthusiastic about another in 2019. Welcome to others interested (Gus/Dick Gustafson already in!).” Well done, Dave!

I understand that other classmate are wondering about, and even planning, mini reunions, not waiting for our 65th.

—J.R. “Buzz” Campbell ’57

1958

Harry Robinson sent news that six ’58 Lambda Chi’s and spouses, and one from ’62, met for dinner during the fall Reunion. They included Juanita and Nick Cignetti, Jean and Ron Piekunka, Joan and Harry Robinson, Jean and Frank Parisi ’62, Paulette and Jack Ramsey, Willie and Dick

Young, and Judy and Chet Martine. See page, photo 51.  —Jim Augsteg ’58

1959

60th Reunion: Sept. 26-28, 2019 We heard from Ed Gruber, nowadays a resident of Fair Lawn, N.J. He wrote that he and his wife, Marlene, joined the RPI Alumni Association-sponsored AHI Tour of the Italian Amalfi Coast. After flying to Naples, they visited beautiful sites in Sorrento, Capri, Positano, and Salerno. A highlight was walking through the ancient ruins of Pompeii, in the shadow of Mount Vesuvius. He did not say, but I am assuming the volcano was dormant.

Subsequent to the tour, they returned home to Fair Lawn, where they continue to enjoy retirement, and spend time with their grandson who lives in Brooklyn, N.Y.—not too far away.

Sadly, we report the passing of James F. Rappolt, Alpha Sigma Phi. His son, James F. Rappolt Jr., is a member of the Class of 1989.

Now that the spring is upon us, please take a moment to drop us a note about your activities—fill us in on what you did over the winter, etc.

—John Lindsay ’59

1960

More and more I’m getting news of our classmates passing into the next world. Tom Giammo, a math major at Rensselaer, earned a master’s in math from UCLA and then commenced a long career in government. Tom’s other work was traveling and connecting his family roots to Sicily.

Dick Bohlin and I had a long phone conversation in June. One of Dick’s RSE buddies, Monty Monteleon, died and Dick wanted him remembered. A nice remembrance from one of the ’60s guys.
Stu Mencher reported that 15 brothers of the Alpha Epsilon Pi Class of ‘60 and their guests gathered at the Riverpark restaurant in NYC in October for a reunion brunch. They met to celebrate our 58th graduation anniversary and the 62nd anniversary of their joining the fraternity. The brothers reminisced about the “good old days” at RPI and their experiences as pledges in 1956 and ’57. Larry Wasserman contributed to the reminiscing by preparing a quiz to dust off their memories. Here are a couple of those questions to test your memory: (1) Who taught freshman chemistry? and (2) What was the famous edict for Sunday lunch in the freshman dining hall, and why was it never enforced? Neil Sherman won the prize for the alumn who traveled the farthest, all the way from California; Mike Balk was a close runner-up with his trip from Colorado. The AEPi brothers have maintained their friendships for these many years and enjoy these periodic reunions. They are already planning their return to campus for our 60th Reunion, coming up in 2020.

Listen up, all you RPI guys worrying about your 401Ks. Bob Goldstein recently won $50,000 playing video poker at the Borgata Casino. By the way, that was the second time Bob hit it. Six years ago he also won a $50,000 jackpot at the same machine with the same denomination. I encouraged Bob to move to sunny Utica so he could rub off some of that skill and luck. Bob believes the probability gods are now, however, working against him.

The “probability gods” are not working against us having a rewarding retirement. Let me know what’s on your mind and, in Bob’s case, what’s in your wallet.

—Bill Blanchfield ’60

1961

I would like to invite whoever is interested to share with us what form of exercise you are utilizing to age longer and stronger (†). I have read that one should have a vigorous exercise program that gets the heart beating at least 30 minutes three times a week. Doesn’t sound too difficult but there are always things that interfere. Some, however, are real troopers. Fred Guimond was playing lacrosse with an adult group right up until recently. Mark Camp, after retiring from BP in Illinois, dialed up his winter cross country skiing program. He races in The Vasa in Traverse City, Mich., and this year will be his 32nd to compete. He has also been a regular in the Birkebeiner XC race in Hayward, Wis. As for me, I have taken up pickleball, the fastest growing sport in America (according to USA PA. It’s great for seniors.

—Brian McManus ’61

1962

Classmates Bob Levy and Henry Stecker and I studied together for final exams in my rented room on 14th Street during our last two years at RPI. I built a blackboard from a sheet of Masonite that I brushed with flat black paint, and we used it to test one another. After tedious hours, we would adjourn to the Sycaway Diner on Hoosick Street for coffee and jelly doughnuts. Bob and Henry and I passed all of our final exams. I am debating whether to credit my blackboard or the Sycaway’s jelly doughnuts for our successes.

My friend from White Plains, Larry Kaye ’64, MEE ’65, wrote to say he has been “reading your column for years.” Larry worked for Hughes in Culver City, then Sytron Donner in Concord, Calif., and finally Giga-tronics, a microwave test equipment company he helped found. He now restores pinball machines. His son, Andrew, is a senior at RPI, and is studying mechanical engineering. Larry and his wife, Beth, married in 1992.

Roger Lipton was appointed to the board of directors of Diversified Restaurant Holdings, one of the largest franchisees for Buffalo Wild Wings. Roger earned his B.S. degree in mechanical engineering at RPI and his MBA degree at Harvard. He worked as an auditor with PricewaterhouseCoopers and then on Wall Street with restaurant and franchising industries.

I received the sweetest four-page story about Neil Ullman, which ran in The New York Times in September. Here is a capsule summary. I know I won’t do justice to it. Neil met Elaine Hoffman at a class titled The Lives We Lived at Fairleigh Dickinson University, and they immediately felt energy between each other. Both had been widowed recently. As time progressed, they drew closer, discovering all the things they had in common, such as the same car model, the same credit card type, and the same interest in taking a one-week vacation to Cumbria and Pismo Beach in California. Spooky, wasn’t it?

Needless to say, they both fell madly in love. They married at Florham, a former Vanderbilt estate.

Neil graduated from RPI and Rutgers and became a founder of Middlesex County College and County College of Morris. Elaine graduated from State University of New York at Cortland in 1967 and received a master’s degree in student personnel services at Newark State College. She has been a career elementary school counselor and a school social worker.

—Jay Winderman ’62

1963

It was the reunion that didn’t happen. Mike Ross, the chairman of the 55th Reunion Committee, was disappointed with the almost total lack of interest in this year’s reunion. Mike told me that it was going to be a hard sell but hoped for a small response. Having to cancel events is always difficult. It seems that we are still recovering from our 50th. Never discouraged, Mike is thinking ahead to the 60th in 2023. As our ranks grow smaller, we should plan to attend now. A small unscientific survey seems to suggest that the move to a fall reunion date rather than the traditional June date has had some impact on attendance. Who knows? I liked the June date. I was a reunion absentee due to Kathryn (Sigetti) Sobray’s (Class of 2005) brother’s wedding. My niece (and godchild) has two beautiful little girls.

Two classmates who did attend the reunion and sent me a note were Wayne Richardson and Theodore Maxant.

Ted Maxant was a mechanical engineering major, who played on the lacrosse team for four years. He reminded me that he misses another of our classmates and lacrosse teammate Nick Humber, who was a passenger on one of the planes of the 9/11 Twin Towers tragedy. This summer Theodore and his daughter, Christa, rode horseback in and out of the Bob Marshall Wilderness area in Montana. Over 100 miles in and out, up and down the Continental Divide. Wow! Especially considering our plus-70 ages. Ted and his wife, Tina, live in Still River, Mass.

“While traveling to Australia and New Zealand, Earl Sedlik ’64 heard a woman call out, ‘I think that’s Earl!’ It turned out to be Mary Ann Vennet exclaiming an ‘Earl sighting’ to her husband, Dick Vennett ’64. What followed were memorable days of shared touring mixed with reminiscing and lots of catching up.”

—MICHAEL WELLNER ’64

and avoid the winter weather in St. Maarten. At Reunion & Homecoming, he hoped to visit with lacrosse team members and brothers of his ATO fraternity.

Wayne Richardson and I were wondering about some classmates with whom we have lost contact: his roommate Peter Dean and a mutual friend, Bill (Woody) Woodward. Strange how you lose touch.

When Wayne graduated he joined the Navy where he wound up in the Civil Engineer Corps as project manager in Guam, constructing electrical and communication facilities. Later serving as construction and public works officer in charge at the Marine Corps Air Facility in North Carolina. All related to the Vietnam conflict. After the Navy, Wayne
earned his Master of Engineering in electrical power from RPI. Before retiring in 1990, he managed construction projects for Black & Veatch, Florida Power & Light, and Stone & Webster. As Wayne puts it: “I married Arlene, an Albany State girl from Schenectady, the love of my life, who I met at an Alpha Chi Rho fraternity party.” They have two children and four grandchildren and live in Orleans on Cape Cod. Wayne is active in his retirement with the Coast Guard Auxiliary and the U.S. Power Squadron, assisting with safety patrols and Aids to Navigation verification. And he tells me that he obtained his Merchant Marine captain’s license. Is it the beginning of a whole new career?

Roderic Quirk, emeritus professor of chemistry at the University of Akron, was awarded the Charles Goodyear Medal from the American Chemical Society. Rod earned his doctorate in organic chemistry from the University of Illinois. While at RPI, Rod was a member of both the wrestling and football teams. During our senior year, Rod’s teammates recognized his dedication and perseverance to football by selecting him as a team co-captain.

It is always nice to have e-mail from a classmate. Send me your updates. Thanks.

—Jack Titley ’63

1964

55th Reunion: Sept. 26-28, 2019 Greetings
to all my fellow classmates, and thank you for
the outstanding response to my request for news. First up, I had a nice note from Dave Haviland, who wrote to say that he was honored to give the keynote address at the October 26 dinner celebrating the 50th anniversary of the Chapel + Cultural Center (C+CC) at RPI. This was an opportune time to recall the many ways in which the C+CC has met the needs of the community, especially RPI students, since opening in October 1968. In addition to Roman Catholic liturgies, the C+CC presents and hosts concerts, exhibits, discussions, and all kinds of events—as well as opportunities for prayer and quiet meditation.

Tom Hemmerick, Architecture ’64 & ’65, says that he is retired now, but for most of his last 46 years he was a sole practitioner. This past summer he spent time in Barcelona, Spain, one truly beautiful city, and then a month in Calabria, Italy, one beautiful country.

Frank Thiel wrote to say that he and his wife, Pat, have moved into Beverwyck, a retirement community in Albany County, N.Y. And just in case you forgot, Beverwyck was the original Dutch name for Albany!

Charyl Kay and Earl Sedlik, like so many of us, have been traveling in their golden years. Since Earl, by his own admission, has a particularly loud and gregarious style, he gets noticed in the oddest places. For example, while traveling with a University of Washington alumni tour on the Oceania Cruise Lines to Australia and New Zealand in 2015, Earl heard a woman call out, “I think that’s Earl!” It turned out to be Mary Ann Vennett exclaiming an “Earl sighting” to her husband, Dick Vennett. It was, indeed, Earl, and what followed were memorable days of shared touring mixed with reminiscing and lots of catching up. The Vennetts have just moved to Arizona to start a new retirement life, and Earl reports that they look great!

Earl also reports a similarly provocative reunion at the Bloomsbury Edwardian Hotel near London’s British Museum in 2016. As the Sedlik’s entered the lobby to greet many Seattle friends who then join for an annual Shakespeare Tours October program of 10 London-based plays in 11 days, a woman declared loudly, “I think I hear Earl Sedlik’s voice...it is! There’s Earl!” That was Sue Crystal, who, with Dick Crystal, was on the very same trip; they immediately launched into a wonderful reunion!

Meanwhile, Earl and Charyl Kay are joyfully settled in downtown Seattle, where Charyl Kay is a docent at the Seattle Art Museum and continues to be active in the health-care field. She’s one of the founders of Grandmothers Against Gun Violence. Earl is active on nonprofit boards and as an adjunct accounting instructor at North Seattle College. They are both very active in their grandchildren’s lives in Seattle.

And speaking of Dick Vennett, in November 2016 he and Mary Ann decided it was time for the next phase of their life. They moved to a new home outside of Scottsdale, Ariz., in the Trilogy Rio Verde development. They had lived in Park City, Utah, for 15 years, but decided it was time to move south for a warmer climate since they did not ski anymore and they had grown tired of the winters.

Gary Neville is having a great time in Venice, Marina del Rey, and Santa Monica, and (as he says) lucky to be alive! He has been deeply involved with the Yellowbird Tech Center for several years, and reports that his really big deal was when President Obama came by to visit a state senator, who is a tenant in the center; there were Secret Service guys all over the place, black SUVs around the block, helicopters hovering overhead, and quite the overall commotion. The Yellowbird Tech Center now has the distinction of being the only building in Venice to have ever hosted a sitting U.S. president!

Alan Silverman reports that he brunched with Barry Wintner and Bill Erskine in mid-October, to discuss their various medical maladies and solve world problems. He visited an innovative branzino factory farm in his hometown, 30 miles from salt water, a ChemE’s delight. And he attended the induction into his hometown hall of fame of a high school classmate (that of several other RPI ’64 grads) who contributed greatly to “green chemistry” while at the EPA and elsewhere. Alan has also been traveling, to Morocco and Portugal and Spain. We’ll hear all about it at the 55th!

John C. Hodge just published a book, STOE replaces relativity and quantum mechanics, summarizing his research into the Theory of Everything. He is living in the back woods of western North Carolina and loving it.

And Ray Whipple just received a certificate from the American Parachute Association, recognizing his 55 years of skydiving! His group, JOS (Jumpers Over Seventy) has a saying: “You don’t quit jumping because you get older, you get older because you quit jumping.” He is surely a braver man than I!

Watch for an email from me with details on our 55th this fall in Troy.

—Michael Wellner ’64

1965

Dick Kessler reports that he has retired from his 50+ year career in geotechnical engineering (30 years as a sole proprietor). He continues to maintain his private practice as a licensed psychologist in New Jersey, specializing in men’s and relationship issues. Dick reports that all his family are doing well and that his daughter was recently appointed chair of her department.
Frank Morgan wrote that his family is also well and that he has two granddaughters whom he doesn’t see often enough. Lindsay (25) is an account executive with a PR firm in New York City and Allyson (21) is a senior at Ole Miss. After reading my note about Bill Torpie in the Fall 2018 issue and my request for information about other classmates who gave their lives in Vietnam, Frank advised that he knew of at least one more, Charles (Chuck) Bifolchi. The Arlington Cemetery website provided information from an October 2006 Department of Defense news release that the remains of Charles L. Bifolchi, U.S. Air Force, had been identified and returned to his family for burial with full military honors.

“On January 8, 1968, Bifolchi and a fellow crewmember were flying an armed reconnaissance mission against enemy targets in Kon Tum Province, South Vietnam, when their RF-4C aircraft disappeared. A U.S. Army helicopter crew found their aircraft wreckage soon after first light the next day. Search efforts continued for four days; however, enemy activity in the area, combined with the steep terrain and high winds at the crash site, precluded the recovery of the crewmen.”

— RICK HARTT ’70

Tum Province, South Vietnam, when their RF-4C aircraft disappeared. A U.S. Army helicopter crew found their aircraft wreckage soon after first light the next day. Search efforts continued for four days; however, enemy activity in the area, combined with the steep terrain and high winds at the crash site, precluded the recovery of the crewmen.

Between 1993 and 2000, U.S. and Vietnamese teams conducted two surveys of the area. One team interviewed two Vietnamese citizens who turned over human remains they claimed to have recovered at the site. Another team found wreckage consistent with Bifolchi’s aircraft. Scientists used forensic identification tools and DNA from a relative in the identification of the remains.

Chuck’s name can be found on Panel 33E, Line 79, of the Vietnam Memorial. Bill Torpie’s name is on Panel 28W, Line 41.

Bill O’Connor has been staying busy in retirement. His new book on transformational leadership in the public sector hit the market on Oct. 15, 2018. Out of the Clay: Molding a New Generation of Passionate Public Leaders is based on Bill’s more than 45 years of public service at the state, county, and local levels of government, along with his extensive experience in public education and the military. This creative work is far from a sterile textbook. It is a collection of interwoven anecdotes and stories taken from Bill’s personal and professional life, all the way from grade school to deputy commissioner. Unlike anything in this genre, these stories come together to define what Bill has concluded are the critical attributes that define those leaders who are a cut above the rest, those who can effect true transformation and drive fundamental change in our public institutions.

Dr. Mark Rosenblum joined the board of directors of Indianapolis-based medical device company NICO Corp. in May 2018. The accompanying press release included highlights of his impressive career. Mark is currently chairman emeritus of the Department of Neurosurgery in the Henry Ford Health System (HFHS). He also founded and served as co-director of the nationally recognized Hermelin Brain Tumor Center and HFHS Neurosciences Institute. At the University of California, San Francisco (UCSF), he helped develop its world-leading Brain Tumor Research Center, became professor of neurosurgery, and was continuously funded by the NCI and American Cancer Society for early research on cancer stem cells. He founded and chaired the Section on Tumors of the American Association of Neurological Surgeons and Congress of Neurological Surgeons, the largest specialty organization of neuro-oncology in his field.

—Erik Pettersen ’65

1966

As happens so often, your correspondent caught up with a classmate 52 years later, to find that he has been living just a few towns away, in Newtown, Conn. Richard Hubert, born in Yonkers, N.Y., has been active in church and Boy Scouting activities most of his life and achieved enviable leadership roles in both areas. Rich won a four-year Navy ROTC scholarship to RPI, and graduated in 1966, having earned an electrical engineering degree along with an ensign’s commission. While on campus, he was active in the fencing club and the Navy drill team. He continued his academic career by earning two master’s degrees from the University of New Haven.

The day after marrying his wife, Patricia, in June 1966, he was promptly ordered to Virginia to report for duty on board the USS Norfolk, the destroyer leader and flagship for the North Atlantic Fleet. Rich served as the weapons and anti-sub warfare officer for two years, patrolling the Eastern coast of the U.S. and monitoring Russian so-called “research” (i.e., spy) trawlers and submarines probing American defenses. His leadership duties also took him to Cuba and South America. After advancing to lieutenant, he was then based in Antigua in the BVI as the naval defense officer. It wasn’t long before extensive missile-testing began in the South Atlantic, and Lt. Hubert’s special qualifications were brought to bear. He was on duty when Neil Armstrong’s successful landing on the Moon was first communicated to Earth. He also was involved with the long-range diagnosis of the threats to the Apollo 13 mission. At the end of the Vietnam War, Rich returned to Connecticut in 1970 from overseas duty, and received his discharge.

Rich was then hired by RCA and was trained in systems design, and later moved on to Burndy Corp. to design warehouse operations. After a long career characterized by similarly successful positions that involved computer product lines and communications, and security detection, he is now a consultant at Pitney Bowes in Danbury, Conn.

He and Patricia have two children, Carolyn Murray, a dental hygienist, and Dr. Christopher Hubert, a specialist and lecturer in brain cancer research at the Cleveland Clinic, plus numerous grandchildren.

Not surprisingly, Richard continues to enjoy navigation, astronomy, boating, canoeing, hiking, and fishing, especially at the cabin in Tupper Lake, N.Y., which has been in the family since 1912. He is also heavily committed to his community, church, and the Masons, and has continued his work with the Boy Scouts and veterans of the armed services, in addition to many other humanitarian efforts.

—Les White ’66

1967

The American Cancer Society (ACS) recognized Dr. John Ruckdeschel, director of the University of Mississippi Medical Center Cancer Institute since 2017, with the St. George Award for his lifetime body of work to eradicate cancer and his continuing support of the ACS. He is a professor of medicine in the Division of Hematology and Oncology at the University of Mississippi. The St. George Award is the most prestigious award that the American Cancer Society bestows on volunteers.

John began RPI studying aeronautical engineering but changed his major to biology in his sophomore year. He graduated from RPI with a bachelor’s degree in biology in 1967 and completed a medical degree from Albany Medical College in 1971. Then he began his internal medicine internship at Johns Hopkins Hospital before moving on to an oncology fellowship at the National Cancer Institute from 1972 to 1975. He completed his senior residency in internal medicine at Beth Israel Hospital in 1976.

—Stu Berg ’67
1968

Friend and classmate Steve Ross sent in a detailed account of what he has been doing in the fields of technical journalism, teaching, and consulting over the last 50 years. His career in technical journalism started as editor of the Rensselaer Engineer magazine while at RPI earning a B.S. in physics. After graduating, Steve earned an M.S. in journalism at Columbia’s Graduate School of Journalism and became editor of the New Engineer magazine in the 1970s. Steve taught full time at the Columbia Graduate School of Journalism from 1985 to 2004 before becoming the founding editor of Broadband Communities magazine, where he is currently the editor at large. Steve has authored or edited 19 books, won numerous technical, professional, and journalism awards, and is a fellow of the American Institute of Chemists. He and his wife both live and work in New York and in Boston and enjoy traveling. As Steve wrote, “People still pay us to go to interesting places and talk to interesting people.”

Classmate Ira Goldman has managed to stay mostly retired since 2012 with the exception of a 2016 two-month consulting project in England for a former boss. He and his wife, Sherry, moved in 2009 from Connecticut to a house in Penn Yan, N.Y., in the heart of the Finger Lakes region that overlooks Keuka Lake. While their house has great views and is near the upstate wineries, they regret that it is far from their six grandchildren who live in North Carolina. Ira races sailboats in the summer and does some casual skiing in the winter, which included a trip to Cortina, Italy, last winter. He is still active with the Boy Scouts and was awarded the Silver Beaver for his many years of service.

The Albany Times Union published a moving personal interest story about Sid Stark closing his auto repair garage in Saratoga Springs and retiring in 2018. He got his start in the auto repair business working summers during high school at his father’s garage. After earning a B.S. in chemistry at RPI, he taught science at local high schools in Greenwich and Albany. In 1970 he went to work full time with his father, Henry, and took over the garage a year later when his father retired after running the business for 25 years. Sid enjoyed the long-term relationships he had with his customers, some who had been coming to the garage since his father opened it in 1946. In the last few years Sid began keeping a list of all the positives and negatives of running his business and decided to retire once the negative side of the list grew longer. One of the negative business reasons to close the garage was that the area had gentrified and the new residents didn’t own cars that were 5-to-10 years old and needed the maintenance and repair services he provided. The many customers on the positive side of the list will be missed by Sid, but he plans to spend more time with his grandchildren in retirement.

The Albany law firm of O’Connell and Aronowitz recently added Roland Cavalier and two other attorneys to its staff to expand its business law and commercial litigation practices. Roland attended Albany Law School and earned a Juris Doctor degree after attending RPI. He has been advising business clients for over four decades and will continue in the practice of business law concentrating on a wide range of corporate and business clients. In addition to Roland’s court experience with civil litigation, he has had extensive experience in alternative dispute resolution.

—Mal Crawford ’68

1969

50th Reunion: Sept. 26-28, 2019

Carson Taylor, who earned his master’s in electric power engineering at RPI, has been awarded the prestigious IEEE Power and Energy Society Charles Concordia Power Systems Engineering Award. The award recognizes contributions to the engineering and deployment of control systems and solutions to improve power grid stability.

—Henry Scheuer ’69

1970

Paul Miller writes a commercial aviation safety blog, Safetyforecast.com, where he offers innovative, relevant, and credible comments on current safety issues, recent aviation mishaps (disasters), and arguments in support of safety legislation or international regulation. As he told me, commercial aviation safety improvements are the work of a remarkably hardworking core of international colleagues, who devote immeasurable efforts not only to hazard resolutions and new procedures and training, but moreover advocate for the implementation into regulation and international law.

Dave Schopp has been appointed to the board of directors of DASAN Zhone Solutions, which specializes in fiber access for enterprise and service provider networks. He is currently operating partner for Stonebridge Partners, a private equity firm, and also a general partner of Fund IV. Dave is currently chair of the boards of Cast Crete, Hydrauex Global, and Specialty Bakers.

I was very proud to be at the ceremony that awarded the most prestigious RPI alumni award to Jeff Kodosky. The Distinguished Service Award is given to at most one alum annually and recognizes distinguished service to RPI, a profession, the nation, or humanity. Jeff is known for his invention of LabVIEW, which was named one of the “Top 50 Milestones for the Industry” by Electronic Design magazine. He co-founded National Instruments Corp. (NIC) in 1976, served as VP since 1978, and VP of R&D from 1980 to 2000, and has been a Fellow of NIC since 2000. He has a personal passion for education and opera. He has been recognized with the Woodrow Wilson Award for Corporate Citizenship for his work with organizations including the University of Texas at Austin UTeach program and College of Natural Sciences, the Rensselaer Polytechnic Institute board of trustees, and the Austin Lyric Opera. Jeff and his wife, Gail, have always been supporters of the arts. While I was director of the Rensselaer Union, they arranged for the InterVarsity Christian Fellowship at Rensselaer gathered to celebrate the 50th anniversary of the time they lived together at the IV House on Hill Street. Among many activities, they enjoyed a campus tour organized by the Rensselaer Alumni Association, and attended the traditional Friday night IVCF meeting at the Student Union. Alumni who attended, from left, interspersed with their wives and student guides, were Dick Pedersen ’70, Jeff Ferguson ’70, Russ Cherry ’70, Dave Green ’67, Al Ryder ’69, Paul Diamantopoulos ’69, and Jim Stori ’69. Duane Campbell ’71 also joined them for the IVCF meeting. “We had a wonderful five days,” said Dave Green ’67. “We try to get together every two to three years; this was our 10th reunion.”
exceptional Austin, Texas, vocal group, Conspirare, to come to Troy to perform at RPI and record at the Troy Savings Bank Music Hall. Jeff has tirelessly given his time, treasure, and talents to RPI.

My news is that my wife, Julia MacDonald ’72, MBA ’77, and I will be moving to Rush, N.Y., this spring to be close to our son and daughter-in-law. Please join our Class of 1970 Facebook page, send me emails, and get ready for our Reunion in 2020.

—Rick Hartt ’70

1971

Mark Rice, former Grand Marshal at RPI, has been named provost (and professor of entrepreneurship) of Babson College in Wellesley, Mass. Mark had previously been dean of the graduate school at Babson, and prior to that, professor, dean, and vice provost at WPI.

I ran the Delaware Distance Classic 15K race on Oct. 7, 2018, finishing in 1:11:23, good for third place among men 65 and over. I am looking forward to my birthday in September, when I will move up to the next age group.

—Seth Bergmann ’71

1972

Werner Kohler, professor of mathematics in the Virginia Tech College of Science, has been named professor emeritus. A member of the Virginia Tech community since 1973, he made significant contributions to the mathematics of wave propagation in research projects funded by numerous federal research agencies, and co-authored a widely used textbook on differential equations.

—Bob Dvorak ’72

1973

Some sad news to report: Jon Jackson, one of the principals of Bohlin Cywinski Jackson (BCJ), the architecture firm that designed RPI’s Center for Biotechnology and Interdisciplinary Studies, passed away on August 17. He had recently retired from the firm and was a highly respected figure in both the western PA and national design communities, and his life’s work helped propel BCJ’s rise to national and international prominence. His work on the Biotech Center was emblematic of his excellent work in academic spaces and laboratories. Jon designed buildings for Carnegie Mellon, University of Pittsburgh, Dartmouth, University of Washington, Caltech, University of Illinois, University of California, and Yale, in addition to RPI. He won numerous awards for workplace design and set the stage for collaborations with Pixar, Disney, Apple, and others. In the words of the late Dick Rittelmann ’60, another well-known RPI architecture alum, “the breadth and complexity of BCJ’s work over the years is a testimony to the skills of Jon Jackson as not only a great individual architect, but a manager, mentor, motivator, and collaborator.” Jon was a longtime resident of Pittsburgh’s Chatham Village, where he helped earn the community’s listing in the National Register of Historic Places. We all will miss this very talented alum.

In happier news, our friend Tom Iovino was a 2018 inductee into the American Road and Transportation Builders Association Foundation Hall of Fame. As many of you know, Tom founded Judlau Contracting and grew it into one of the country’s leading civil engineering construction companies, completing more than $3.5 billion in projects, including the Second Avenue Subway in NYC. Tom is a former trustee of RPI; we hope he’s enjoying his retirement.

There was an interesting article in last summer’s Buffalo News about Bill Greco, an avid yearbook collector and resident of East Amherst. He collected some of the most interesting artifacts of western New York’s famous citizens, including Tim Russert, Bob Lanier, Joe Ehrmann, Warren Spahn, and Sidney Farber (father of modern chemotherapy). Bill retired from careers in cancer research at Roswell Park Cancer Center and as a teaching professor at the University of Buffalo. It’s a neat article… with some interesting exchanges with Deborah Wright Dawson, who is now a county legislator. Look it up in the Buffalo News archives for more on Bill and his collection.

Finally, although our 45th Reunion was thinly attended, we did learn of Alfred Li’s honor as an Albert Fox Demers medal winner. Alfred was honored at the RAA Awards banquet on October 11. I also caught up with Michael Eckstut, who writes: “We relocated to Princeton, N.J., after 20 years in the SF Bay area. I’ve had a chance to go to several Princeton-RPI hockey games (with Mark Schwartz) and will occasionally run into Bob Vanderbei, who was Class of ’76, and now teaches at Princeton.” Michael continues to work and is leading a turnaround of a drug development software provider. He is looking forward to Steve Norton’s annual visit as of this writing.

Alumni Recognized for Contributions to the Power and Energy Sector

Four graduates of the electric power engineering program at Rensselaer were recognized during the IEEE Power and Energy Society (PES) 2018 annual meeting for their contributions to the power and energy sector.

Daniel Sabin ’93 received the PES Award for Excellence in Power Distribution Engineering for contributions in power quality monitoring and related indicators for fault location in distribution systems.

Carson Taylor ’69 was awarded the Charles Concordia Power Systems Engineering Award for contributions to the engineering and deployment of control systems and solutions to improve power grid stability. Taylor, a member of the National Academy of Engineering, retired from the Bonneville Power Administration as principal for transmission operations and planning.

“Taylor’s book, Power System Voltage Stability, is practically on the desk of every practicing power systems engineer,” said Rensselaer Institute Professor Joe Chow.

John Paserba ’88, vice president of the Power Systems Group at Mitsubishi Electric Power Products, received the Meritorious Service Award for sustained technical and professional contributions to the power industry and PES.

Nicholas Miller ’79 received the Ramakumar Family Renewable Energy Excellence Award for modeling, performance analysis, and advanced control developments of wind turbine generators, and large-scale renewable integration. Miller recently retired from General Electric as senior technical director.

Sabin, Taylor, and Paserba earned master’s degrees at Rensselaer, while Miller earned both bachelor’s and master’s degrees.
We have a great class. Stay in touch with our website: www.rpi73.org. We need to have a big turnout for our 50th!
—Gary DiCamillo ’73

1974

45th Reunion: Sept. 26–29, 2019 This will be my last class notes before the Reunion. I don’t know about you but I’m planning to be there. As a retiree in Florida, I enjoy getting up north during the Florida “summer,” which seems to run until November. I even heard that the trees change color up there, but it’s been so long I don’t remember what color they change to!

John Leimseider is getting the recognition he deserves; unfortunately it is postmortem. John passed away on Sept. 14, 2018, in Calgary, Canada. As a keyboardist for Iron Butterfly, he had his share of notoriety, and later when the stars turned to him to fix their ailing synthesizers. Folks like Michael Jackson, Ray Charles, and Kenny Kravitz went to John for emergency help. Those of us who remember him never forget his John Lennon beard or his mellow temper. John leaves behind his wife, Laura, son, Noah, and daughter, Zoe. I’m sure he’ll be playing “Stairway to Heaven” next.

It seems that many of our few female classmates have become very successful. Dr. Julie Shimer, who started out with a B.S. in physics, has moved into director positions with Apollo Endosurgery and Masimo Corp. after leading Welch Allyn and Vocera as both CEO and president.

Remember, if you are coming for Reunion, let me know if you can help plan the event. Your help will be appreciated.
—James C. Wernicke, P.E. ’74

1975

Greetings to the Class of 1975! We received an article from the Albany Business Review concerning Bob Bedard (EE), CEO and owner of DeFacto Global, a tech company based in beautiful downtown Troy, which focuses on financial forecasting software for Fortune 500 companies. Bob started DeFacto Global in 2010, and moved it to Troy in early 2017 so he could partner with RPI and escape Connecticut.

Altivia, a chemical company headquartered in Houston, Texas, has appointed Russ Herman (Mech.E.) as commercial manager of its Aromatics business, responsible for sales and marketing of phenol, acetone, alpha-methylstyrene, and bisphenol-A, produced at their plant in Haverhill, Ohio.

In June, 2018, Gerry Ogris (Econ.) was appointed to the advisory board of URentMe.com, an online marketplace for renting recreational vehicles, motor sports, and motorized watercraft based in Henderson, Nev.

Frank Pitts (Arch.) continues to collect accolades. He was named the 2018 Changemaker Award recipient by the Center for Health Design’s board of directors. The award honors individuals or organizations that have demonstrated exceptional ability to change the way health-care facilities are designed and built, and whose work has had a broad impact on the advancement of health-care design.

I got a quick note from Ray Weisner recently. He writes: “Wanted to say hello and provide—for example—for my architecture mates—three blasts from the past. I was in New Mexico this fall, and caught up with a long-lost former classmate, Lorn Tryk. Lorn lives in Santa Fe and has his own architectural firm. He transferred to Rice after our sophomore year. It was great to see him! Also this summer, I caught up with another former classmate who transferred out, to RISD, Peter Dubin. Peter joined the firm in Chicago that his father was in, and Peter has designed, among other things, a fantastic residential high-rise in China. Finally, over the summer Paul Nilsson and I had a great (and very retro) time at the Peter Frampton and Steve Miller Band concert in NYC. Reliving the dream. I’m still living and working in Manhattan, as a partner with VRC Valuation Research, a business valuation and M&A consultant. I hung up my architecture spurs right after getting my RA registration, and just after my MBA. My wife, Carole, is almost entirely too happy in retirement. All is good.”

At the last moment, I also received a note from Bob Dowgwillo (Aer.E.). He writes: “The Dowgwillo household is set to celebrate three weddings within 15 months. Son Alex was married this past August. Our elder daughter Emily is engaged to be married in May 2019, and younger daughter Catherine is engaged to be married in October 2019.” Bob and Heidi have downsized and have settled into their 1908 duplex near Forest Park in St. Louis.

On the home front, I now have a married son—the wedding was lovely all the way around, and the weather cooperated, too! To save a bit of time and money, my wife and I spent a week in Bar Harbor (oh, excuse me, “Bah Hahbah”), Maine, and toured Acadia National Park. On our way north, we stopped in to visit Jon Lathrop (Nuc.Sci.) and his wife, Patty, in Lowell, Mass. We had a great visit!

And the Boston Red Sox won the World Series! Go Sox!
—David Stark ’75

1977

Rich Tocher wrote that he retired at the beginning of 2019 from a 40-year career as a consulting geotechnical engineer in Colorado. His work included design of high-rise buildings, highways, and dams across the western United States. He now lives in Crested Butte, Colo., where he and his wife, Julie, are skiing, climbing, and hiking.

The Fall 2018 Class Notes highlighted memories of the summer survey courses. Rich remembered that his father, Frank Tocher ’41, completed the 1940 summer survey in the forests around Warrensburg, N.Y. At the course Frank met his future wife, Doris, at a Saturday night dance.

John Hill remains active in civic affairs in Alexandria, Va., as chairman of the board of Alexandria Renew Enterprises, the city’s wastewater treatment utility. In October, Alexandria Renew was recognized as “Partner of the Year” from the Potomac Riverkeeper Network, for launching a seven-year construction program to reduce raw sewage overflows into the Potomac River by more than 96 percent by 2025. John received the award from Robert Kennedy Jr., president of the National Riverkeeper Alliance, who said, “From high school rowing teams, to kayakers, to anglers—everyone who uses the Potomac River downstream of Alexandria will be a beneficiary of this project.”

Vic Vitcek and his wife have completed (more or less) their move to New Hampshire and are enjoying their new home. Vic writes that there was a highlight—when they flipped the switch and started using power from the solar panels—while it was mostly sunny they were able to power the house and feed excess power back to the grid. “While we have adjusted, the cats are still a bit confused about why things have been moved so much. Our dog just rolls with the punches.”

That was it this time, folks! Don’t forget to send me your news!
—Maureen H. Regan Robinson ’77

1978

It was wonderful seeing all of our classmates at our 40th Reunion in early October at RPI. We all have neat shirts and sets of RPI socks courtesy of the “Fute,” to proudly spread the word of RPI’s “Transformation”! The scheduled activities were great, along with simply walk-
We're sorry to report that Rich Morris passed away in April 2018. After undergraduate studies in the management/law program at RPI, he entered Albany Law School. After graduating from law school, Richard completed the LLM program in taxation at New York University. Rich worked in the JPMorgan Chase Corporate Tax Department for 37 years, and as managing director, traveled all over the world for JPMC. Rich always had fond memories of being the music director and DJ at WRPI “Nifty 91.50” FM.

AmideBio LLC recently announced that Pawel Fludzinski has been named CEO. AmideBio has a pipeline of biotherapeutics targeting metabolic diseases. Pawel was recently with Eli Lilly & Co. where, as global brand development leader, he led a cross-function team developing drugs targeting diabetes.

Sam Anthony was awarded the 2017 NYS Council Russell D. Porter Service to ASCE Award in August 2018. Sam was chosen for this award given his exceptional service and dedication to the civil engineering profession and his local American Society of Civil Engineers branch, along with mentoring young civil engineers and enhancing the public opinion and knowledge of the civil engineering profession.

John Benedict, our class physician/author, has released his fourth medical thriller, Bad Robot. His earlier books included Adrenaline, which became the no. 1 medical thriller in the Kindle store (Oct. 2014) and garnered a write-up in The Washington Post. There are over 200,000 copies in print of his books, and when it was released in November, Bad Robot was in the no. 2 spot of Hot New Releases on Amazon in the medical thriller category.

As more of us retire, expect to see more notes about our interesting side trips and experiences. We recently had a family wedding in Cleveland and took advantage of the opportunity to visit the National Museum of the U.S. Air Force at Wright-Patterson in Dayton, Ohio. A huge museum, rivaling the Smithsonian’s museums, we spent the entire day there and didn’t see all of it. The newly restored B-17 Memphis Belle was brought into the museum in May 2018. While in the rear-most building, I was very surprised to come across the Teal Ruby satellite sitting in the cargo hold of a Space Shuttle mockup. This satellite was designed to detect the heat signatures of enemy aircraft crossing the polar region during the cold war, along with detecting missile launches and other events. Our good friend and RPI alum Jack Haberle ’73 wrote code for this satellite for at least five years. Due to the Challenger accident and budget issues, the satellite was never launched, but is now proudly on display!

—Mark Keough ’78
modems and positioning products, flotation, releases, pinger locators, and deep tow systems. He was previously vice president of sales and marketing at Falmouth Scientific Inc. Carl serves on the board of the Marine & Oceanographic Technology Network (MOTN).

—Kathy Pratt Harrington ’80

1981

Thomas McNellis, senior manager, advanced programs strategy, for Lockheed Martin Rotary and Mission Systems, was one of the first three inductees into the Weather Hall of Fame at the National Weather Museum and Science Center in October 2018. His work led to development of the National Weather Radar Testbed, which advanced the state of the art in tornado detection and warning using adaptive radar scanning, and facilitated research for multi-mission phased array, and assimilation of radar data into forecast models.

With deep sorrow I must report that my friend, Mike Pickett, passed away Aug. 21, 2018. A passionate hockey player, he was inducted into the Auburn High School Hall of Fame in 1980. He loved traveling the world with his wife, Terri, and his work as director of global channel sales at Brooks Automation and regional sales director at InnovoTech allowed him to travel to more than 25 countries. He loved driving his Miata to Maine beaches, skiing with his daughters and friends, and following his daughters’ softball careers. He will be greatly missed.

—Marc Glasser ’81

1982

Please join us on Facebook! www.facebook.com/groups/RPIClassOf82.

Faye Yarbrough was endorsed to serve as an International Ministries (IM) missionary in King William’s Town, South Africa. She will serve through an IM partner, the Baptist Union of Southern Africa, as a teacher of math and science. Faye has held a variety of professional positions related to chemical engineering, earning numerous educational and career accomplishments and awards in the field. Her most recent role is laboratory manager with Triumph Processing Inc., in Lynwood, Calif.

David Dickoff, M.D., reports that he “is so proud that his son, Aaron, is an RPI freshman and an RPI Medal winner.” David also noted that the dorm rooms are exactly the same!

Mark Weyna continues to work in the medical device space and is currently SVP of customer success and operations at United Imaging Healthcare. On the side, Mark and his wife, Nancy, are opening multiple kickboxing studios in Seattle and Tucson. His daughter is finishing grad school and will be a DVM exotic animal pathologist, and his son recently graduated and is now an exploration geologist. Mark would be happy to reconnect at mark.weena@yahoo.com.

Bob Laurita shared that “...after nearly 40 years, this is my first time writing an update for the alumni magazine. Ironically, it is just a few months before I will retire from corporate life to spend more time with my family.

“Since graduation, I’ve spent most of my career in the electric utility industry. For the past 15 years, I’ve worked at ISO New England, the organization that administers the region’s wholesale electricity market. I’ve had the opportunity to work with many dedicated people and helped the advancement of energy efficiency, renewable resources, and competitive electricity markets.”

Bob also noted that, “Hopefully the next chapter of my life will be as rewarding. My wife and I plan to travel, sail, ski and—most importantly—spoil our grandchildren!”

Bob (above) also challenged me for my own update...so here’s the Mark Bowers story! By the time you read this, I’ll be a little over one year in as the founder and executive director of the Professional Development Consortium of Hampton Roads (pdc-hr.org). The consortium is a platform for local volunteer leaders to connect, coordinate, and collaborate on common goals and challenges. We provide low-cost/no-cost leadership education to local professional societies, civic associations, faith-based groups, and service organizations.

On a somber note, Neil Christie let us know that our classmate and his longtime friend Dave Didio passed away in September 2018. Dave was a Navy aviator with 10 years of active service, and later retired from the Naval Reserve with the rank of commander. He worked for 10 years in the Federal Reserve Bank of Richmond as an information technology expert. Most recently, he was a partner in a successful home improvement business. Dave was known to his large circle of friends and clients for his cheerful disposition, his kindness, sense of humor, his loyalty to friends, his love of animals, and his excellent cooking.

I had the pleasure of reconnecting with Dave over a phone call a few years ago. Fair winds and following seas, shipmate.

—Mark Bowers ’82

1983

David Gertler received the Albert Fox Demers Medal from the Rensselaer Alumni Association. This award is the second highest award that the RAA bestows and was established in 1942 to recognize substantial contributions to the welfare of the Institute by either alumni or non-alumni and to stimulate further interest in the support of Rensselaer.

James Hardie Industries announced that Jack Truong will become the company’s new CEO. Chairman Michael Hammes said, “Jack offers the ideal combination of commercial expertise, operational excellence, and leadership in order to continue to grow the business and maintain the industry-leading performance, across multiple geographies.” Jack has been president of international operations at James Hardie since early 2017. Prior to that, he was president and CEO of Electrolux North America. Earlier, Jack enjoyed a successful 22-year career at 3M Company, where he held senior leadership roles throughout the U.S., Europe, and Asia-Pacific.

Colleen Costello ’12, co-founder and CEO of Vital Vio, was selected by Goldman Sachs as one of the 100 Most Intriguing Entrepreneurs of 2018 at the Builders + Innovators Summit in October. Vital Vio is a pioneer in continuous disinfection technology.

Norma Hubele, Ph.D. ’84, engineering professor emeritus at Arizona State University, founded The Auto Professor (www.theauto professor.com) and created the ranking system Auto Grades, a data source for accurate information on how well cars have protected drivers in crashes. She has provided expert witness testimony in over 100 legal cases involving vehicles.

Thomas McNellis ’81, a senior manager at Lockheed Martin, was among the first three honorees inducted into the Weather Hall of Fame. His work led to development of the National Weather Radar Testbed, which advanced the state of the art in tornado detection and warning using adaptive radar scanning, among other breakthroughs.

100+
He is the recipient of 11 U.S. patents and several international patents. And, he enjoys giving time to philanthropic causes and professional industry associations.

—Don Hubicki ’83

1984

35th Reunion: Sept. 26-28, 2019 There are some very flattering comments about Tim McCabe in Digital Journal. Tim is “a dynamic, methodical, and self-driven individual with excellent communication skills and a proven track record of successfully building high-performing organizations.” Tim is the director of sales and marketing at Auto-Guide Mobile Robots. Before this position, Tim served as VP of marketing and technical sales at American Science and Engineering Inc. Prior to that, he held the position of director of AMHS product management at Brooks Automation. Tim graduated with his mechanical engineering degree from RPI.

The Hanover Insurance Group announced that Kathleen S. Lane was elected to the company’s board of directors. She has held senior roles at several Fortune 500 companies, most recently as executive vice president and chief information officer at TJX Companies. Kathleen earned her bachelor’s degree at SUNY-Albany and her MBA and M.S. in management information systems at RPI.

Meredith Gordon Stevens was appointed to the board of governors for GSI US. GSI is an information standards organization that brings industry communities together to solve supply chain problems through the adoption and implementation of GSI Standards. Meredith is vice president, strategy and deployment, at Johnson & Johnson Supply Chain. Meredith is also an active member of the Smithsonian Science Education Center and the RPI Supply Chain Advisory Boards.

Norma Hubele, Ph.D. ’84, an automotive safety expert and educator, founded The Auto Professor, a resource that uses statistical findings to educate consumers about the safety record of cars (www.theautoprofessor.com). She created the ranking system Auto Grades, a data source for accurate information on how well cars have protected drivers in crashes. “Our fun Auto Grade search allows people to look up vehicle safety grades by not only make, model, and year, but by their age and gender! It’s really exciting, groundbreaking stuff,” she told Arizona Footballs Magazine. Norma is engineering professor emeritus at Arizona State University. She has studied auto crash statistics and auto safety for over 30 years, and has provided expert witness testimony in over 100 legal cases involving vehicles.

Sean Lydon sent in an upbeat note. To celebrate their 34th reunion, a small group of alumni responded to a contest to see who had lasted the longest in their first job. The hands-down winner was Charles T. Bucci who still works for the same organization, Allegro MicroSystems, LLC, in Worcester, Mass. (National anthem playing in the background as he is handed his award.) Chuck also is proud to announce that his oldest daughter, Danielle, is attending RPI as a member of the Class of 2022—third generation! Second place was captured by Louis Agro, who now works for Frontier Communications from Westchester County, N.Y. Lou reports he and his wife, Camille, have sent their youngest son James off to college and are now empty nesters. Mike Hure rounded out the medalists. He and his husband, John, are busy renovating the former Stover Mansion in Bucks County, Pa., but still find time to travel in the U.S. and Europe. Not making the podium was Sean. Still a bit on the competitive side, Sean soothed his wounds just as he did after a brutal Comp Fund project, with a cold brew after it was all over. Sean works as an international trade consultant from Washington, D.C., which has kept him on the road quite a bit lately.

—GRACE ROTH ’88

“Nancy Aronson ’88 has been honored as a Rising Star by P.O.W.E.R. (Professional Organization of Women of Excellence Recognized) for her outstanding contributions and achievements in the field of financial services. She is also the owner of Iggie’s Curiosity Shoppe, and sells her own art/jewelry.”

1985

After running a practice at the Valley Medical Center in Renton, Wash., Eric Waterman, M.D., an ENT and rhinoplasty and facial plastic surgeon, has opened the Waterman Rhinoplasty and Nasal & Sinus Center of Seattle in Madison Park, Wash. A graduate of the RPI/Albany Medical College B.S./M.D. program, he was inspired by his great-grandfather, who was also an eye, ears, nose surgeon, and discovered his passion for this specialty during his residency. Dr. Waterman also provides allergy management and serves as clinical faculty for the University of Washington.

Last July, Lora M. Green (Chem.), a longtime patent trial and appeal board (PTAB) administrative patent judge, joined Wilson Sonsini Goodrich & Rosati, a Palo Alto, Calif., based provider of legal services to life sciences, technology, and growth enterprises worldwide. She has joined WSGR’s patent trial and appeal board practice as Of Counsel, and will be based in their Washington, D.C., office. Green’s tenure as an administrative patent judge (APJ) at the U.S. Patent and Trademark Office began in 2001. She has been one of the most active judges handling post-grant review proceedings covering life sciences-related patents. Before serving as an APJ, Green served as judicial law clerk and as a patent examiner in the U.S. Patent and Trademark Office.

Eyenovia has appointed Michael Rowe (M.S. Psych.) as vice president of marketing. Eyenovia is a clinical stage biopharmaceutical company developing a pipeline of ophthalmology products utilizing its patented piezo-print technology to deliver micro-therapeutics topically to the eye. In prior positions, he served as the head of global strategic marketing, ophthalmology, at Aerie Pharmaceuticals, where he was responsible for U.S. and international commercialization, planning, and execution for Rhoressa, a drug that lowers elevated intraocular pressure in patients with open-angle glaucoma.

The American Institute of Aeronautics and Astronautics named Sankaran Mahadevan (M.S. CE) to its 2018 Class of Fellows and Honorary Fellows for his dedication to the advancement of aeronautics and astronautics. Since starting at Vanderbuilt University in 1988, Mahadevan has served as professor of civil and environmental engineering, the John R. Murray Sr. professor of engineering, and a professor of mechanical engineering. His research interests lie in reliability and uncertainty analysis methods, material degradation, structural health monitoring, design optimization, and model uncertainty.

Paul Georges was named managing principal at JKRP Architects, a Philadelphia architectural firm that designs a range of retail and entertainment projects, as well as health-care and housing projects, and residential developments. He has been with the firm for 30 years.

I’d like to share some news of my own. At Reunion & Homecoming, the Rensselaer Chapter of Boston received the 2018 Craig W. Angell ’35 Chapter of the Year Award. As chapter president, it was both exciting and rewarding to accept the award. However, true recognition belongs to all those Boston area alumni who work throughout the year, planning all those events and functions that strengthen the RPI community.

In this column, I have often spoken about the RAA Scholarship Fund which the Rensselaer Alumni Association Board launched in 2016. From this fund, the RAA presented three RAA Red & White Emerging Leader Awards (M. Beaudoin ’19, M. Montero ’19, and S. Crooks ’20). It is very gratifying to recognize and assist
such quality young student leaders; they benefit from alumni generosity. If you have donated to any of the scholarship funds, thank you!

—Patricia DeLauri ’85

1986

Advanced Robotics for Manufacturing in Pittsburgh named Arnie Kravitz (M.S. EE) as its new chief technology officer. Kravitz’ primary responsibility is the development of technologies to make robotics more accessible in the U.S. manufacturing industry. He has previously held several C-level positions at major Fortune 50 technology companies and served as adjunct professor at Johns Hopkins University.

The Burlington Ontario Junior Hockey League Cougars hired Mark Jooris, former RPI hockey star, as head coach for the 2018-19 season. This is his third stint as head coach, and he has also served as the team’s general manager. Jooris was OJHL and Ontario Hockey Association Coach of the Year in 2015-16. Mark played for the Cougars prior to his NCAA career at RPI and also played professionally in Finland, Germany, Switzerland, and for the American Hockey League.

Rear Admiral Karl O. Thomas (Naval ROTC) assumed command of Combined Task Force 70, the U.S. Navy’s largest battle force, while aboard the aircraft carrier USS Ronald Reagan recently. This follows his tour as director, 21st Century Sailor Office for the Office of the Chief of Naval Operations in Arlington, Va. Thomas also earned an M.S. in information technology from Naval Postgraduate School in Monterey, Calif.

—Jane LaGoy ’86

1987

Valerie Bok was named a principal at architecture+, a design and service oriented architecture and planning firm in Troy that serves clients in health care, education, government, and other cultural and community organizations. She is currently collaborating on psychiatric facility projects in Wyoming and Texas and has recently designed new medical offices for The Center for Rheumatology and a children’s psychiatric facility in Columbus, Ohio.

—Peter Quinones ’87

1988

Flint Lane (CompSci) has been appointed to the board of directors of Bento for Business, a leading provider of financial management solutions for small and midsize businesses. Lane, founder and CEO of NJ-based Billtrust, has been named one of the 25 Most Influential Financial Operations Professionals by the Institute of Financial Operations (IFO) and recognized as the Ernst & Young Entrepreneur of the Year. He was also named 2017 Technology CEO of the Year by the Greater Philadelphia Alliance for Capital and Technologies.

Micaela Bulich (M.S. EE), former vice president global supply chain for GE Renewable Energy’s $8 billion Onshore Wind business, has been engaged as operative adviser to the investment firm Clayton, Dubilier & Rice. Prior to her multiple previous positions within GE, she worked 10 years at DuPont in supply chain and engineering roles. Bulich is the executive co-creator of GE’s Women in Supply Chain effort and is on the advisory board of AWESOME, an organization focused on advancing women in supply chain leadership.

Nancy Aronson (CompSci) has been honored as a Rising Star by P.O.W.E.R. (Professional Organization of Women of Excellence Recognized) for her outstanding contributions and achievements in the field of financial services. Aronson has been a technical specialist with the Federal Reserve Bank of NY on and off since 1989 specializing in information technology and software development. She is also the owner of Iggie’s Curiosity Shoppe in Midland Park, NJ, and sells her own art/jewelry on her website www.nekadesigns.net.

Ken Grey (MBA) has been made the senior vice president of Marshall & Sterling Insurance in their Leeds, N.Y., office. He began his insurance career in 1978 with St. Paul Companies as a commercial lines underwriter. Grey is also an adjunct instructor at Hudson Valley Community College in Troy.

Peter Emmi was named a partner in the Global Corporate Group of the law firm Reed Smith. He has extensive experience representing clients in diverse industries, including internet technology, health care, medical device, biotech, media, and virtual reality, and is a former engineer and manager at IBM. He earned his J.D. from Pace Law School in 2004.

I missed our 30th Reunion this past fall due to being out of the country, as this has been a very extensive travel year for me, with notable trips to Poland; Ukraine; Iceland, Greenland, and Norway; Brazil, Argentina, and Uruguay; and Egypt. I’ll be visiting my 100th country next year. Thankfully, as long as I have an internet connection, I can work while on the road. My traveling is enjoyable and has helped my travel agency, ABC World Vacations, grow by my having firsthand knowledge of many of the places I send clients. I’m off to my next adventure, so keep in touch!

—Grace Vitagliano Roth ’88

1989

30th Reunion: Sept. 26-28, 2019 Carol Driggs, M.S. ’89, was honored as one of five Women Who Light the Community by the Boulder Chamber Business Women’s Leadership Group in September. Carol is strategic staffing manager for the Boulder, Colo., location of Northrop Grumman, and within her position, she leads an initiative to increase Boulder’s STEM within the local schools, universities, and community. She has focused on creating a pipeline of talent into Northrop Grumman and developing that talent. She helped initiate and expand a “College Day” to hire the best students from college/industry engagement events, leveraged CyberPatriot internships, and led teams to establish Cyber/STEM camps for middle and high school students.

—Joseph Hom ’89
Greetings, all! I received just a few updates over the last couple of months. Capt. Paul Spedero Jr. (B.S. Mech.E.) turned over command of the USS Dwight D. Eisenhower on Aug. 9, 2018. Over the course of his nearly three-year tour, Paul brought Ike out of dry dock and completed a seven-month deployment supporting Operation Inherent Resolve. Paul’s next assignment was executive assistant to Director, Joint Staff.

Aninda DasGupta (M.S. ECSE) was named senior vice president - international, for global water technology company A. O. Smith Corp. Aninda is responsible for their businesses in Europe, India, Turkey, Vietnam, and Hong Kong, in addition to overseeing export sales and business development throughout Asia Pacific. His long career has included senior positions at OSRAM GmbH and DMC Worldwide.

After working at traditional consulting companies like Deloitte, as well as small consulting companies, Vivek Bhatia founded The Bhatia Group in 2013 to serve small to mid-tier clients in integrating project, product, and process management. He recently wrote a white paper on transitioning to Agile, titled “Overcoming difficulties integrating project and Agile product management.” You can access it through his LinkedIn profile page.

Craig Pine (B.S. Mats.E.) is living in Hoo-sick Falls with his wife, Denise, and their two children. Craig is the quality manager for Crystal IS in Green Island, a manufacturer of UVC LEDs founded by former RPI physics professor Leo Schowalter.

Otherwise, not much else to report on. I write this edition in early November from Pullman, Wash., where I enjoyed another Dad’s Weekend, visiting with our daughter at WSU. We’ve kept in touch with Bob Beauchamp (B.S., Mech.E.), who in turn has been keeping in touch with our son, as he pursues employment with Boeing after graduation from Oklahoma State in May 2019.

Please do drop me an email with any updates that you may have and look us up should you find yourself in the Houston area.

—Rob Sherman ’90

Amy Shiley has been promoted to assistant vice president of National Fuel Gas Distribution Corp. She is responsible for the human resources and payroll departments for the regulated subsidiaries in New York and Pennsylvania. Amy, who earned her M.S. in psychology at RPI, joined the company in 1991 as a management trainee.

—Richard Vehlow ’91

Justin Alford ’00, chief technology officer, and Michael Brandimarte ’00, M.S. ’02, head of business development, are part of the executive team at LeaveLogic that has been with the company from its conception in 2013 through acquisition in 2018.

According to Brandimarte, the startup has recently progressed from ideation, market development, venture funding, customer acquisition, and product launch through to strategic acquisition by a Fortune 300 company.

Company CEO—and Brandimarte’s wife—Anna Steffeney and the LeaveLogic team have created the first employee self-service SaaS (software as a service) platform to help employers standardize and scale the delivery of family leave processes and benefits through transparency, automation, and design.

The platform has been called “an essential modeling tool for employees” and “the missing piece!” by companies already using the product to help their employees design their family leave experience.

Former Classmates Navigate Successful Startup Cycle

Parental leave has become a hot issue as companies look to update their benefits policies to attract and retain top talent. To aid both employers and employees, the startup company LeaveLogic, with the help of two Rensselaer alumni, has developed a parental leave management platform.

Renato Camacho has been selected as the next president and CEO of the Akron-Canton Airport by its board of trustees. Since 2011, Camacho has served as the chief of planning and engineering for Cleveland’s Department of Port Control, which oversees Cleveland Hopkins International Airport, Burke Lakefront Airport, and the Lakefront Harbors.

Bendix Commercial Vehicle Systems has appointed Michael Hawthorne as the company’s new president and CEO. Since 2012, Hawthorne had been president and CEO of New York Air Brake (NYAB), a sister company of Bendix within the Knorr-Bremse Group.

Michael Kennedy is the new chair of the Department of Health Policy, Economics, and Management at the University of Texas Health Science Center at Tyler, School of Community and Rural Health. He had served as interim chair, and prior to that as associate professor.

—John Trammell ’92

Dan Couto is the chief technical officer of Vedanta Biosciences, a Cambridge, Mass., biotech company developing new therapeutics from live gut bacterial “microbiome.” Michael Picard was named chief financial officer at SWBR, an architectural and design firm based in Rochester, N.Y. Todd Shackett was named president of Southern Union State Community College in Alabama. He has two master’s degrees from Rensselaer, one in mechanical engineering and one in management.

—Ileana Gonzalez ’93

David Szczesniak was honored in the technical community as a technical fellow at Leidos Inc. for advancements in cyber solutions and innovation. Al Zytowski writes that he is back in school again. He is attending the National Defense University’s Eisenhower School of National Security and Resource Strategy and says it’s fun being back in a learning environment and with some great peers.

—Bill Wheeler ’94

John Milne, the Neil and Karen Bonke Associate Professor of Engineering Management at Clarkson University, was elected a fellow of the Institute for Operations Research and the Management Sciences (INFORMS).

Andria Zou was appointed to the role of vice president, business development and sales, at NVXL, a compute acceleration startup. Most recently she was the director of data center sales at Xilinx. Tom Kirby, who in high school earned all-conference honors three times in basketball and baseball, was elected to the Rockville High Athletic Hall of Fame.

25th Reunion: Sept. 26-28, 2019

Larry Butkovich was named vice president of operations for Precision Roll Grinders in Allentown, Pa. Prior to joining PRG, he worked for Fuji Electric Corp. of America as general manager of its Virginia Assembly Center in Roanoke.

An article in the Washington Business Journal last summer featured the new pier area at The Wharf in Southwest D.C., which was designed by StudioMB, a 12-person D.C. practice co-founded in 2011 by Adam McGraw.

—Bill Wheeler ’94

John Milne, the Neil and Karen Bonke Associate Professor of Engineering Management at Clarkson University, was elected a fellow of the Institute for Operations Research and the Management Sciences (INFORMS).

Andria Zou was appointed to the role of vice president, business development and sales, at NVXL, a compute acceleration startup. Most recently she was the director of data center sales at Xilinx. Tom Kirby, who in high school earned all-conference honors three times in basketball and baseball, was elected to the Rockville High Athletic Hall of Fame.
Mario Zuchovicki was named senior vice president of operations for Long Island-based BJG Electronics Inc. Dan Dalessio was appointed to lead the Product Development Group at Butler Automatic. Edward Kokoszka was appointed vice president, Global Sales & Marketing, for TRUE-AERO Asset Management.

—Michael Van Poots '95

1996

Hello, everyone. This issue's updates include a few awards, a whole bunch of new positions, and a personal visit!

David Gierga was elected a fellow of the American Association of Physicists in Medicine (AAPM) and presented with the award at their annual meeting held in Nashville in July. David is a medical physicist in Massachusetts General Hospital's Department of Radiation Oncology as well as an assistant professor at Harvard Medical School. Congratulations, David!

Tim DeGregory was inducted into the Upstate New York Basketball Hall of Fame. Tim played 102 games for the Engineers scoring 1,252 points (2nd in school history at the time, currently 5th overall), pulling down 272 rebounds, 117 assists, 98 steals, and nine blocked shots during his career. Congratulations, Tim!

Jon Espeland has designed and brought to market the Eastern Highlands Pack, a minimalist design horizontal hydration backpack. The pack has separate compartments for dry storage as well as a two-liter water reservoir. The pack weighs only eight ounces, making it ideal for day hiking, trail running, and mountain hiking. For more info, check out ridgebackpack.com.

Kathy Kay was recently named senior vice president and CIO for PG&E. Prior to this appointment she was PG&E's vice president of business technology. Don Seibert was appointed executive vice president of applied analytics for Valen Analytics, an Insurty company. Prior to joining Valen, Don was the VP service line leader for underwriting at Genpact. Emil Avram has been promoted to vice president—innovation for Dominion Energy. Previously, Emil was the director of engineering services in the Gas Infrastructure Group.

And lastly, in October Jonna Gerken made a trip to Minneapolis for WE18, the annual conference for the Society of Women Engineers. Jonna is the immediate past president for SWE. Fortunately for me, she was able to break away from the conference for an evening and we were able to catch up over dinner and drinks. It’s been an exciting run as president and now as past president. Back in August, Jonna was able to participate in the ringing of the NASDAQ opening bell with fellow SWE directors and members. Jonna is currently the manager for program chief manufacturing engineers with Pratt & Whitney.

—Hank Carbone '96

1998

Greetings! As we move past 20 years removed from our time together at RPI, take a moment to let me know what you have been up to. We would all love to hear from you!

Alicia Boler Davis has been elected to the Northwestern University board of trustees. Alicia is executive vice president, General Motors Global Manufacturing.

After spending 11 years as dean of the Business School for Innovation and Entrepreneurship at the Ana G. Mendez University System in Puerto Rico, Maritza Espina has been named dean of the College of Business at St. Ambrose University.

In 1997, Ajit Prabhu co-founded QuEST Global, an engineering services company, which has since grown to a $600 million business employing 10,000 engineers in 13 countries. Currently located in Singapore, Ajit plans to relocate to Bengaluru, India, in 2020 to be closer to what he describes as a “core region” for his company from a leadership development standpoint. Jeff Snopkowski was recently promoted to director of production engineering at Rochester Precision Optics, where he has been since 2015. Laura (Ferran) Rose writes about parent advocacy and green living and is the founder of the Vibrational Awareness Center of Rockland County.

—Mike Johnson '98

1999

20th Reunion: Sept. 26-28, 2019
Sekou Bermiss, associate professor of management at the University of Texas at Austin McCombs School of Business, was named to the list of Top 50 Undergraduate Business Professors by Poets & Quants for Undergrads. He has been at Texas McCombs since 2009, where he was elected to the Faculty Honor Roll. His research centers on how value is socially constructed in organizational settings.

—Erica Kulesza '99

2000

I received a few updates to share from alumni in the construction business in NYC. Sharon Berger joined Gannett Fleming Engineers and Architects as vice president and project executive of the Construction Services Business Line, where she will be leveraging her knowledge of rail, infrastructure, and vertical markets to grow the firm’s construction offerings.

Rob Cortiglia also has some big news: “Birch Construction Group (www.Birch-CG.com) was open for business on June 1st in New York and we hit the ground running! We are a full-service construction management and consulting firm specializing in projects that are in the $10M (+/-) range. I really would love to network with RPI grads in the NYC market!”

Thanks to Justin Gullotta for his work in the community and on the environment. He was elected to the board of the Upper Valley Land Trust, which works on conservation in the Connecticut River watershed. He is also an engineer at Hypertherm in Hanover, N.H., where he designs industrial products and has been named an inventor on three U.S. patents.

Jen Bacon was appointed dean of the College of the Arts and Humanities at West Chester University last spring. She has been at WC since receiving her Ph.D. in communication and rhetoric from RPI in 2000.

Congratulations to Lisa (Pietropaoli) Krug, who has authored a children’s book, The Snowmobile Named Little Vroom, with her sister, Laura A. Reinsich. She is also growing her new business, Snowmobaby, which designs snowmobile apparel and accessories for kids to share a love of snowmobiling with the next generation of riders.

Congratulations, also, to Nina Lynch who, with Rich and Winter, welcomed Chapel James to the world on Sept. 12, 2018!

—Bridget Olson ’00

2001

Travis McCune, a Naval Undersea Warfare Center Division Newport engineer and former head of Undersea Warfare Mission Engineering, was accepted into the Department of Defense Senior Leader Development Program, a highly competitive program that develops senior civilian leaders to excel in joint, interagency, and multinational environments.

—Mike Cooke ’01

2002

Niharika Mateti represented Hewlett Packard Enterprise (HPE) at the AnitaB.org’s 2018 Grace Hopper Celebration in Houston. She is a technical lead working at HPE for the last eight years developing infrastructure management software solutions, as part of the Defined & Cloud Group.

—Elizabeth Trawinski Aitken ’02

2003

Maureen Masiulis, a program manager in tactical solutions at Ball Aerospace, received the 2018 Society of Women Engineers Emerging Leader Award. Eric Palomaki was appointed vice president of operations at Core Molding Technologies in September. Nancy Scirocco Nesbitt joined United Personnel as vice president of business development for the Connecticut region.

—Ed DerGurahian ’03

2004

15th Reunion: Sept. 26-28, 2019
**2005**

Congratulations to Michael Comer and Maria (Milcetic) Comer ’06, who welcomed their second child, Michael Edward, on Aug. 6, 2018. Their daughter, Cassandra Marie, loves her little brother! Congratulations, also, to Nick and Jessica (Chiappone) Parenteau on the birth of Caleb Nicholas on January 6!

In an effort to raise $50,000 for cancer research, Kiel Weston was preparing to trek to Everest Base Camp with the Multiple Myeloma Research Foundation. Over the course of October 26 to November 8, 2018, Kiel planned to join patients and caretakers in Nepal as part of a team raising over 250k. For more info, go to https://endurance.themrmf.org/2018EverestBaseCamp/Kiel.

I have created a Facebook page to keep in touch as well. It is located here: https://www.facebook.com/groups/219666488863492/. My goal is to get all 853 of our classmates on it. We are currently @ 254. There are many of you out there that I would love to hear from!

—Katie Karaffa ’05

**2006**

Himani Kamineni received an Alumni Key Award from the Rensselaer Alumni Association. The Alumni Key was created in 1965 to recognize long-term and increasing levels of service in support of the advancement of Rensselaer (such as chapters, classes, fundraising, and special events), by either alumni or friends.

—Meghan Kate ’06

**2007**

Rich Palmer’s company, Gravyty, which makes AI-enabled tools for frontline fundraisers at nonprofits and higher education institutions, was on the floor of the Nasdaq Nov. 27 to ring the opening bell for Giving Tuesday. Gravyty was invited to ring the bell in acknowledgment of the company’s Pledge 1% partnership. Rich serves as co-founder and CTO at Gravyty.

—Alex Salinsky ’07

**2008**

Wedding bells are in the air! On June 29, 2018, James Rajotte married his husband, Brian Wheeler. Alumni Michael McGrattan, Katherine (Gifford), and Kamron Fazel ’07 joined in the wedding party festivities. Amanda (DeLaurentis) and Alex Brownell, Elizabeth Kelley, Kevin Canada, John Bensetler, and Meredith Streeter were also at the wedding. We wish you all the best, James and Brian!

Robert Johnston has been promoted to major at the U.S. Air Force Academy. His aeronautical rating is senior pilot, and he is currently an instructor pilot flying a TG-16, which is a glider at the academy. Congratulations, Robert, and thank you for your service!

Please keep your updates coming and make sure to like our Facebook page at facebook.com/RPIClassOf2008, follow us on Snapchat, and download our new Blackberry app!

—Trent Gillaspie ’08

**2009**

10th Reunion: Sept. 26-28, 2019  Eric Leibenguth has returned to the architecture, engineering, and planning firm CPL as associate architect, responsible for client management, as well as project delivery from design through construction for a variety of higher education, municipal, and parks and recreation projects. He was a five-year intern with the firm throughout his college years at RPI. He is located in Raleigh, N.C.

**2010**

Congratulations to Tim Heiman, who was named Minor League Broadcaster of the Year by Ballpark Digest. Tim has been broadcasting for the Binghamton Mets since 2011 and is considered by many to be one of the top play-by-play broadcasters in professional baseball!

Classmate Brent Biederman left the engineering corporate world to revive a long-abandoned farm on Chamberlain Highway in Connecticut—Rooster Rise Farm. ‘Tim had its first open house last summer and we wish Brent the best of luck in his first year of operation!’

Leveraging her engineering degree from RPI, Hayley Moynihan took to the streets of Brooklyn, purchased a 100-year-old brownstone, and spent the last three years fully renovating it! Check out her blog where she documents all of her trials and tribulations that came with the reno.

Make sure to like the new RAA Alumni Career Facebook Page!

—Meghan Lenihan ’10

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**Alumni Couple Creates Clean Technology Company**

Two doctoral graduates turned their passion for entrepreneurship, enthusiasm for renewable energy, and devotion to their country into a startup company poised to commercialize its first product, a solar water heater they say is the most compact and lightweight on the market.

Jose Lebron ’11 and his wife, Sheila Torres ’11, left Puerto Rico to pursue doctoral degrees in mechanical engineering at Rensselaer. Through their research into the aerodynamics of wind turbines, they discovered a desire to develop clean energy products.

Inspiration struck during a visit to their homeland. “I spotted a traditional solar water heater,” says Lebron. “It looked antiquated and scrappy, almost like a science fair project.”

Following graduation, the couple worked on aerodynamic design at Pratt & Whitney, where they were exposed to cutting-edge technologies and processes. At the same time they were building solar heater prototypes in their apartment and testing them at public parks.

After three years of development, Lebron and Torres arrived at the design that became the SUNNE Heater, which integrates the storage tank and the collector into a single piece and fits on less than 12 square feet of roof space. They moved back to Puerto Rico and founded Sunne Cleantech Lab.

While Lebron works full time at their startup, Torres is currently associate professor at the University of Puerto Rico, where she hopes to give her students the skills they need to stay on the island, something both she and Lebron have embraced.
Johannes Kutten completed the Medical Scientist Training Program at the University of Pittsburgh School of Medicine. He graduated with his M.D. and Ph.D. degrees in May 2018. This past summer he started an anesthesia residency at the University of Massachusetts Medical School in Worcester, Mass.

If you’re looking for a video game that is both fun to play as well as thought-provoking, pick up “Donut County,” created by Ben Esposito at Annapurna Interactive. Available on PlayStation 4, iOS and PC, its theme is loosely based on the rapid gentrification in Los Angeles and greater Southern California.

Daniel Siedsma, who has been at Indium since graduation as a chemical process engineer, recently earned his certification as a Lean Six Sigma Green Belt.

The Renewables Consulting Group hired AJ Negrelli as a project manager at their New York office. AJ previously worked for Siemens Energy and received his master’s degree at the Technical University of Denmark (DTU) after graduating in 2011.

Alex Parker traded snowstorms for sandstorms and relocated to the Phoenix, Ariz., area where he continues to work in the semiconductor industry. Haris Khan also made a career move and is now a software engineer at ASICS Runkeeper in Boston.

—Michael Zwack ’11

2012

Congratulations to Steven Taylor, who recently earned his Ph.D. in nuclear physics from the University at Tennessee.

Combining her passion for both the environment and golf, Delphine Tseng recently made a presentation about the British Open for Golf Channel International. A major at Rensselaer in sustainability studies, Tseng helped explain to viewers how the Carnoustie golf course in Scotland earned a certification from the Golf Environmental Association for helping to create habitats for animals such as rabbits and deer.

Michele Bustamante recently won a one-year Congressional Science and Engineering Fellowship. Her work as a postdoc for the MIT Materials Systems Laboratory involves the creation of models of supply and demand important to high-tech industries. Andrea Maret received an Alumni Key Award at the 2018 RAA Awards. Congratulations to both Michele and Andrea!

To stay connected with the Class of 2012, like our Facebook page, RPI Class of 2012, and follow us on Twitter, @rpiclass2012.

—Rob Sobkowich ’12

2013

Ready for a quick coast-to-coast update? Get in the car, and let’s go, Red. I heard updates about “local” classmates who attended Reunion & Homecoming Weekend: Matt Shiroma has stayed in the Capital District, where he works as an engineer at Applied Materials. Time to tune in: former a cappella guru and student club aficionado Howie Lien now works in student affairs at Juilliard. Courtney Nicholas celebrated her fifth year at Regeneron. Hats off to that! Speaking of milestones, at R&HC 2018 the Office of Alumni Relations recognized Corey Markovits’s significant contributions with its Director’s Award—thanks for your commitment, Corey.

Not too far away, graduate school classmate Alexandra Halvorson was appointed program manager of the Connecticut Undersea Supply Chain Consortium. And nearby in West Haven, Amanda Lambros is now engaged to Alexander Robinson. Amanda is a reliability engineer for Schick, and her fiancé is a brewing supervisor at Two Roads Brewing Co.

Speaking of beer, we’re going west: our classmate Chantel Columna joined fellow alumni Tamir Danon and Ayana Coker in opening Novel Strand Brewing Co. in Denver, Colo. In nearby Boulder, Tucker Farrell started studying for his master’s in aerospace engineering. Heading further west, Rebecca Nordhauser is a software developer at Microsoft. Carolyn Carlstrom hosted me on a stop in Seattle, Wash., in August. Carolyn assesses environmental sites at Landau Associates. After a quick SCUBA trip with Gaetano Licata ’15, I also met up with Dan Powell, who currently works on special projects at Amazon.

After completing his master’s at Princeton University and working the virtual reality scene in New York, Tyler Hopf designs products at Facebook in the Bay Area. Tyler married Isaac Chaput in late summer 2018—cheers to that! Down the street in Palo Alto, Chris Almadorov is finishing his Ph.D. at Stanford. Chris will join his wife, Kate Manz-Almodovar, in Providence, R.I., where she studies energy science and engineering at Brown University.

I also caught up with Lucas Lappe on a stop through Berlin. Lucas develops, sources, and builds products for clients of his design and engineering firm, based in Hong Kong and New York City. Also from the overseas newsroom, Michele Lynch earned a Ph.D. in chemical engineering at University College London. Her research examines protein adsorption onto tightly fitting mesoporous silica and the effects of nano-confinement on the catalytic activity of these proteins. Her micro-measurements deserve our macro-congratulations.

—Stephen Nock ’13

2014

5th Reunion: Sept. 26-28, 2019

André Lussier was promoted to the position of associate sales representative in the Lumirror Polyester Film Division of Toray Plastics. He joined Toray in 2016 as a process engineer. Prior to joining Toray, he was a product engineer at Worthen Industries.

—Sarah Spellane ’15

2016

Hello, Class of 2016! I hope this message finds you all doing well. Congratulations to our class’s newest engagement, Kelly Dearborn (class VP and fellow alumni official) and Chris Higley! Best wishes to the happy couple. Congratulations, also, to Antonio D’Elia on his recent promotion to engineer II at CHA consulting, a construction management firm in Albany. If anyone has any news or special events they are celebrating in their life, please feel more than welcome to share with us.

—Maggie Murphy ’16

2017

Alexandra Russo was hired as a project engineer at Schneider Engineering in Ronkonkoma, N.Y. Evan Wilson joined The Lighting Practice in Philadelphia as a lighting designer. He started his career working for small theater and dance companies, then transitioned to architecture. He earned his master’s degree in lighting at Rensselaer.

—Conrad Moss ’17

2018

Hi there, Class of 2018! My name is Steve Sperazza, and I’ll be serving as both your class secretary and class correspondent. If you have any specific updates that you’d like to see broadcasted to the class in a future column, feel free to reach out to me.

A few 2018 class members have already been making waves. For example, Master of Architecture graduate Cayla Walter has recently joined the firm architecture+, Ph.D. graduate Majeed Simaan was hired as an assistant professor at Stevens Institute of Technology, and Master of Architecture graduate Christina Biasiucci joined J2M Architects and Planners.

—Steve Sperazza ’18
3D Bioprinting: From the Lab to the Shelves?

By Carolina Catarino  |  Recreating human tissue is no longer science fiction

What if we could recreate an organ or a tissue in the laboratory when someone needs a transplant instead of making them wait on a list? Even better, what if we could have 3D bioprinted organs, stocked on shelves and ready to be used to replace injured or damaged tissues? Years ago, this idea of creating human body parts inside a laboratory would have been considered the work of a science fiction novel. This scenario—where live organs are created in a lab and kept in jars—can be scary and intriguing in the fictional context, but as a scientist, I can say that it can also be very inspiring. Even though we are probably years away from such an amazing reality, today, with the current advances in tissue engineering and the development of 3D bioprinting techniques, one can say this is no longer science fiction.

What is 3D bioprinting anyway and how is this going to help us live the science fiction dream? Conventional 3D printing uses an additive (e.g., layer-by-layer) process to manufacture threedimensional objects using synthetic materials such as nylon, resins, ceramic, and so on. These systems have been adapted for printing structures such as tissues and organs using “bioinks” containing biomaterials (e.g., proteins, biopolymers) and cells. These bioinks are loaded to cartridges on the printer and then, following a 3D model with a predefined pattern, the printer starts precisely depositing the bioinks in order to create a tridimensional structure. Once printed, these 3D models containing biomaterials and cells can then mature in the lab to form a structure that mimics parts, or even the whole function, of a tissue or organ.

Now you might be asking yourself, if we already have the technology, why are we still years away from having complex 3D bio-printed organs, such as the heart, available? The human body is a very complex machine, where tissues and organs work in perfect synchrony to keep us alive. Trying to recreate parts of this complex machine outside its natural context is very difficult. Some of the challenges faced by scientists working in this field include the search for an ideal source for cells, immunoreaction and maintenance of the structural integrity of the artificial organ, methods to supply nutrients and oxygen to all cells, development of a solution that could replace the blood function for tissues and organs grown in the lab, and how to properly preserve them for transport and storage.

This 3D bioprinting technology can help us overcome some of these challenges. For example, several research groups have been exploring different approaches to building vasculature systems using 3D bioprinting as a tool to precisely recreate vessels, which would facilitate the transfer of nutrients and oxygen to the cells. Other groups are working on the development of bioinks with suitable mechanical properties to help maintain the structural integrity of the tissue once it has been printed, similarly to traditional 3D printing processes.

So, if we are still years away from making complex 3D bioprinted organs, how can this technology impact our lives now? Other areas besides regenerative medicine have greatly benefited from the advances of this technology. For example, 3D bioprinted in vitro models of human tissues, such as the skin, are already being produced and commercialized. These models can be used as an alternative method to traditional animal models for testing cosmetics, demonstrating how 3D bioprinting is already transforming our society. Other applications include the development of personalized disease models that can help doctors and researchers design improved treatment strategies. Even if the generation of complex organs for regenerative medicine is a little ways off, I believe that very soon we will start seeing the use of 3D bioprinted tissues and body parts for the treatment of specific conditions, such as with skin grafting for treating burn victims.

With the exponential advances of this technology, we need to start thinking not only about its potential to create and transform, but also about the ethical and social implications involved. With that, I want to leave you with a final thought, which I hope will help continue to inspire and guide us as a society: How far can we push this exciting science in an ethical way, and more importantly, how will we make sure that everyone can access and benefit from these advances?

Catarino is a 4th year Ph.D. student who works under adviser Pankaj Karande, associate professor of chemical and biological engineering. This originally appeared in Every Day Matters.
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A recipient of the Joseph V. Landau Scholarship, Ananya Murali ’20 is a student in the Physician-Scientist Program and is active in student government, music, global charity, and mentoring activities. She founded Educate, Engage, Empower Inc., a nonprofit that has conducted anti-bullying and peace workshops for more than 1,000 students in India.

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