THE FULL SPECTRUM

FALL 2017

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WE HAD A REMARKABLE SUMMER AT THE HAJIM SCHOOL

Scott Carney, our new director of the Institute of Optics, officially took the helm on July 1. Scott brings a wealth of exciting new ideas and perspectives, and I am very excited to have him on board (see facing page).

Two new federally funded research experiences for undergraduates (REU) programs this summer expanded the opportunities for Hajim School students to gain hands-on research experiences and for visiting students to see what our school has to offer (see page 4).

The new Ghana field school, led by faculty members Renato Perucchio and Chris Muir of mechanical engineering and Mike Jarvis of history, enabled Hajim students to take community-engaged learning, entrepreneurship, internships, and the Grand Challenges Scholars Program, which will provide extra support that will enroll even more students next year (see page 6).

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We were accepted into the National Academy of Engineering Grand Challenges Scholars Program, which will provide extra recognition for Hajim students who successfully combine research, community-engaged learning, entrepreneurship, internships, and global experiences to address one of 14 grand challenges for engineering in the 21st century. This is a great way for Hajim students to take ownership of their education here and gain an edge when applying for graduate school or jobs.

Arts, Sciences & Engineering approved a comprehensive approach to hiring and promoting teachers of practice, which will benefit several of our faculty who have already been fulfilling this important role, and gives us greater flexibility in offering courses and strengthening our undergraduate programs.

We successfully moved the Department of Computer Science and the administrative and faculty offices of the Department of Chemical Engineering into Wegmans Hall, the Department of Electrical and Computer Engineering is now in the process of consolidating all of its labs and offices in the Computer Studies Building.

Our Baja SAE team had its best competitive season since at least 2000.

Duncan Moore, our vice provost for entrepreneurship and the Rudolf and Hilda Kingslake Professor in Optical Engineering Science, even had the honor of toasting the Emperor and Empress of Japan at the 24th Congress of the International Commission for Optics (ICO) in Tokyo.

And finally, we are welcoming eight outstanding new tenure-track faculty members this year (see page 8).

As you can see, we have lots to be proud of! But we cannot afford to rest on our laurels.

We need to redouble our efforts to attract more female and underrepresented minority faculty to our departments.

Our faculty members have enjoyed great success securing individual grants in recent months; given the current funding climate, however, we need to cast a wider net in search of new funding sources and broader networks of collaborators.

Above all, we need to do a better job of telling the world about our outstanding research and educational programs at the Hajim School, enabled by our exceptional faculty, students, and staff. We hope you will help us in these efforts!

Meliora,

Wendi B. Heinzelman, Dean

Read more about Dean Heinzelman at the Hajim website www.hajim.rochester.edu/about_dean_heinzelman.html.

Scott Carney has the best job in optics

Even as a boy, Scott Carney was intrigued with physics—and especially with optics.

“Optics is the physics you can see,” Carney related in a recent interview with Rochester Business Journal. “You carry around your best instrument (your eyes) all the time. I could do little experiments out in the world by squinting at things.”

Now he has what he calls “the best job in optics,” after becoming director of the Institute of Optics on July 1.

It is a homecoming for Carney, who earned his PhD in physics at Rochester studying with Emeri Wolf, the leading expert in coherence and polarization of optical fields. Carney’s doctoral work enabled him to become well acquainted with the institute.

“Everyone in Emeri’s group and Joe Ebeling’s and Len Mandel’s groups (also in physics) all kind of commingled with groups at the institute. There was really no distinction between optics done in physics and physics done in optics. It was a great community then and remains so today,” Carney says. He comes to Rochester from the University of Illinois at Urbana–Champaign, where he was a professor of electrical and computer engineering.

Carney replaces outgoing director Xi-Cheng Zhang, who remains on the faculty as the M. Parker Greves Professor of Optics.

During his five and half years as director, Zhang oversaw increases in undergraduate and master’s enrollments; new partnerships with universities in China and Russia, a near doubling of the Industrial Associates program; and increases in named professorships, student fellowships, and scholarships. The institute now shows budget surpluses rather than deficits.

Zhang’s “hard work and heavy lifting” as director “has made it easier for me to come in,” Carney says. Two of his initial priorities involve building on Zhang’s initiatives to create a strong undergraduate program and involve faculty in the institute’s governance.

A theorist who has written seminal papers on near-field inverse scattering, Carney’s work bridges the gap between pure and applied research. “All of the projects in my group are either driven by applications or are meant to drive new applications,” Carney notes. Among his innovations is a handheld medical diagnostic probe that uses near-infrared light waves rather than ultrasound. The device is produced by Diagnostic Photonics Inc., a start-up that Carney cofounded and serves as chief scientific officer.

“I am incredibly enthusiastic about entrepreneurship as a means to take the intellectual product of the institute and the University and do good in the world with it and as a means to help build the greater Rochester community,” Carney said in his RBI interview.

“He’s very well rounded,” says Wendi Heinzelman, dean of the Hajim School. “Scott is very outgoing and personable and is well connected to the optics community, including involvement in the Optical Society.”

“We are delighted to have him aboard.”
Students take “deep dive”

“We’ve had classes with professors all through our education who have been telling us about their research, and we know they’re doing all these incredible projects, and yet it was just totally under our radar,” says Meghan Patrick ’18.

“And now we’re involved in this whole other world that this University is so well known for.”

Patrick, a mechanical engineering major, was among the Hajim School students and faculty members at the center of a vibrant summer undergraduate research community at the University of Rochester.

Two new NSF-funded REU (research experiences for undergraduates) programs expanded the research opportunities for engineering and nonengineering students alike, including 16 from other campuses. So did a new faculty-led archaeological field school in Ghana (see page 6).

The Xerox Engineering Research Fellows, McNair Scholars, and Eisenberg Summer Fellowship program (in chemical engineering) were back as well.

Nearly 50 Hajim undergraduates and 31 Hajim faculty, plus graduate students, participated in these programs. Dozens of other undergraduates worked in labs through supplemental funding from faculty members’ grants.

Topics ran the gamut, from natural language understanding in human-robot teams to analysis of a triumphal arch in a historic church in Peru. From terahertz photonics to shape-memory polymers to failure mechanisms in nanoporous structures.

As an added bonus the David T. Kearns Center for Leadership and Diversity engaged students in a summer-long community-building exercise. This included dividing the students into Harry Potter-like “houses” to compete against each other at outdoor games, for example, and to see which house was most punctual to classes and events.

Students concur that summer—away from the distractions of classes and activities during the school year—is a great time to take a “deep dive” into a research experience. This helps them:

• develop problem-solving skills. Unlike solving a classroom problem, where the answer is known, research is “the process of creating new knowledge, of finding solutions where none are known,” says Wendi Heinzelman, dean of the Hajim School. “That’s a very different skill from what you get in the classroom,” but one that is critical to almost any career path.

• get a head start on applying for graduate school and start honing the research skills they’ll need when they get there. Many of the students, for example, benefitted from Graduate Record Exam prep courses offered by the Kearns Center.

• decide if research is something they really want to pursue. Working in a lab full time can be an eye-opening experience. “You can spend a lot of hours trying to figure things out,” says Graham Palmer, a visiting student from the University of Michigan who participated in the Computational Methods for Understanding Music, Media, and Minds REU. He applied computational tools to compare the sound quality of various re-mastered versions of Miles Davis’s classic jazz track “So What.” “After working eight hours, some days you feel like you haven’t accomplished much and you begin to wonder if you’re being productive. On the other hand, you are able to decide your own path.”

Granted, an eight-week immersion in research is not enough time to change the world. But it can be enough time to make a meaningful contribution to a lab.

Consider what Amanda Forti ’19 of chemical engineering and Katelyn Curtis, a mechanical engineering student from Clarkson University, accomplished in the lab of Regine Choe. They participated in the other REU, Advancing Human Health: From Nano to Network.

Choe, an associate professor of biomedical engineering, is investigating the use of an imaging technique called diffuse optics for breast exams. She assigned the students to work on a device that can automatically direct the probe that is used for the breast exams in a “faster, more repeatable way” than if the probe were held by hand.

Specifically, she asked the students to program a combination of translational stages that serve as the probe’s x- and y-axes and then integrate the two stages with the rest of the device.

Forts and Curtis had to familiarize themselves with Labview—a programming language neither had worked with before.

They pushed it off—with two weeks to spare. That left just enough time to do the first of many testings they had hoped to do. “But it was cool to see a project that we spent so many hours working on actually coming together,” Forti says.

“They did a remarkable job,” says Choe.

Andrew Fiana ’18 of mechanical engineering, one of 22 Xerox Engineering Research Fellows, worked in the lab of Douglas Kelby on designing and developing a test apparatus for a metal casting project that uses ultrasound to measure the flow of the melt as it solidifies. At top, left to right: 1) Jake Ataba of Rensselaer Polytechnic Institute, Darren Mueller of the Eastman School, Graham Palmer from the University of Michigan, and Stephen Rocco of audio and music engineering look over data comparing the sound quality of remastered versions of the Miles Davis jazz classic “So What” as part of the Music, Media, and Minds REU. 2) Robotic arm that Steven Broida ’18 of computer science is programming to respond to spoken commands so it can assist people with limited mobility. Broida worked in the lab of Thomas Howard as part of the Advancing Human Health REU. 3) Amanda Forti ’19 of chemical engineering and Katelyn Curtis from Clarkson University in the lab of Regine Choe.

To learn more about summer research: rochester.edu/news/summer-of-research/
It was not easy work. Tailing in temperatures of 80+ degrees—in the lowest levels of the inner fort where the air barely circulates—students took care not to touch the penciled drawings and data they were entering on their 17x14 clipboards. Their sweat could erase an hour’s work in an instant.

“We discovered we needed to be very careful in pacing the effort,” says Renato Perucchio, professor of mechanical engineering. “Because it was exhausting.”

But the effort was worth it.

Just ask Alan Xu ’18 of mechanical engineering, who was introduced to photogrammetry, which uses computer software to “stitch” together hundreds of photos of an object into a detailed 3D display. “I feel incredibly privileged to be introduced to such a powerful tool and taught how to use it,” he says.

Or Gilda DeDona ’18 of chemical engineering, who helped document the bricks used by the Portuguese, then by the Dutch and then by the British to make successive modifications to the castle.

“If I have learned anything from this experience, it’s to never be content to take a step back and examine just what you are doing,” she says. “I could never have anticipated the level of responsibility I feel, and the pride I take in the role I have been given as part of this project.”

The data will be used to create 3D models on computer that are far more detailed and accurate than previous surveys of the fort, Perucchio says. This would shed new light on how the fort evolved structurally. And it would allow engineers to “numerically shake” the computerized models to identify parts of Elmina that would be most prone to damage by earthquakes.

Eventually the project could include other representative coastal forts for comparison and perhaps even mosques dating to the early 15th century that still stand along the path gold traders followed north through Ghana.

“So I can see an effort in West Africa that we could continue for a substantial amount of time,” Perucchio says.

Students from this summer’s trip will have plenty of memories besides brick and mortar.

Such as eating fufu. Or traversing an elevated walkway through the rainforests of Kakum National Park. And visiting an Ashanti chieftain, who put the students at ease by demonstrating a game-winning penalty kick he delivered at a college soccer match.

After giving the students a tour of his home, the chieftain “invited us whenever we needed a place to stay while in Kumasi or Accra,” says Naomi Rutagarama ’18 of political science. “I may just take him up on his offer one day.”

To learn more about summer research, visit rochester.edu/news/summer-of-research/.

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DISCOVERING WITHOUT LIMITS

GHANA: Digital Archaeology of Heritage Buildings of West Africa

For the better part of five weeks this summer, Hajim school students painstakingly measured the dimensions of several rooms in Elmina Castle, the first of a series of medieval forts built by the Portuguese along the coast of Ghana.

“The students are seeing and why we see it,” DeDona wrote on a blog the students maintained online. “But the effort was worth it.”

The field school was an opportunity for nine students to learn how to systematically survey and then digitally reconstruct a historic structure.

Perucchio says the on-site experience was “absolutely fantastic. We managed to do twice as much as I expected to.”

Elmina, built in 1482, was initially a commercial outpost but later became a hub of the Atlantic slave trade after being seized by the Dutch. Still later, the British took control. So preservation of this UNESCO World Heritage Site is important for at least two reasons:

- as a physical reminder of a tragic chapter of human history
- for the insights it provides into evolving European military architecture as adapted to West Africa.

Perucchio hopes to increase the number of field school participants to 15 next summer, including students from other universities. He is organizing a conference in Accra, Ghana, in December to share the data gathered this summer and explore next steps and possible collaborations with international experts.

He foresees at least three years of data gathering at Elmina. This summer’s work, for example, focused on measuring and creating preliminary 3D models of the fort’s inner core of rooms.

The outer walls and adjoining structures still need to be measured. Perucchio also wants to study the fort’s original foundations, to see if parts of Elmina were expanded. He would also like to use noninvasive imaging techniques to explore the interior of walled-up sections.

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To learn more about summer research, visit rochester.edu/news/summer-of-research/.
Yahya Zhi will join the department starting with the spring semester of 2018 as an assistant professor. Zhi’s research is in computer architecture and systems. His research helps better software and hardware to make next-generation client and cloud computing faster, energy-efficient, intelligent, and safe, he says. His dissertation research for his PhD from the University of Texas at Austin (2017) advocated the use of the next mass milestone in cloud evolution, driven by mobile device need for energy efficiency. He spent the last year of graduate school as a research fellow at the Architecture, Circuits, and Compilers Group at Harvard and will join Rochester after finishing his appointment as a visiting researcher at ARM Research.

THE INSTITUTE OF OPTICS
Scott Carney joins the institute as director and professor after serving as a professor of electrical and computer engineering at the University of Illinois at Urbana-Champaign. (See page 3) William Renninger joins the institute as an assistant professor after serving as an associate research scientist and post-doctoral associate in the Department of Applied Physics at Yale University. Previously, Renninger was a post-doctoral associate in the School of Applied Physics at Cornell University, where he received his PhD. He studies experimental nonlinear optics to explore the ways in which light and matter interact, as well as to identify and develop successful commercialized technologies. Initial areas of focus will include nonlinear pattern formation, arbitrary ultrashort pulse generation, multimode nonlinear optics, and traveling-wave optomechanics, with applications ranging from high-performance optical sensors and silicon photonics to quantum information technology.

FACULTY AWARDS

Hussein Alieu, assistant professor of mechanical engineering, was named a Wilkins Assistant Professor by ASBEE.

Danielle Benoit, associate professor of biomedical engineering, received the 2016 Young Engineer of the Year Award from the Rochester Engineering Society.

John Criswell, assistant professor of computer science, received a Faculty Early Career Development (CAREER) Award from the National Science Foundation.

Valeri Goncharov, adjunct professor of mechanical engineering and senior scientist at the Laboratory for Laser Energetics, received a Leadership Award from Fusion Power Associates.

Ehsan Hoque, assistant professor of computer science, was inducted into the 2016 class of the Future of Computing Academy by the Association for Computing Machinery (ACM) and was named the 2016 ACM Fellow in Data Science.

Cindy Fitzgerald, senior technical associate in the Department of Chemical Engineering, received the Dottie Welsh award.

Cynthia Gary, assistant dean for grants and contracts, received the Hajim Outstanding Staff Award.

Douglas Kelley, assistant professor of mechanical engineering, received the University’s G. Gordon Curtiss ’36 and Jane W. Curtis Award for Nontenured Faculty Teaching.

Rob Lewaque, lecturer in audio and music engineering, received a “Silver Annie” (American Advertising Award) from the Rochester Advertising Federation.

Jannick Rolland, the Brian J. Thompson Professor of Optical Engineering, received the Edmund A. Hajim Outstanding Faculty Award.

Craig Sangster, senior scientist at the Laboratory for Laser Energetics, received a leadership award from Power Fusion Associates.

Adam Sefkow, assistant professor of mechanical engineering and senior scientist at the Laboratory for Laser Energetics, received from the National Science Foundation.

Ching Tang, professor emeritus of chemical engineering, received the Jun-Ichi Nishizawa Medal from EEE.

Müjdat Çetin, joins the Department of Electrical and Computer Engineering as an associate professor after serving as a faculty member of Sabanci University in Istanbul, Turkey, since 2005. His research interests are within the broad area of data, signal, and imaging sciences with cross-disciplinary links to several other areas in electrical engineering, computer science, and neuroscience. His research group has made several advances in three key areas: computational sensing and imaging, as applied to radar and biomedical imaging; probabilistic methods for image and video analysis as applied to biomedical image analysis, microscopic neuroimaging, and computer vision; and signal processing and machine learning for brain-computer/machine interfaces, with applications for alternative communication and rehabilitation for patients, and monitoring of cognitive states. Çetin received his PhD in electrical engineering from Boston University in 2001.

MECHANICAL ENGINEERING
Hosam Askari has been named a tenure-track faculty member in the department. He joined the faculty January 1, 2016, as an assistant professor primarily in a teaching role. His expertise is in deformation of materials, particularly the behavior of granular materials—for example, sand—which, under pressure, are solid but often behave more like fluids as a group. As a post-doctoral associate at MIT, for example, he codiagnostics simple, elegant model to predict the force needed to push objects through granular materials. Askari worked as a mechanical engineering designer for Fars Nanot and was lead mechanical engineer for CSMAG Middle East. While earning Bachelor’s and Master’s degrees, he completed his PhD research at the Iranian University of Science and Technology. He received his PhD in mechanical engineering in 2014 from Washington State University, where he led a research team in solid mechanics and integrated computational material engineering.

Ranga Dias, who received his PhD at Washington State University, joins the department as an assistant professor after a post-doctoral fellowship in the Department of Physics at Harvard. His research focuses on materials at extreme pressure and temperature conditions, a field that explores new materials, novel phenomena, and exotic states of matter. His main interests are high temperature superconductivity, magnetism, and superfluidity in the vicinity of quantum phase transitions. He also uses high pressure and temperature to understand chemical processes and interactions to synthesize novel advanced materials, such as high-energy-density materials, superhard solids, and quantum materials. Adam Sefkow has joined the department as an assistant professor after serving as a principal member of the technical staff in the Pulled Power Sciences Center at Sandia National Laboratories. Sefkow has made scientific contributions on a range of topics, including magneto-inertial fusion, shock and laser-plasma interaction physics, and intense charged particle beam transport. He has also provided leadership toward establishing predictive capa- bility through his collaborations with experiments at all three of the nation’s flagship high-energy-density facilities. He recently accepted a prestigious Early Career Program Award from the Department of Energy’s Office of Fusion Energy Sciences to help develop a hybrid fluid kinetic multi-physics simulation code to help interpret data acquired from high-energy-density physics and inertial confinement fusion experiments at the University’s Omega Laser Facility, the National Ignition Facility, and the Z-Pinches Facility Sefkow received his PhD from Princeton University in 2007.

MECHANICAL ENGINEERING
Yahya Zhi will join the department starting with the spring semester of 2018 as an assistant professor. Zhi’s research is in computer architecture and systems. His research helps better software and hardware to make next-generation client and cloud computing faster, energy-efficient, intelligent, and safe, he says. His dissertation research for his PhD from the University of Texas at Austin (2017) advocated the use of the next mass milestone in cloud evolution, driven by mobile device need for energy efficiency. He spent the last year of graduate school as a research fellow at the Architecture, Circuits, and Compilers Group at Harvard and will join Rochester after finishing his appointment as a visiting researcher at ARM Research.

ELECTRICAL AND COMPUTER ENGINEERING
Müjdat Çetin, joins the Department of Electrical and Computer Engineering as an associate professor after serving as a faculty member of Sabanci University in Istanbul, Turkey, since 2005. His research interests are within the broad area of data, signal, and imaging sciences with cross-disciplinary links to several other areas in electrical engineering, computer science, and neuroscience. His research group has made several advances in three key areas: computational sensing and imaging, as applied to radar and biomedical imaging; probabilistic methods for image and video analysis as applied to biomedical image analysis, microscopic neuroimaging, and computer vision; and signal processing and machine learning for brain-computer/machine interfaces, with applications for alternative communication and rehabilitation for patients, and monitoring of cognitive states. Çetin received his PhD in electrical engineering from Boston University in 2001.

COMPUTER SCIENCE
Sreeprath Pai joins the department as an assistant professor after serving as a post-doctoral fellow in the Institute for Computational Engineering and Sciences at the University of Texas at Austin. He obtained his PhD in 2015 from the Indian Institute of Science in Bangalore. His research interests are in compilers, computer architecture, and programming systems for heterogeneous architectures that contain accelerators like graphics processing units (GPUs). At Texas he developed the VIG compiler to make it easier for programmers to write high-performance GPU programs that process graphics on millions of vertices and billions of edges, which are commonplace in social network analysis, computational biology, information security, and recommendation systems. His PhD research described the first full coherence scheme for minimally redundant automatic memory hierarchy as an assistant professor. His research is in computer architecture and systems. His building better software and hardware to make next-generation client and cloud computing faster, energy-efficient, intelligent, and safe, he says. His dissertation research for his PhD from the University of Texas at Austin (2017) advocated the use of the next mass milestone in cloud evolution, driven by mobile device need for energy efficiency. He spent the last year of graduate school as a research fellow at the Architecture, Circuits, and Compilers Group at Harvard and will join Rochester after finishing his appointment as a visiting researcher at ARM Research.
“If you believe something can be done and it is worth doing, be persistent and just do it.”

Paul Forman ’56 did more than give this advice to the Class of 2003. He followed it himself during an outstanding career in optics. Paul cofounded Zygo Corporation and was recipient of NASA’s Apollo Achievement Award, the Edwin H. Land Medal and our own Distinguished Alumni Award.

The Paul F. Forman Graduate Fellowship in Optics and Entrepreneurship announced earlier this year will support up to two graduate fellows a year starting in 2018—thanks to his wife, Barbara, who endowed this award along with Paul’s friends.

Here is a list of other named professorships, fellowships, and scholarships that support Hajim School faculty and students.

### PROFESSORSHIPS
- William G. Wolf Professorship of Medical Optics
- Nicholas George Endowed Professorship in Optics
- M. Parker Green Professorship in Optics
- Joseph H. Oberhauser Professorship of Engineering
- Robert E. Hoppe Professorship of Optics
- Mary Lou Ingram Professorship in Biomedical Engineering
- Rudolf and Edna Klangdale Professorship in Optical Engineering Science
- William T. May Professor of Engineering
- Brian J. Thompson Professorship of Optical Engineering
- Dr. James C. Wyant Professorship in Optics
- Arthur Gould Gates Professorship of Engineering

### SCHOLARSHIPS
- Donald and Mary-Gay Brady Scholarship Fund
- Geoffrey Broughton Scholarship Fund
- Jack and Candy Carmel Endowed Scholarship
- Michael and Mary Lou Cary Endowed Scholarship
- Stephen Jacobs Endowed Fellowship in Optics
- Mary Lou Ingram Fellowship in Biomedical Engineering
- Nicholas George Endowed Fellowship in Optics
- Nicholas George Endowed Professorship in Optics
- William H. Eilinger Graduate Scholarship Fund
- Robert L. and Betsey L. McCrory Endowed Scholarship
- John and Susan Major Endowed Scholarship
- Sumner and Wanda Lapp Scholarship Fund
- Paul and Elaine Horn George Eastman Scholarship Fund
- William G. Allyn Professorship of Medical Optics
- Edward J. Grenier Endowed Scholarship
- Edmund A. Hajim Scholarship
- Hopeman Scholarship Fund
- Edmund A. Hajim Scholarship
- William F. Ginkel ’42 and Alfred O. Ginkel ’44, ’46 (MA) Endowed Scholarship
- William H. Eilinger Scholarship Fund
- William H. Eilinger Graduate Scholarship Fund
- William L. Gates ’42 and Alfred O. Ginkel ’44, ’46 (MA) Endowed Scholarship
- Edward J. Grenier Endowed Scholarship
- Edmund A. Hajim Scholarship
- Hopeman Scholarship Fund
- Paul and Elaine Horn George Eastman Scholarship Fund
- Peter George Landberg Memorial Scholarship Fund
- Leon and Wanda Lapp Scholarship Fund for Engineering
- John and Susan Major Endowed Scholarship
- Steven Fantone ’79 (PhD optics) is the new chairman of the Hajim School Dean’s Advisory Committee (DAC), replacing John Major ’67 (mechanical and aerospace engineering), who will continue to serve as a member.

The 21 members of the advisory committee meet twice a year to advise and counsel Dean Wendi Heinzelman and her staff. They also provide leadership in garnering financial support for the school.

Fantone, president and founder of Optikos Corporation, is a recognized expert in optical engineering and optical product development who has been awarded more than 65 patents. He is a fellow of the Optical Society, which he has served in several leadership roles, and is a senior lecturer in the mechanical engineering department at MIT.

He has been an active supporter of the University of Rochester as a fundraiser and valued advisor. For example, he is a charter member of the University’s George Eastman Circle, served on the Institute of Optics’ 75th Anniversary Committee in 2004, and was cochair of the Biomedical Engineering/Optics Fundraising Committee. He received the Hajim School Distinguished Alumni Award in 2009 and the University’s Distinguished Scholar Award in 2015.

Major, who served as DAC president for three years, is founder and president of MTSG (Technologies Solution Group) and is considered a pioneer of the wireless industry. He, too, has been an active supporter of the University and a charter member of the George Eastman Circle. He received the Hajim School Distinguished Alumni Award in 2010.
FAST FACTS

• The Hajim School’s undergraduate enrollment has more than doubled since 2008–09.

• Of current Hajim School undergraduates, 31 percent are female, 23 percent are international, and 11 percent are underrepresented minorities.

• Contributions to the Hajim School Annual Fund increased from $158,357 in 2009–10 to $669,000 in 2015–16.