

OUR PLAN IN MOTION

BECOMING THE UNIVERSITY WE WANT TO BE

RIT | **PRESIDENT'S
REPORT 2022**

RIT

PRESIDENT'S REPORT 2022

Rochester Institute of Technology

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FROM THE PRESIDENT

Continuing down the path to greatness

We shape the future and improve the world through creativity and innovation. As an engaged, intellectually curious, and socially conscious community, we leverage the power of technology, the arts, and design for the greater good.

— RIT 2025 Strategic Plan, "Greatness Through Difference"

When we drafted a new vision statement for RIT's Strategic Plan in 2018, the realities of a global pandemic were only a hypothetical part of our crisis training and preparation. While the university continues to carefully navigate the challenge of COVID-19, we have simultaneously never taken our eye off the plan's goals and objectives as we envision our future.

Today, midway through our 2025 plan, RIT is on a firm path to realize all we set out to accomplish—and more. We are becoming the university we want to be. This is to say that RIT is one of the top universities in the nation working at the intersection of technology, the arts, and design. And perhaps more important at this time in history, we put a high value on bringing goodness to the world.

We crafted our plan by focusing on four dimensions: people, programs, places, and partnerships.

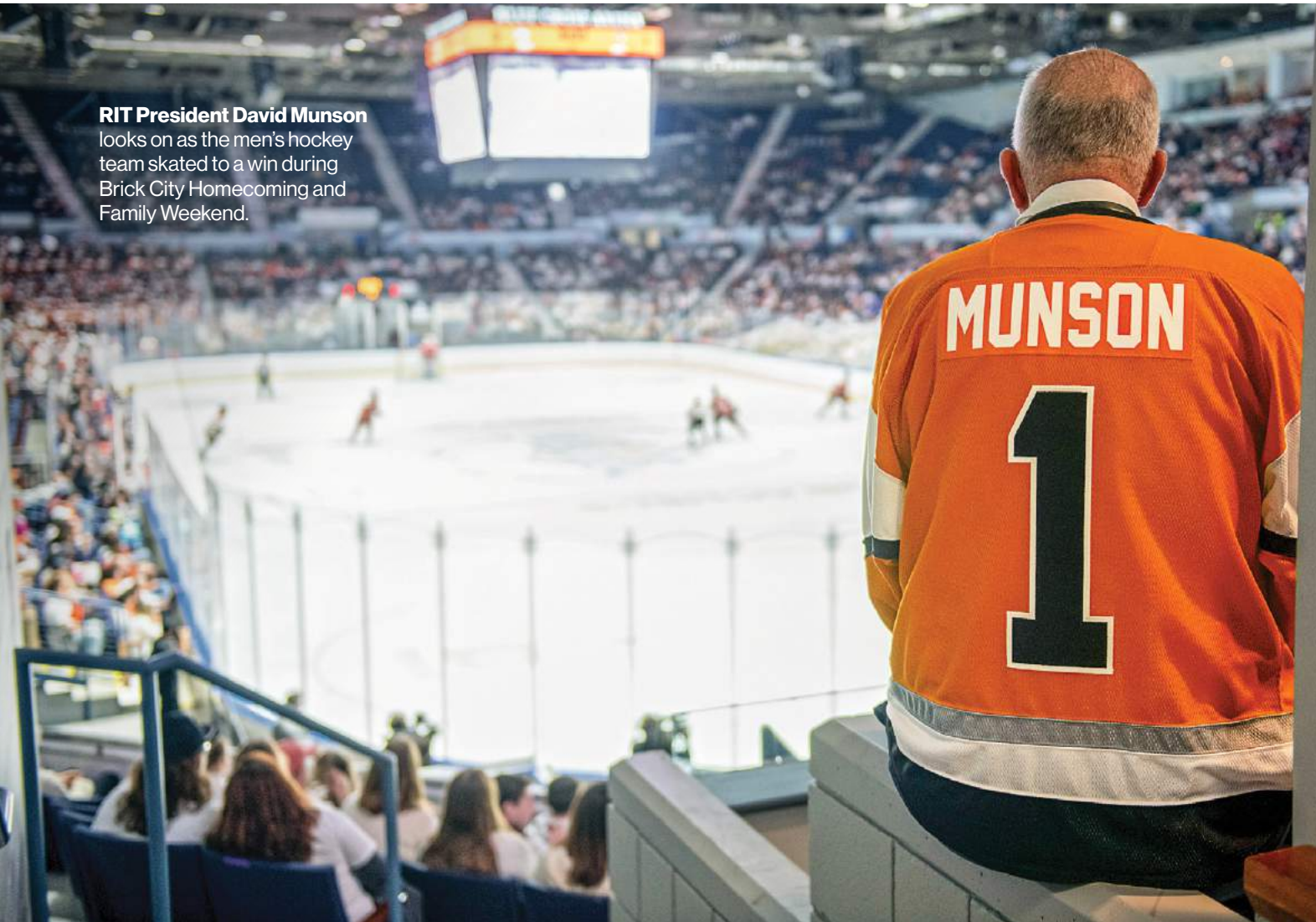
- **Imaginative people:** Our students, faculty, and staff come to RIT because they are looking for something different in a university—a place where they can exercise their multiple talents, satisfy their thirst for learning and for doing, and experiment freely. RIT's diverse and gifted students, faculty, and alumni are uniquely suited to become constructive agents of positive change. In the RIT context, innovation takes on a rich meaning; it is not about just novelty or originality, it is about creating the tools, processes, and systems that will make things better than they are.
- **Future-focused programs:** RIT is a university of firsts. We created the nation's first bachelor degree programs

in microelectronics, software engineering, and biotechnology, and we were early leaders in information technology and computing security degrees. We created the nation's first imaging science Ph.D. and offered the world's first doctoral program focusing on sustainable production systems.

This strategic plan also marks a significant shift in our career education mission. We do a better job at preparing our students for jobs and careers than almost anyone, but today the world needs more than people with a career; it needs people educated to mitigate the threats and navigate the complexities that surround us. Our graduates need skills — analytical thinking, complex problem solving, creativity, resiliency, and flexibility— that can adapt to evolving career fields.

In response to rapid changes in the workforce, including disruptions caused by the pandemic, RIT has created a new category of academic programs—New Economy Majors—that are multidisciplinary, transformative, and future oriented. The majors, ranging from packaging science to new media interactive development, ensure successful outcomes while meeting the ever-changing needs of a new and evolving economy.

- **Creative places and spaces:** We are building more space for our creators and makers. Currently underway are the largest construction projects in RIT's history since the move to a suburban campus from downtown Rochester in 1968. This includes the SHED—Student Hall for Exploration and Development—that will house makerspaces,



Elizabeth Larnak

RIT President David Munson looks on as the men's hockey team skated to a win during Brick City Homecoming and Family Weekend.

classrooms, a black-box theater, dance studio, and music rehearsal rooms. Complementing this project is a performing arts center that will feature a 750-seat theater and eventually a 1,500-seat orchestra hall for larger audiences. The new facilities are an essential part of RIT's plan to develop the leading performing arts program in the nation for non-majors.

- **Enriched partnerships:** We are extending our reach to serve Greater Rochester and the Finger Lakes region, New York, the nation, and the world. This ranges from exploring the future of "smart cities" at our new campus in RIT Dubai to working on economic development issues involving battery prototyping or digital gaming hubs. And we continue to strengthen the National Technical Institute for the Deaf's

position as an international model of inclusive excellence and accessibility.

Since the 19th century, RIT has been an agile and enterprising university. We thrive on being different. We have an uncanny record of anticipating educational needs and trends that benefit the greater society. This is an extraordinary time for RIT, and with our amazing community of creators and innovators, we are on to something that is truly exceptional.

Forever upward,

David C. Munson Jr., President
munson@rit.edu
Twitter: @RITpresident

**Transforming RIT:
The Campaign for Greatness**

The \$1 billion campaign is bringing our strategic plan to life and has made an impact on every project featured on the pages ahead. The blended campaign seeks support from a variety of investors, including alumni and friends, government and corporate partners, and research foundations and agencies. We are in the final stretch.

Learn more at:
rit.edu/transformingRIT

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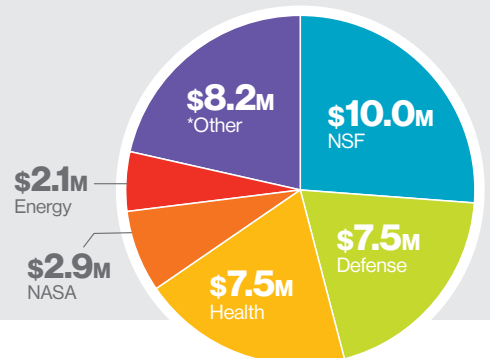
By the numbers

- Enrollment
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Federal awards by agency

The federal government awarded more than \$38 million during the 2020-2021 fiscal year.

**All other federal agencies, such as Agriculture, Justice, and Labor.*





PEOPLE

TURNING TIGERS INTO THEIR BEST SELVES

Community of innovators

hits record

People are the foundation of everything RIT does.

Students, faculty, and staff come to RIT because they are looking for something different in a university—a place where they can exercise their multiple talents, satisfy their thirst for learning, and experiment freely across borders.

RIT's community of students, faculty, staff, and alumni has grown larger than ever.

Enrollment jumped to a new record last fall with 19,718 students studying across all campuses, up 1,050 from fall 2020. On the main campus alone, enrollment jumped to 16,874 students, up 666 from the year before.

Part of that enrollment leap is because for the second consecutive year, RIT welcomed a record number of first-year undergraduate students. About

3,360 students kicked off their academic careers last fall, up from 3,129 from fall 2020.

Much of RIT's growth has occurred in its New Economy Majors, programs that occupy a unique area, somewhere between classic majors and those traditionally described as specialized.

By combining dynamic areas of study, New Economy Majors—such as imaging

science, packaging science, supply chain management, among others—break down traditional boundaries and open students to a whole new world of possibilities.

The newest class is the most academically prepared ever, boasting an average SAT score of 1326, an average ACT score of 30, and an average GPA of 93.2 percent. In addition, 42 new students had a perfect SAT math



Enrollment at RIT's main campus jumped to **16,874 students**, up 666 from last year.

A. Sue Webster

At a glance

4,594

RIT awarded 4,594 associate degrees, bachelor's degrees, master's degrees, Ph.D.s, certificates, and advanced certificates in the 2020-2021 academic year.

970

Last fall, RIT enrolled 970 deaf/hard-of-hearing students—441 at NTID and the rest spread out among RIT's other colleges and degree-granting institutes.

5,180

RIT's largest college, Golisano College of Computing and Information Sciences, enrolled 5,180 students.

1.73M

There have been 1,733,512 total RITx course enrollments on the massive open online course platform edX. RITx has awarded 1,488 MicroMasters program certificates.

numbers

score, and 14 had a perfect SAT or ACT score. And 62 graduated first in their high school classes.

As RIT grows, the university is implementing new programs, services, and policies to ensure that it grows in diverse, equitable, and inclusive ways.

Last year, RIT unveiled the Action Plan for Race and Ethnicity, which will guide efforts over the next several years to help create equal access, opportuni-

ties, and respect for all.

The plan has three main pillars with several broad initiatives underneath each.

The pillars focus on leadership, culture, and communication; African American, Latino American, and Native American student enrollment and success; and faculty and staff recruitment, retention, and advancement.

"This plan was developed by the RIT community for the RIT

community," said Vice President and Associate Provost for Diversity and Inclusion Keith Jenkins. "Achieving the initiatives laid out in this plan will help make this university a much more inclusive, welcoming, vibrant institution that benefits from the contributions of all of its participants at all levels."

Luke Auburn '09, '15 MS

RIT students, faculty, and staff contributed music, acting, comedy, poetry, and photo-journalism during the **KeyBank Rochester Fringe Festival** in September.

RIT students participated in **The Tempest**. The summer production was double cast with a voice performer paired with an American Sign Language performer.



A. Sue Weisler

Performing artists take center stage at RIT

Namrata Nagar, a master's student in the College of Liberal Arts, didn't know about the varied opportunities in performing arts before she applied to RIT.

But she is thankful she was given a platform to pursue dance.

"Dance is now more like a musical prayer than just a performance for me," she said. "I had everything except a stage and a receptive audience, which RIT was able to offer to me at the right time."

RIT is well on its way to developing the leading performing arts program in the nation for non-majors, attracting talented and creative students who can continue their passions for music, dance, theater, and other performing arts.

RIT President David Munson has observed that math and music often live in the same brain. So, he championed the creation of a Performing Arts Scholars Program as a means of attracting top, multi-talented students.

He also sees the performing arts as a powerful means of improving wellness for both performers and audiences.

More than 950 students have received performing arts scholarships for classical or jazz instrumental music, voice, dance, musical theater, acting, technical theater, video game composition, and even circus arts. RIT began offering the scholarships three years ago.



A. Sue Weisler

Dangerous Signs performs "Into the Light," a celebration of coming out of the darkness of the COVID-19 quarantine and back into the light of live performance, during the Fringe Festival.

"It was definitely a factor in deciding to come to RIT," said Hana Ho, a second-year computer engineering major from Queens, N.Y., who is taking piano lessons and working on a duet with another student. "I wanted to continue music and I saw this was an opportunity to do so."

The explosion of interest in performing

arts—with an estimated more than 1,500 students participating each year—means more opportunities exist for students.

For years, RIT students interested in jazz could join the jazz band. With the additional interest from students, the jazz program has more than doubled to 140 students, and there are now six jazz bands



Graduate student Namrata Nagar, from India, performs a semi-classical Indian dance during the Fringe Festival.

A. Sue Weisler



Elizabeth Lamark

Chenyang Lin, a computer science major from Pittsfield, Mass., plays violin in the RIT Orchestra and Red Brick String Quartet.



Elizabeth Lamark

Performing arts opportunities have grown so much over the past several years that there are now two concert bands, six jazz bands, and many other groups.

to choose from on campus, depending on skill level and rehearsal availability.

There are seven a cappella groups, two concert bands, a philharmonic orchestra, ensembles, quartets, quintets, applied music lessons, a Jam Club, Pep Band, Game Symphony Orchestra, dance clubs, and improv groups.

RIT's College of Liberal Arts, which houses the Department of Performing Arts, now collaborates with RIT's National Technical Institute for the Deaf, which for decades has been a leader in theater and dance.

"We're thrilled RIT is able to welcome so many talented students who are

passionate about their art," said Jonathan Kruger, chair of the Department of Performing Arts. "And as that interest grows, we're pleased to be offering more opportunities for them to participate and perform."

Greg Livadas



Kirstin Johnson took time off from classes to design nursing-friendly dresses for new mothers.

Mateo Alexander wants to help communities become more sustainable and efficient through neuroscience, adaptive technology, and innovative strategies.



Students build businesses

during entrepreneurial

Kirstin Johnson spent the summer designing a line of nursing-friendly dresses for new mothers.

Jonathan Hacker is developing ultrasound wearables to enhance focus and memory.

And Mateo Alexander wants to help communities become more sustainable and efficient through neuroscience, adaptive technology, and innovative strategies.

To help them achieve their goals, the three RIT students in 2021 received Gap Year Entrepreneurship Fellowships, allowing them to take time off from classes to focus on their growing business, new product, or compelling social innovation opportunity.

The fellowship is made possible as part of a \$50 million donation made by RIT alumnus Austin McChord '09, founder of Datto. Each received a \$15,000 stipend.

Created in 2018, 15 students have received the fellowship as of the fall semester from RIT's School of Individual-

ized Study (SOIS), in collaboration with RIT's Simone Center for Innovation and Entrepreneurship. In addition to the finances, RIT supports the students with mentoring and progress toward a degree.

"Great ideas don't just happen in the last semester of senior year, and we recognize that innovation sometimes comes with a timestamp," said James Hall, dean of University Studies and executive director of SOIS. "Transformative businesses, products, and social innovations have to be pursued with real urgency."

During the gap year, students work with a Simone Center entrepreneurship coach who serves as an adviser and mentor for the two-semester duration. Coaches and students set performance goals at the beginning of the gap-year period, and students submit monthly progress reports. The entrepreneurial experience can count toward co-op requirements in the student's degree program.

Johnson, of Rush, N.Y., a fourth-year entrepreneurial studies student in SOIS, took time off from her studies last spring and summer to design a line of nursing-friendly dresses. The birth of her son three years ago sparked the idea to create her business, A Noble Calling.

"I realized there's nothing out there that's cute and functional, just cheaply or poorly made," she said.

She spent her gap year holding focus groups, working on customer discovery, making patterns, and sending them to pattern makers to finalize.

"During that time, I spent a lot of time sourcing fabric for the dresses," Johnson said. "That's something I thought I would do in a couple of weeks, but I learned differently. I want my dresses to be intentionally made, and I wanted to source everything from the U.S. And I'm a big fan of natural fabric."

Her grant money paid for patterns,



Elizabeth Lamark



Elizabeth Lamark

Jonathan Hacker
is developing
ultrasound
wearables to
enhance focus
and memory.

gap year

fabric sourcing, buying sample fabric, filing a patent for her dress design, branding and logo creation, and buying a dress form so she didn't have to find someone to keep trying her dresses on.

Hacker, of Brighton, N.Y., is a double major in biomedical engineering and neuron entrepreneurship, a specialized degree through SOIS that lets him focus on neuroscience and entrepreneurial skills. He hopes to complete both degrees in 2024.

He spent the summer in the student accelerator program to learn how to develop his business, NeurGear. He hopes to produce ultrasound wearables to enhance focus and memory.

He first thought of this business idea when he was 12.

"Think of it as a hat or something over your ear that non-invasively stimulates your neurons to help you work better," Hacker said. "We're not treating anything. From the people we've talked to, there's

a lot of interest, and I'm building up the connections we need. We're starting to get serious traction."

Hacker said the main appeal of the fellowship was the chance to make his business a reality.

"The fellowship gave me non-dilutive angel funding, time, and even credit to be doing essentially what I would have been doing anyway. I went to three consecutive conferences, which would have completely thrown me off if I had classes to take as well."

Alexander, from Rochester, spent his gap year advancing his business, Future Foresight Technologies, which will provide municipality designs and consulting using neuroscience, adaptive technology, and innovative strategies to deliver unique smart city solutions including "electrical smart pavement."

"Our company is focusing on producing a road that is durable to counteract road deterioration, a faster construction process,

increased data collection to kick-start better traffic management plans, and creating a complete street design so all travelers can belong," he said.

"The key to this project is having streets absorb the solar energy that typical asphalt streets would be emitting toward urban heat islands and converting it to renewable energy. We want to take that concept a step further to charge electric vehicles through inductive charging."

He expects to spend part of this year at RIT Dubai and to graduate in 2023 with a degree in applied arts and sciences. But Alexander prefers to tell people he's majoring in the future. His curriculum covers complex and looming topics such as smart city management, future studies, supply chain management, business management and innovation, and digital transformation.

Greg Livadas



Scholars earn coveted **early career awards**

Three faculty members who chose to start their research careers at RIT received prestigious **National Science Foundation CAREER Awards** in 2021.

Their research aims to advance the foundations of machine intelligence, artificial intelligence, and clean energy.

The elite researchers are part of a trend at RIT, with more than a dozen faculty who have been given the honor over the last few years. NSF Faculty Early Career Development Program (CAREER) Awards provide five-year grants to those who have the potential to serve as role models and mentors and to integrate teaching and research into their work.

COMPUTING AND INFORMATION SCIENCES

Rui Li is developing machine intelligence that can actually grow when given new information.



IMAGING SCIENCE

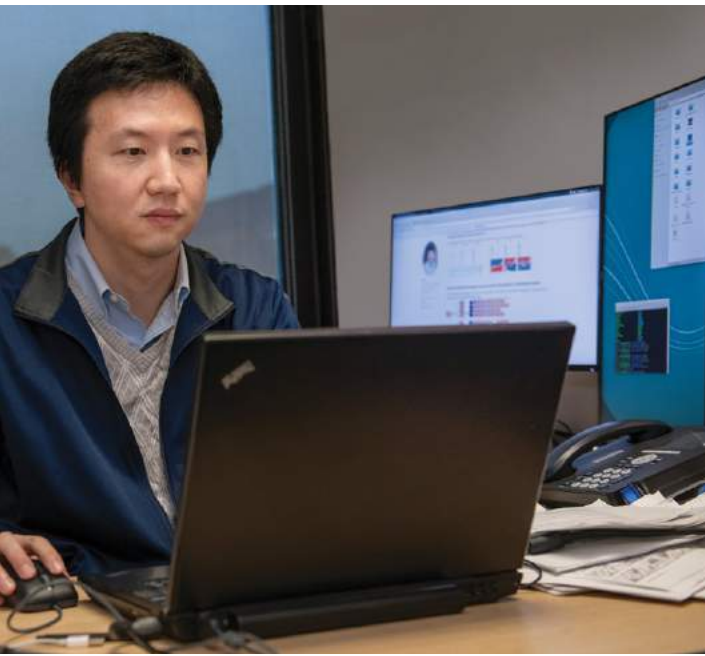
Christopher Kanan is creating artificial intelligence systems that can learn new things over time by mimicking memory formation and consolidation in the brain during sleep.



PHYSICS AND ASTRONOMY

Pratik Dholabhai is studying materials in solid oxide fuel cells to advance energy conversion and storage technologies.





Rui Li, assistant professor in the Ph.D. program in computing and information sciences, is developing machine intelligence that can actually grow when given new information. His work will help solve the problem of catastrophic forgetting in artificial intelligence networks.

Li aims to create an adaptive deep-learning framework that allows machine-learning models to continuously learn from new bits of data and grow beyond their existing structures.

The framework would be used to create more efficient and effective machine-learning systems for experts in many domains—from computational biology to astrophysics.

Li noted the importance of having a multidisciplinary team of Ph.D. students to collaborate with on the project. As experts apply the new deep-learning framework to their respective fields, it can help people make decisions and extract a better understanding from data.



Christopher Kanan, associate professor in the Chester F. Carlson Center for Imaging Science, is using brain-inspired methods to create artificial intelligence systems that can learn new things over time.

The work will attack fundamental limitations in how deep neural networks learn. His group has already created some of the world's best systems for continuous learning in deep neural networks, but he believes these systems can be far better by mimicking memory formation

and consolidation in the brain during sleep.

“Sleep is critical to learning and information retrieval in humans, but the mechanisms the brain employs are largely not used in artificial intelligence,” said Kanan.

By leveraging what neuroscientists know about how information is stored and organized in the human brain during sleep, Kanan hopes to create algorithms that are more power efficient, can learn on low-powered mobile devices, and can overcome bias in datasets.



Pratik Dholabhai, assistant professor in the School of Physics and Astronomy, is studying materials in solid oxide fuel cells to advance energy conversion and storage technologies.

Because the ions are so small, Dholabhai said, it's challenging to study them on an experimental

level. He will develop advanced theoretical and computational tools to explain how they behave.

Dholabhai said that by better understanding and controlling these properties, scientists can develop more reliable forms of renewable energy that could be used in solar cells, cars, trucks, and many other applications.

Scott Bureau '11, '16 MBA



Associate Professor **Jeyhan Kartaltepe** is the principal investigator of COSMOS-Web, the largest General Observer program selected for James Webb Space Telescope's first year.

Scott Hamilton/background image courtesy of NASA

Professor helms program for NASA's newest space telescope

When the James Webb Space Telescope (JWST)—the long-awaited successor to the Hubble Space Telescope—becomes operational this year, Jeyhan Kartaltepe will co-lead a team of nearly 50 researchers to map the earliest structures of the universe.

The associate professor in RIT's School of Physics and Astronomy is principal investigator of COSMOS-Web, the largest General Observer program selected for JWST's first year. Over the course of 218 observing hours, COSMOS-Web will conduct an ambitious survey of half a million galaxies with multi-band, high-resolution near infrared imaging and an unprecedented 32,000 galaxies in mid infrared.

Kartaltepe said the COSMOS-Web survey will map 0.6 square degrees of the sky—about the area of three full moons.

She said she was shocked when she found out that her program was chosen for JWST's first cycle of observations. It is one of just 286 General Scientific Observer programs selected out of more than 1,000

proposals for the telescope's first year of science.

Her program will provide the worldwide astronomical community with one of the first extensive opportunities to investigate scientific targets with JWST.

Kartaltepe said she is proud to help lead such a major effort and believes the program will benefit her field in still unimaginable ways.

"The sheer scope of our program is so exciting," said Kartaltepe. "The first year of JWST observations will result in a lot of new discoveries that people will want to explore more in-depth in future cycles. I think the public legacy of COSMOS-Web will be that it is the field where the community conducts this type of follow-up research."

Her leadership role in this program is the result of years of hard work with the Cosmic Evolution Survey (COSMOS), a worldwide collaboration of more than 200 scientists that uses the world's major telescopes to study how galaxies are

influenced by both their fundamental physical properties and the environment that surrounds them.

Kartaltepe has been involved in COSMOS since she was a graduate student at the University of Hawai'i at Manoa and became one of COSMOS's three leaders in 2019, co-chairing the scientific steering committee.

Kartaltepe has been a fixture of RIT's astronomical community since she joined the university in 2015 and was promoted to associate professor last fall.

She is director of RIT's Laboratory for Multiwavelength Astrophysics and is a leading member of other large collaborative multiwavelength surveys including CANDELS (The Cosmic Assembly Near-Infrared Deep Extragalactic Legacy Survey) and CEERS (The Cosmic Evolution Early Release Science Survey). In addition, she serves as chair of RIT's Women in Science program.

Luke Auburn '09, '15 MS



Biomedical engineering professor **Blanca Lapizco-Encinas** was recognized as a 2021 Trustee Scholar for excelling in research making an impact.

Elizabeth Lemark

Biomedical engineering professor influencing next generation

As an expert in microfluidic devices—tiny labs able to decipher bioparticles—Blanca Lapizco-Encinas and her research partners uncovered a mystery in how these particles can be better differentiated.

The professor of biomedical engineering's work has the potential to refine further how diseases such as Ebola or sepsis can be reliably detected—even newer strains or those resistant to antibiotics.

Looking at physics and science as challenging mysteries motivated her. But as much as she has moved her own research forward, she is influencing a new generation of scientists to do the same. Being good researchers starts day one for students in her Microscale Bio-Separations Laboratory in Kate Gleason College of Engineering. Undergraduates are taught concepts, not just techniques.

"My students are not technicians, they are junior scientists, so they need to have knowledge of the phenomena they are

studying so they can make their own decisions and be independent thinkers," Lapizco-Encinas said. "We discuss it from the perspective of the fundamentals, the science. A student that knows and is invested in the project is a more productive student. They know this is a huge responsibility when they are doing experiments."

Lapizco-Encinas, RIT's 2021 Trustee Scholar, was recognized with the prestigious honor for excelling in research making an impact, in this instance in biomedical technologies and solutions, and her influence on student learning. Many of her students currently serve in national laboratories such as Ortho Clinical Diagnostics and Johnson & Johnson.

She has been a leader in the field of microfluidics and lab-on-chip devices, a technology that brings small clinical sciences to healthcare where the need to decipher disease progression is essential to managing global health.

"I think my work, the fundamentals we are discovering, is going to help in the

future to build analytical systems to detect and differentiate pathogens. My work serves as a platform for designing microsystems for the fast detection and differentiation of pathogens to humans," she said.

Lapizco-Encinas has also made an impact in the area of diversity and inclusion, leading the college's initiatives this past year. She hopes to continue building community within the college, mentoring junior faculty, and improving student and faculty gender diversity.

"Being able to succeed and be an example is important. It doesn't matter where you come from, if you work hard, the work speaks for itself," she said. "You work hard for your students, they learn, and you have this also as evidence of your work. With female Latina professors being so few, I think it is even more important to leave a mark. It is good to share strategy with a younger version of yourself."

Michelle Cometa '00

Students take home top prizes at collegiate competitions

For RIT students, the learning doesn't stop when classes end.

In 2021, three student teams took what they're learning and used it to win national and international competitions.

The Tigers faced off against some of the best universities in the world and brought home top trophies in cybersecurity, racing, and design competitions. The events challenge students to think outside the box and even serve as a proving ground for employers hoping to scoop up the best students.



Elizabeth Lamark

RIT's cybersecurity team beat Stanford University—and dozens of other top student teams—to win the 2021 Collegiate Penetration Testing Competition. Students hone their skills and prepare for different cybersecurity competitions in new labs at RIT's Global Cybersecurity Institute.

To start out 2021, RIT topped the best cybersecurity schools and won the Collegiate Penetration Testing Competition (CPTC) international finals. This was RIT's first time winning CPTC, and the students had to beat three-time defending champions Stanford University to do it.

At the event, students put their hacking skills to the test—seeing who was best at breaking into fabricated computer networks, evaluating their weak points, and presenting plans to better secure them. The CPTC has become the premier offense-based collegiate computing security event, after starting at RIT seven years ago.

"The competition reinforced everything that I was learning on co-op and in the classroom— it's so beneficial no matter what area of security I choose to go into," said Spencer Roth, a fourth-year computing security BS/MS student. "There's not a better practice and launching pad for your career goals."

As the weather turned warm and the mud got deeper, RIT Racing won first place overall at Baja SAE racing in Tucson, Ariz. For the competition, students had to design, build, and race off-road vehicles that can withstand the harshest elements of rough terrain.

In the win, RIT took top five placements in the endurance race, design portion, sled pull, suspension, and maneuverability, and a top 20 placement in acceleration.

The Baja event included virtual events and onsite races with 30 of the best teams.

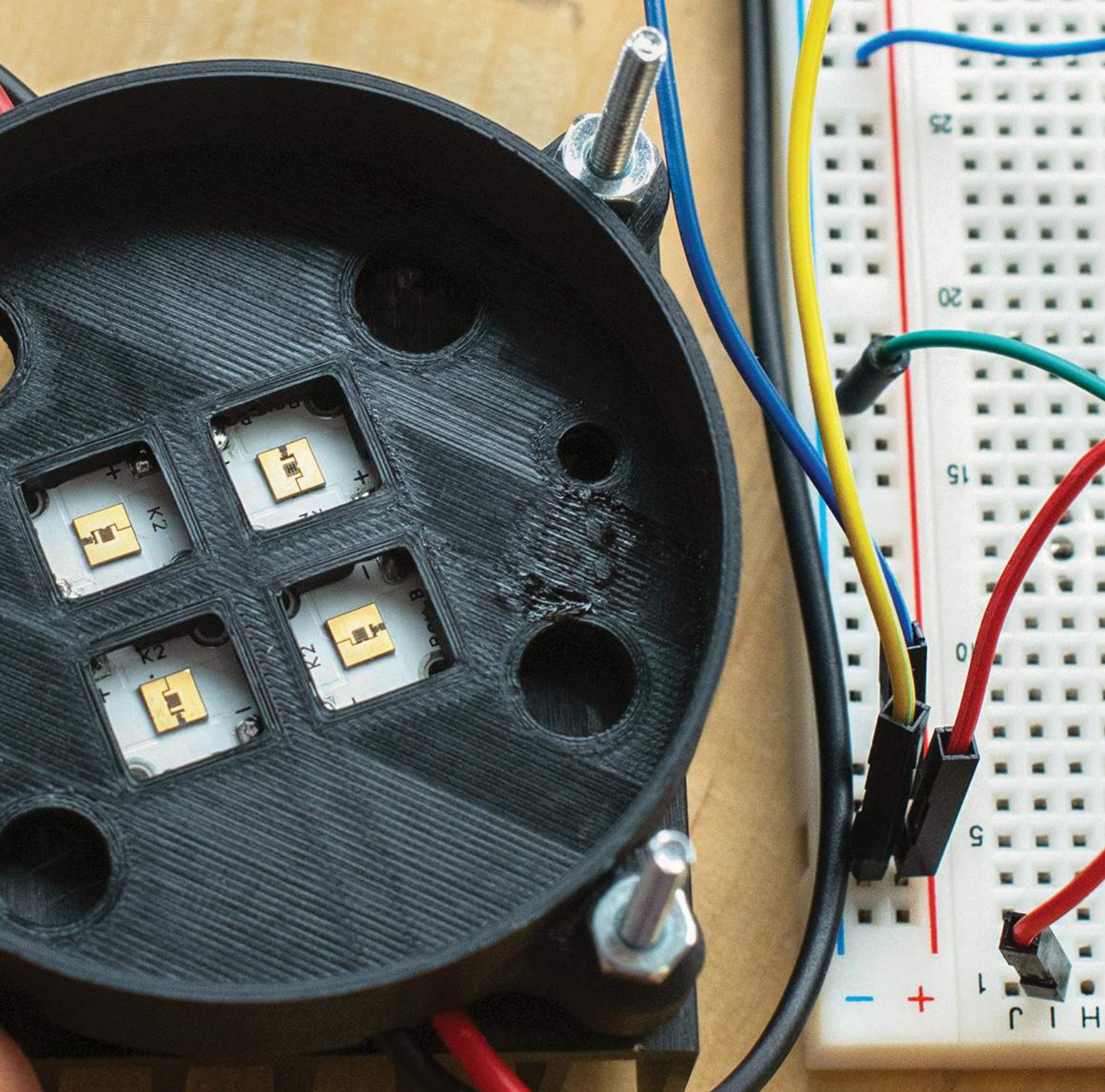
Back on campus, students in a typography and page design course entered and won the first ever Canon Solutions America—University Program Magalog Challenge.

The students were tasked with creating a 24-page promotional "magalog" booklet—a high-end magazine filled with products and augmented reality elements to move potential customers to an online storefront. The winning RIT design was printed on one of Canon's inkjet presses and is being considered as a print sample for Canon America's Customer Innovation Center.

Irma Abu-Jumah, a lecturer in the Department of Graphic Media Science and Technology, saw the competition as a way for her students to test their skills and integrate industry best practices. Students could also see how their work fits into the broad scope of print production requirements and processes.

"A lot of projects that we were doing were tech-based, smaller projects, and then this was thrown at us and it was 24 pages," said Christian Reilly, a first-year media arts and technology student. "I feel that it is a very realistic work experience with deadlines, and we needed to incorporate certain things, and of course, the exposure is phenomenal."

Scott Bureau '11, '16 MBA



PROGRAMS

CREATING A UNIVERSITY FOR THE NEW ECONOMY

PROGRAMS

UNDERGRADUATE RESEARCH



Marissa Schroeter works with one of her mentors, Professor Bolaji Thomas. With the help of strong mentors, undergraduate researchers such as Schroeter cultivate critical thinking, collaboration, and problem-solving skills.

Undergraduate research on the rise at RIT

Marissa Schroeter chose RIT for its science expertise and the chance to join a research lab in her first semester. Now Schroeter, a fourth-year biomedical sciences and biotechnology and molecular sciences double major, splits her time as a student researcher in labs located in the College of Health Sciences and Technology and in the College of Science.

Her mentors, André Hudson, head of the Thomas H. Gosnell School of Life Sciences, and Bolaji Thomas, professor of biomedical sciences, have helped her grow as a young scientist.

“I got a lot of my hands-on lab skills from Dr. Hudson and from working in his lab. He’s always in the lab and asking what are you doing today and if you have any questions,” Schroeter said. “Dr. Thomas has given me a unique perspective on where my career is headed. He challenges me to think of where I am going to be in the future rather than where I am right now. He is really great at helping me move myself forward.”

With the help of strong mentors, undergraduate researchers such as Schroeter cultivate critical thinking, collaboration, and problem-solving skills. Conducting research can help students synthesize concepts they learned in their classes to create something new.

Many RIT undergraduates conduct independent research on the level normally experienced in graduate school, and that gives them an edge over peers from other universities, according to Ryne Raffaele, RIT vice president for research and associate provost.

And the experience these students gain in working alongside graduate students, postdoctoral fellows, and faculty mentors is an important part of their education.

Research adds value to an undergraduate education and denotes a healthy university. RIT’s growth as a

research university is the result of increased federal grant funding, which, in turn, creates research opportunities for students, Raffaele said.

“A cornerstone of the 2025 Strategic Plan, Greatness Through Difference, is the concept of being a student-centered research university,” Raffaele said. “One important metric to us as a university is how many of our students present at our annual undergraduate research symposium. The good news is that this number continues to grow steadily.”

The College of Health Sciences and Technology supported Schroeter’s research with a Summer Undergraduate Research Fellowship that enabled her to work collaboratively on a project looking for new antibiotic compounds produced by bacteria from Lake Ontario.

She presented her findings at the 2020-2021 online Undergraduate Research Symposium, joining peers from the Henrietta campus, RIT’s international colleges in Dubai and Croatia, and students participating in the Research Experience for Undergraduates hosted at RIT. Schroeter also presented new data at the Annual Biomedical Research Conference for Minority Students in November.

Schroeter relies on her mentors’ input and professional advice as she applies to doctorate and medical/doctorate programs. Her goal is to become a physician-scientist.

Another sign that undergraduate research is on the rise at RIT is the Undergraduate Research Scholars Award, presented for the first time at the 2021 commencement ceremony. RIT recognized 40 members of the inaugural class of Undergraduate Research Scholars. The award highlighted their accomplishments and reinforced the importance bestowed to undergraduate research at RIT.

Susan Gawlowicz '95



A. Sue Weisler



Co-ops give students edge in job market

When third-year game design and development major Kyle James was choosing colleges to attend, a couple got his attention, but he felt RIT had the best opportunities for him to get a job.

And he didn't have to wait long. After completing a 10-week co-op last summer at KCF Technologies based

in Pennsylvania, James was offered and accepted a part-time position with the company after his co-op ended. The Newmarket, N.H., native works remotely as a software engineer for them while still continuing his education at RIT.

"I was a little surprised they offered it to me, but between my managers and mentors, they all seemed to like what I

was working on," James said. "I got to work with a lot of different people. One of the cool things they had to offer was a capstone project, where we got to present to the head of the company."

Before he graduates, James said he'd like to pursue another co-op related to game design.

He is just one of more than 5,000

Career Fairs held at RIT are prime opportunities for students and employers to connect for co-ops and permanent employment. More than 1,200 students attended this career fair, held in October.



A. Sue Weisler

RIT students who receive experiential learning by completing a co-op each year, often getting a foot in the door to a new career upon graduation.

Started in 1912, RIT's successful co-op program, one of the oldest in the nation, is also a resource for companies wanting skilled RIT students to work for them. The co-ops may be a minimum of 10 weeks in



Abigail Buckta, a fourth-year computer science major, completed two six-month co-ops. Her second one was at software company HubSpot. Over the years, RIT students have earned more than \$65 million in salaries from their co-ops.

the summer, or last up to eight-months long for two semesters. Some are from companies who have hired RIT students for decades, and some are found by students themselves, who could be working anywhere in the world.

Maria Richart, director of RIT's Career Services and Cooperative Education, said 95 percent of employers say they would offer a graduating RIT student a full-time position if one is available after successfully completing their co-ops.

"Our co-ops provide talented workers eager to learn for our partnering companies, but more importantly, onsite experience for our students to see what a paid, working environment can be, and whether that specific experience is one they'd like to pursue or not," Richart said.

Abigail Buckta, a fourth-year computer science major from Chester Springs, Pa.,

completed two co-ops, each lasting six months.

Her first was with Parsons, near Washington, D.C., a position she found through RIT's Career Fair. She said it was a good experience and she got to use her cybersecurity skills, as some of her work relied on limited government contracts for the Department of Defense.

Her second co-op was at HubSpot, and she was able to work remotely.

"I love HubSpot. This is one of the greatest places to work in the world," Buckta said. "They care a lot about employee happiness and I feel good about the projects I've worked on."

Buckta said the co-op program was one reason she came to RIT and the experience hasn't disappointed her.

"I feel as though I'm contributing to something people care about and making the world a better place."



Game design student Kyle James was offered a part-time job after he finished his co-op at KCF Technologies.

Greg Livadas



RIT was awarded a nearly \$2 million grant to address a lack of diversity in artificial intelligence research.

AI research collaboration begins

A. Sue Weisleder

An associate professor in RIT's College of Liberal Arts was awarded nearly \$2 million by the National Science Foundation to lead a team of RIT faculty addressing a lack of diversity in the artificial intelligence research community and gaps in AI curricula.

The program, called AWARE-AI, involves a team of nine faculty members representing five RIT colleges. The initiative is led by Cecilia Alm, who directs the Computational Linguistics and Speech Processing Lab and teaches computational natural language processing and speech processing. She is also affiliated with the Department of Computer Science and Golisano College of Computing and Information Sciences' Ph.D. program.

The NSF reports that in 2019 only 22.9 percent of computer and information sciences Ph.D. graduates were female, only 9.5 percent were African American, Latino/a American, or Native American (AALANA), and 1.02 percent were deaf or hard of hearing. Research shows other AI-related disciplines suffer from similar trends.

"AWARE-AI aims to create a growing and sustainable career pathway for well-rounded AI scientists and engineers who not only will enhance U.S. competitiveness in AI, but also help develop a diverse workforce while advocating for inclusive and ethical

excellence in AI," Alm said.

The program will offer students in AI-related Ph.D. and MS programs the opportunity to enhance their education through research and career-promoting activities in one of four research tracks: software, hardware, human-computer interaction, or cognitive models. When reviewing applicants for NSF Research Traineeship fellowships, priority will be given to women, AALANA, and deaf and hard-of-hearing students.

- The software track will investigate machine learning innovations and how to develop AI systems capable of processing multiple streams of information over time as flexibly as a human's sensory processing system.
- The hardware track will study how to advance human-robot collaboration to achieve human trust in automation, and how to perform intelligent processing and continual machine learning on the robot itself.
- The human-computer interaction track will evaluate the needs of older adults with hearing loss in regard to speech technology AI systems.

- The cognitive models track will investigate human cognitive states and assess AI system reliability, focusing on understudied populations of AI users across the human lifespan or who are deaf or hard of hearing.

Alm is joined by the project's co-principal investigators: Reynold Bailey, professor in Golisano College of Computing and Information Sciences; Ferat Sahin, professor and department head in Kate Gleason College of Engineering; Matt Huenerfauth, professor and director of Golisano College of Computing and Information Sciences' School of Information; and Esa Rantanen, associate professor in the College of Liberal Arts, also affiliated with Kate Gleason College of Engineering.

The project's senior personnel are Rain Bosworth, assistant professor in the National Technical Institute for the Deaf; Gabriel Diaz, associate professor in the College of Science; Kristen Shinohara, assistant professor in Golisano College of Computing and Information Sciences; and Christopher Kanan, associate professor in the College of Science.

Shelly Meyer

Sustainability Ph.D. candidate **Diana Rodriguez Alberto** plans to graduate in May. A priority for RIT is building Ph.D. programs.



A. Sue Weisler

RIT expands Ph.D. portfolio

RIT's strategic plan calls for adding six to 12 new Ph.D. programs and conferring 50 doctoral degrees every year by 2025. The university already reached the latter goal with 51 Ph.D. degrees conferred in the 2020-2021 academic year.

Doctoral programs in business administration and cognitive science are under review at the New York State Department of Education, and a Ph.D. in physics is next in line.

RIT Graduate School Dean and Associate Provost Twyla Cummings anticipates the programs starting in 2022 or 2023. This would follow a trio of new engineering Ph.D.s.—electrical and computer engineering, mechanical and industrial engineering,

and biomedical and chemical engineering—that launched in fall 2020.

RIT's priority to build doctoral research programs is important to the university's future. These programs attract top-tier faculty who generate research funding and support teams of graduate student researchers. In turn, the faculty and research opportunities recruit Ph.D. students to the university.

This equation has led to new rankings for RIT in 2019. The university is now listed as a "high research activity institution" or "R2" under the updated Carnegie Classification of Institutions of Higher Learning. The update follows a reclassification in 2016, when RIT changed from "Master's—Com-

prehensive" to "Doctoral University—Limited Research Activity."

The ranking changes reflect a yearly graduation rate surpassing 20 Ph.D. students. RIT jumped from 18 Ph.D. degrees conferred in 2012-2013 to 29 in 2013-2014 and 33 in 2014-2015.

Today, RIT enrolls 300 Ph.D. students in 11 Ph.D. programs. They are astrophysical sciences and technology, biomedical and chemical engineering, color science, computing and information sciences, electrical and computer engineering, engineering, imaging science, mathematical modeling, mechanical and industrial engineering, microsystems engineering, and sustainability.

Sustainability Ph.D. candidate Diana Rodriguez Alberto '16 MS (chemistry) came to RIT from the Dominican Republic for graduate school.

Her doctoral research in sustainable systems approaches the problem of food-waste management as a looping cycle of consumption and waste. Biogas digesters are alternatives to landfills that produce a byproduct called digestate. Rodriguez Alberto is converting this byproduct into biochar, a carbonous material with multiple applications such as soil amendment and pigment for inks.

"With sustainability we can—instead of only monitoring our impacts to the environment—find ways to avoid those risks," said Rodriguez Alberto, who plans to graduate in May.

Rodriguez Alberto will remain at the Golisano Institute for Sustainability as a postdoctoral fellow to work with Professor Callie Babbitt on a new multi-university project, funded by a \$15 million grant from the National Science Foundation. American University is leading the project to create a university network and to study new technologies for recovering the energy, water, and nutrients contained in food waste. Babbitt is a co-principal investigator representing RIT.

An additional strategic goal for the Graduate School is to increase enrollment in current Ph.D. programs, Cummings added. "Five years ago, we had 76 new Ph.D. students, and then three years ago we had 97 new Ph.D. students," Cummings said. "Last year, even with COVID and the remote start, we had 90. Now we are trying to exceed 100 every year. The university is supporting that growth."

Susan Gawlowicz '95

Abigail Benkovich, an MFA metals and jewelry design graduate student, created this 3D-printed piece inspired by the muscular and skeletal system for Fashion Week Rochester.

Technology blurs the line of making in arts programs

In virtually every art course and studio environment at RIT, technology is integral to the delivery of content and production of work, whether it's an "ancient" technology like using a hammer and anvil to forge metal or a computer numerical control plasma table to cut metal forms.

"Our foundry uses the lost-wax process which dates back to 3000 B.C., only changing materials to the current industry standard," said Elizabeth Kronfield, director of the School of Art and School for American Crafts. "We have students using 3D ceramics printers to create work one day and the potter's wheel dating back to 5000 B.C. the next."

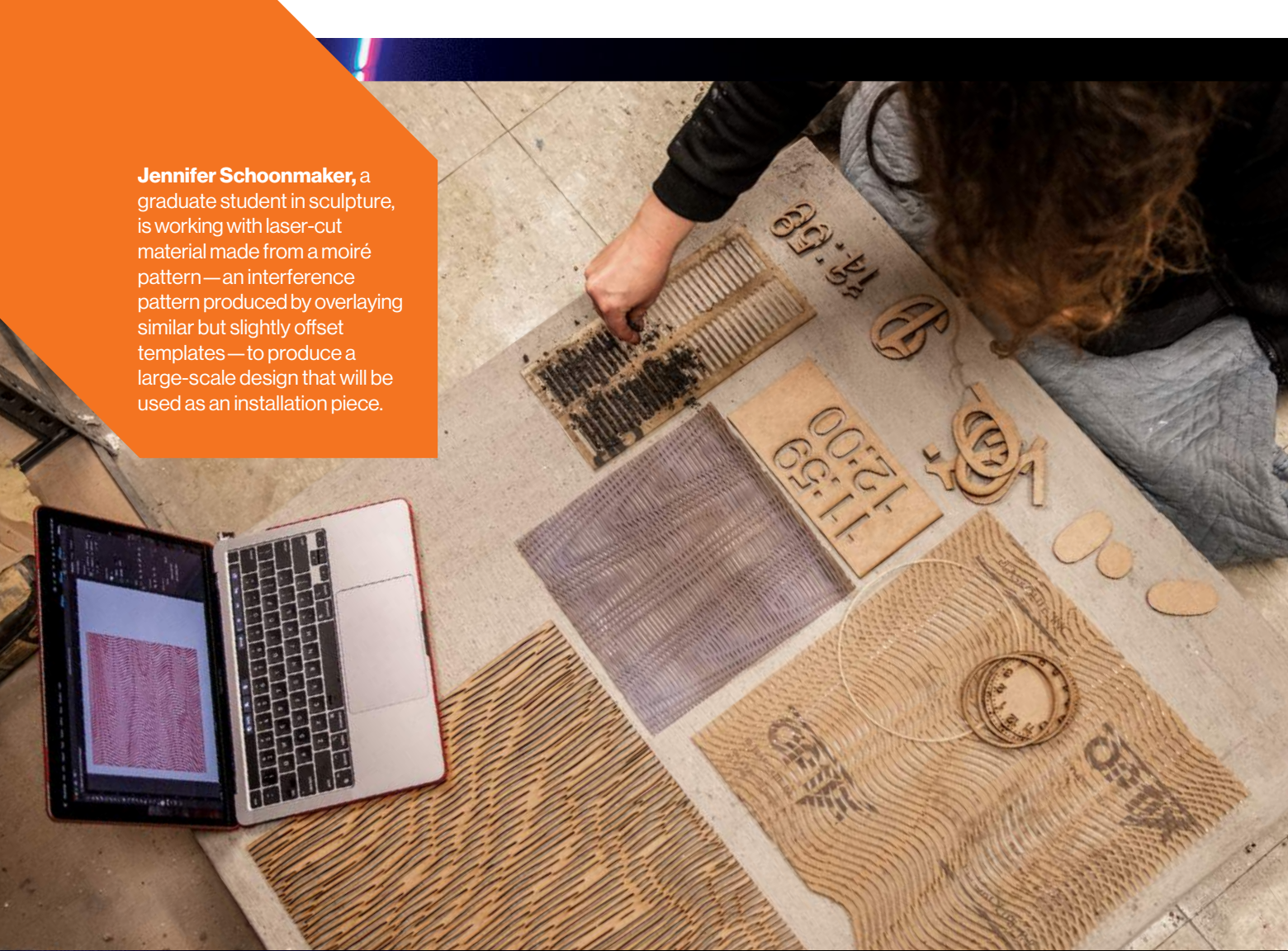
This encompassing approach to materials and processes allows RIT studio art students the opportunity "to utilize the tools that best suit their ideas and the flexibility to move fluidly from one idea to the next," Kronfield noted.

As a university with a focus on intersecting technology, the arts, and design, RIT is in a unique position to blur the line between technology and making for students in the College of Art and Design in collaboration with peers at other colleges across campus.

For 2021's Fashion Week Rochester, Abigail



Jennifer Schoonmaker, a graduate student in sculpture, is working with laser-cut material made from a moiré pattern—an interference pattern produced by overlaying similar but slightly offset templates—to produce a large-scale design that will be used as an installation piece.



Joseph Bellavia

Benkovich, an MFA metals and jewelry design graduate student from Rochester, created two pieces, including a black-and-white, 3D-printed piece inspired by the muscular and skeletal system.

Benkovich fashioned the shape of the components around bones, such as the femur, patella, hip bone, and scapula, before arranging them using metal wire to emulate the muscles and ligaments that hold the body together. Computer-aided design software enabled her to model the components 3D printed in fused deposition modeling plastic.

She recalled getting particularly enthused about tech-based artwork during a studio elective her first year of grad

school at RIT.

“One of my favorite pieces I made from that class was acrylic sunglasses that moved via remote control,” she said.

Benkovich subsequently learned how to use Rhino, a 3D modeling program specifically suited for jewelry design.

“Technology has increased any boundaries to my work,” she said. “I’m no longer limited by how I can fabricate shapes using only traditional methods.”

Jennifer Schoonmaker, a graduate student in sculpture from Capri, Italy, employs 3D printing, laser cutting, open source hardware and software, as well as motion tracking software for video projects across her multifaceted work.

“RIT has an excellent Fabrication Lab enabling all kinds of experimentation in the arts,” Schoonmaker said. “The university also has a welcoming cross-disciplinary program within my major and that has been the most fruitful in terms of helping me push my work forward.”

Kronfield said she’s often seen students, particularly at the graduate level, working with faculty from engineering and astrophysical sciences to create artworks.

“At RIT, we have the technology but we also have the people,” she said. “This expertise and commitment to learning is what sets the student experience apart.”

Rich Kiley

Business graduate student **Sree Naaga Shiva Rama Geethveer Devineni** participated in a Lean Six Sigma class project. The class is offered through Kate Gleason College of Engineering.



Saunders College of Business offers STEM-designated programs

Sree Naaga Shiva Rama Geethveer Devineni, a graduate student from Hyderabad, Telangana, India, moved to the U.S. to pursue a master's degree in global supply chain management from Saunders College of Business after working for two years as an engineer at Novacom Digitronics, a telecom electronics company.

The move was motivated, in part, by the program's science, technology, engineering, and math (STEM)-designated status. Six graduate programs in Saunders College are now STEM-designated, allowing students the opportunity to engage in technology-based business education.

Three programs, Master of Business Administration (MBA), MS in accounting and analytics, and MS in finance, secured their designations in March. Three additional programs—MS in business analytics, MS in technology innovation management and entrepreneurship, and MS in global supply chain management—were previously designated.

Because of this STEM designation, Devineni is eligible for a work visa extension which will allow him to work in the U.S. for up to three years after graduation.

In order to bolster STEM education in the U.S., the Department of Homeland Security has established criteria that recognizes some degree programs as STEM-designated.

Traditionally, with an F-1 visa, international students are eligible for up to 12 months of optional practical training (OPT) in the U.S. post-graduation. This STEM designation allows international students to apply to extend that period by up to 24 months.

"When I go back to India with this degree and the experience of working here in the U.S., my position will be upgraded to a supply chain manager," Devineni said.

To obtain STEM designation, at least 50 percent of the program's coursework must be STEM related. Saunders College achieved this through a combination of updating existing curricula and developing new classes. Students also have the choice to take additional graduate-level STEM electives from other RIT colleges.

"Our updated curricula are infused with analytics, data visualization, artificial intelligence, supply chain, and technology management principles and strategies, as

well as other emerging technologies being applied within business disciplines," said Dean Jacqueline Mozrall. "This enhanced flexibility allow students to customize their degrees."

Last semester, Devineni took Visiting Lecturer Anthony DiVasta's Lean Six Sigma class in Kate Gleason College of Engineering to round out his business education. The course focused on the process of developing a new product in a more efficient way, and making the product better for the end user and more cost-effective for the manufacturer. It was the first class he'd taken outside of Saunders College, and he plans to take more.

"In a typical supply chain program, we learn about how chocolate is taken from a plant, transported to its destination, and everything in between," said Devineni. "The program at Saunders College gives us the flexibility and opportunity to go to the College of Engineering to take it a step further to understand the manufacturing processes involved in making the chocolate."

Shelly Meyer



PLACES

BUILDING SPACES FOR CREATORS AND MAKERS

PLACES

THE SHED

The facility will become the **new epicenter** of the RIT campus and give visitors a sense of what makes RIT special.

The SHED, scheduled to **open in fall 2023**, will embody RIT's focus on technology, the arts, and design.





Makerspace complex will transform center of campus

The largest construction project on the RIT campus in more than 50 years remains on track to open in fall 2023.

When complete, the Student Hall for Exploration and Development (SHED), a high-tech complex that will centralize the university's makerspace and performing arts, will cover more than 120,000 square feet of new construction as well as more than 83,000 square feet of renovations in two existing buildings, said James Yarrington, RIT university architect and director of Planning and Design Services.

The SHED is intended to facilitate collaboration among students on project teams, in performing arts groups, and among those who use the makerspaces. The building will house individual rehearsal spaces, a large dance instruction studio, and a music rehearsal studio. Instructional space within the complex will create 27 new classrooms and 1,500 additional seats.

The Sklarsky Glass Box Theater will seat up to 180 people for experimental performances and various exhibits. The theater is the result of a \$2.5 million gift from alumnus and trustee Frank Sklarsky '78 (business administration accounting) and his wife, Ruth. The theater will be reconfigurable to control the light entering the facility.

RIT President David Munson envisions the building as a creative hub that will capture the spirit of the Imagine RIT: Creativity and Innovation Festival. The facility will

showcase technology, the arts, and design in one central place and capture what makes RIT special.

"The SHED will be the place where prospective students and their parents will stop by and, in just five or 10 minutes, say, 'Oh, this is RIT,' and see that it is different from almost every other institution," Munson said. "They will see students working together on projects and studying together in other parts of the facilities. They are going to see

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There is no other university that has this type of integrated facility.

RIT President David Munson

”

a lot of people carrying musical instruments around and there will be performances and making of all different types. There is no other university that has this type of integrated facility."

Total construction costs of the largest undertaking since the campus opened in 1968 will exceed \$100 million. The project is funded in part by \$17.5 million from RIT trustee and 2009 alumnus Austin McChord's gift, as well as financing through the

Dormitory Authority of the State of New York.

Boston-based William Rawn Associates Architects Inc. designed the SHED, and Rochester firm HBT Architects—the architect of record—is handling construction details. HBT created the new design for Wallace Library, one of the existing buildings under construction.

Renovations to Wallace will open up the entrance and first floor with seating and browsing collections and relocate the new circulation desk between the library and the SHED proper. Each floor of the library will flow into the SHED and create a new traffic pattern that will wind through the new Cary Graphic Arts Collection suite and past the RIT Press on the second floor. The renovated RIT Archvive space on the third floor will also gain greater exposure to visitors.

"There will be portals cut into the side of Wallace from every floor," Munson said. "They won't be just doors but large portals, and so Wallace and the new construction are going to feel somewhat like one building."

The SHED's footprint reaches into Monroe Hall with renovations that will include a gallery dedicated to RIT's partnership with the Genesee Country Village & Museum.

The exhibition space will showcase research and scholarship from the university-wide partnership. Funding for the gallery comes from the Philip K. Wehrheim RIT-GCV&M Endowed Partnership Fund.

Susan Gawlowicz '95

Environmental science alumna **Kristina Chomiak** '19, '21 MS studies plastic pollution in freshwater ecosystems as part of Associate Professor Christy Tyler's research.



Tait Preserve becoming hotbed for interdisciplinary research

RIT has an emerging new hotspot for interdisciplinary research about 25 minutes from the main campus.

In 2021, the Tait Preserve of RIT served as an important location for experiments by researchers in imaging science, environmental science, mathematics, chemistry, and engineering.

The 177-acre property was gifted to RIT in 2019 by Amy Leenhouts Tait and Robert C. Tait, Rochester natives and

highly successful real-estate entrepreneurs. The location includes a 60-acre lake and a private mile of Irondequoit Creek adjacent to Ellison Park, offering endless opportunities for research, education, and conservation activities.

Professor Christy Tyler from the Thomas H. Gosnell School of Life Sciences and Associate Professor Matthew Hoffman from the School of Mathematical Sciences led several long-term experiments that began in fall 2020 to study plastic pollution

in freshwater ecosystems.

Working with students and faculty from across the College of Science and Kate Gleason College of Engineering, they studied how plastic moves vertically in lakes over time and how plastic's physical and chemical properties and toxicity change after it enters the water.

"It's great because we can do so many interrelated plastic experiments here," said Hoffman. "We've been running experiments about how plastic behaves at the bottom of the

lake, the benthos, and how different types of plastic move vertically down into the benthos. It all synergizes well."

Tyler added that having a dedicated research site is an advantage for the project.

"The results that we obtain from our research at the Tait Preserve will help to inform our overall research questions about the impact of plastic pollution in the Great Lakes Basin," she said.

RIT's Digital Imaging and Remote Sensing (DIRS) team



Gabrielle Plucknette-DeVito



Elizabeth Lamark

▲ **The 177-acre property** includes the 5,000-square-foot Leenhouts Lodge amidst wooded hills and open meadows.

◀ **Evan Batte**, a third-year environmental science major, prepares to conduct an experiment on the 60-acre lake at Tait Preserve.

became the first group to use the Tait Preserve for research in the summer of 2020 and has conducted numerous experiments at the site since then. Notably, last summer Assistant Professor Emmett Ientilucci from the Chester F. Carlson Center for Imaging Science led RIT scientists and a

team of international collaborators in an intricate set of experiments to help improve remote sensing technology used by drones, airplanes, and satellites. By flying multiple imaging systems from a range of 400 feet to 400 miles above the ground simultaneously, the

researchers tested the capabilities of state-of-the-art cameras and explored new calibration techniques. As pandemic restrictions ease and infrastructure at the site is built up, RIT plans to expand activity at the Tait Preserve to include more educational activities and

K-12 outreach programming events. Last year, RIT established the Wayne Harris Delta Environmental Education Endowment Fund to support an environmental education program and outreach activities at the Tait Preserve. **Luke Auburn '09, '15 MS**

The performing arts complex will feature a 750-seat theater and eventually a 1,500-seat orchestra hall for larger audiences. Construction of the first phase is expected to begin in the spring of 2022, with a completion date of January 2024.



Performing arts complex debuts in 2024

Michael Maltzan Architecture Inc., Los Angeles

With thousands of RIT students involved in performing arts expected in the next few years, plans are moving forward for a performing arts complex that will feature a 750-seat theater and eventually a 1,500-seat orchestra hall for larger audiences.

The project, to be erected adjacent to Institute Hall and Engineering Hall, is intended to provide more venues for the RIT community, as well as options for community groups to hold concerts, talks, and other events. The 750-seat venue will be built first.

James Yarrington, RIT's university architect and director of Planning and Design Services, said construction of the first phase—designed for musical theater productions and more—is expected to begin in the spring, with a completion date of January 2024. It will be more than 40,000 square feet, three stories tall, and have truck access for production sets. The theater will

have two balconies and feature a historic, restored theater pipe organ.

It will also have costume and scene shops as well as offices. Yarrington said the Rochester area has numerous theaters that can seat a couple hundred audience members, but there are few options for venues that seat between 700 and 1,500 people. By comparison, the Robert F. Panara Theatre in Lyndon Baines Johnson Hall has 440 seats.

The first phase is expected to cost more than \$40 million. Additional funds will be sought to support the project and to restore and install the pipe organ.

The second phase, which is funding dependent, will feature an expanded lobby and more than double the size of the building with the 1,500-seat orchestra hall and a stage big enough to accommodate a large philharmonic orchestra, major events, and lectures.

RIT intends to develop the leading

performing arts program in the nation for non-majors, attracting talented and creative students who can continue their passions for music, dance, theater, and other performing arts.

Last academic year, partial performing arts scholarships were awarded to 380 first-year students, tripling the number of students given performing arts scholarships in the previous, inaugural year of the scholarship.

More than 450 performing arts scholarships were offered to incoming first-year students last fall.

The Los Angeles-based firm of Michael Maltzan Architecture, which has designed performing arts buildings for other universities, is the design architect. The architect of record is SWBR, a local company that also was involved in construction of the MAGIC Center.

Greg Livadas



LaBella Associates

The expansion and renovation of Max Lowenthal Hall, home of Saunders College of Business, will add more than 35,000 square feet to the building.

Gifts make Saunders College expansion possible

RIT business students can expect major changes to Max Lowenthal Hall, home of Saunders College of Business, after the completion of a more than \$20 million expansion and renovation project in fall 2023.

The new design, which will nearly double the building's footprint, will offer cutting-edge teaching and learning spaces, opportunities for innovative research, and venues for collaborative work.

This project would not have been possible without transformational gifts from Saunders College alumni and friends.

Donors E. Philip Saunders; Chance Wright '18 (advertising photography), '19 (MBA); Susan Riedman Holliday '85 (MBA); the late Klaus Gueldenpfennig '74 MS (electrical engineering), '77 (MBA); Brigitte Gueldenpfennig '81 (MBA); and Dinah Gueldenpfennig Weisberg '97 MS (software

development and management), '03 (EMBA) collectively committed nearly \$12 million toward the project. Additional funds were awarded by New York State's Higher Education Capital Matching Grant Program.

The new building will feature student team rooms, applied research and case analysis labs, an event space and reception hall, state-of-the-art auditorium, a café, an executive MBA and executive education suite, a wine room in support of hospitality and service innovation programs, and outdoor spaces with expansive views of campus.

Existing classrooms will also be renovated in support of innovative and student-centered pedagogy.

"As a top-100 business school and top-five undergraduate business school in New York state, this expansion and renovation will bring us to the next level and significantly enrich the learning and

research environment," said Saunders College Dean Jacqueline Mozrall. "This project will further enhance interdisciplinary and entrepreneurial collaborations and expand our ability to engage with the Rochester community and beyond."

Originally designed by Robert Macon, Max Lowenthal Hall was constructed in the late 1970s. The new design by LaBella Associates seeks to honor the architectural language of the existing building, while reinterpreting elements to present them in a more modern way.

This expansion comes at a time when Saunders College is experiencing a boost in enrollment. The college experienced record enrollment of first-year undergraduate and executive MBA students in the fall 2021 semester.

Shelly Meyer



City Art Space in downtown Rochester features art and design exhibitions by students, faculty, and alumni and serves as a site for experiential learning for students in the College of Art and Design.

University initiatives helping drive downtown resurgence

Elizabeth Lamark

RIT is contributing to Rochester’s revitalization efforts in a significant way, bringing a creative energy and economic development acumen translating into important arts, cultural, educational, and economic opportunities for the city.

The commitment from university leadership for an increased presence downtown can be seen in several high-profile initiatives.

December marked three years since the opening of RIT City Art Space in the historic Sibley building on Liberty Pole Plaza, the university’s only off-campus, downtown venue that is free and open to the public.

“I’m really proud that City Art Space is amplifying RIT’s presence in a more prominent and visible location downtown,” said John Aäsp, gallery director for RIT’s College of Art and Design. “It has become a bustling hub for students, faculty, alumni, and extended communities to explore and convene around art and design.”

Aäsp said City Art Space has successfully extended RIT’s creative energy beyond

campus, offering meaningful arts, cultural, and educational experiences to people who have passed through the space’s doors or taken in online offerings made more necessary during the pandemic.

Only a city block away, RIT interior design students have designed an esports gaming lounge at Innovation Square, a collaborative campus in the heart of downtown in the former Xerox building, where students from area schools like RIT can live, learn, and innovate in an urban environment.

RIT students created the idea for the Great Lakes Gaming (GLG) lounge through the Simone Center’s Applied Entrepreneurship program. Gallina Development is the project manager, and the commercial real estate agency considered student ideas for implementation into the lounge.

“GLG Lounge and Innovation Square—both new concepts in Rochester—share a vision for building community through education, technology, and innovation,” said Kelly Jahn, visiting lecturer in the

School of Design. “The GLG project is an example of how our RIT students and community partners can work together to revitalize our city, grow our local economy, and encourage talented young professionals to stay in Rochester.”

Since moving downtown in 2020, RIT’s Venture Creations business incubator is allowing client companies to work in space designed for positive member “collisions,” resulting in successful collaborations.

The incubator space occupies the second, third, and fourth floors of 40 Franklin St., which also houses RIT’s Center for Urban Entrepreneurship on the first floor.

Venture Creations was created in 2003 to provide services to incubating companies, facilitating the development and operation of these companies for the purpose of advancing the educational and research missions of RIT through the enhancement of faculty, student, and staff involvement in high technology.

Rich Kiley

Updates meet growing photo demands



The new spaces help position RIT as one of the most dynamic institutions in the world for art and design.



The extensive renovation of RIT's College of Art and Design—with keen focuses on key areas within the internationally recognized School of Photographic Arts and Sciences (SPAS) and School of Film and Animation—made significant strides in 2021.

The vast project is part of a five-year masterplan to renovate, rejuvenate, and transform spaces to meet the growing demands for a college that serves as RIT's creative hub at the intersection of technology, art, and design.

The expansion and reconfiguration of SPAS facilities was made possible with a \$3.5 million gift to the school in 2019 by Chance Wright '18 (advertising photography), '19 (MBA), and his mother, Pamela Mars Wright—the largest single gift ever made to the college.

The transformative work inside Gannett Hall includes the addition of multiple collaborative student spaces and workspaces.

"The College of Art and Design is fortunate to be located at the central hub of RIT's campus on Kodak Quad in Booth and Gannett halls," said Todd Jokl, the college's dean.

"These new spaces, along with MAGIC Spell Studios and the forthcoming SHED, position us as one of the most dynamic institutions in the world working with AR/VR, games, entertainment and technology, photography, and imaging, digital, and physical design."

With the renovation's additional spaces dedicated to moving media, sound capture, and 4D processes, the college

is rising to meet both the established and emerging curricular and industry-based needs of today's students, according to Christye Sisson, who became the director of SPAS last summer.

Some of the renovation plan's key areas included the expansion of RIT's photo equipment cage—stocked full of the latest gear for students and without peer in other photography programs—and an open and inviting new lounge for students and teams to work, study, and collaborate.

While work impacted the analog darkroom spaces, Sisson wanted to reassure alumni and others that the new space is honoring RIT's roots in analog photography while also looking forward to new ways that photography is approached and applied today.

"Analog photography classes are as popular as ever, thanks to both the increase in interest in the darkroom and the implementation of a photography minor," she said.

The new digital photo lab is a state-of-the-art space designed for demonstration, group work, and critique.

The moving media lab contains high-performance machines for rendering video and integrated CGI, as well as augmented reality and virtual-reality applications.

"And the broadcast quality audio room is meeting the needs of our programs to integrate sound into multimedia and still imaging narratives," Sisson said.

Rich Kiley

Photos by Elizabeth Laimark



Populus/LaBella Associates

Athletic facility improvements in home stretch

When visitors pass through RIT's main entrance, one of their first impressions of the campus is the outdoor athletic fields. And that view is getting a facelift.

The first phase of the multi-million-dollar project is the relocation of the outdoor track to a new area and with an upgraded synthetic running surface. The baseball and softball fields are also under construction with upgrades to all-weather artificial turf fields. All three venues will be ready for spring competition.

Next up: the installation of

a state-of-the-art artificial turf field as well as the construction of a full stadium complex featuring locker rooms, training facilities, concessions, a press box, and premium suites. The stadium will be home to men's and women's lacrosse as well as men's and women's soccer.

A grand concourse will also flow between the stadium and the Gordon Field House, which will benefit athletics but also other major events, including commencement ceremonies.

"These facilities will be seen as a new entry point for campus

and will create great exposure for RIT Athletics," said Jacqueline Nicholson, executive director of Intercollegiate Athletics. "When you come on campus, you will soon see four new athletic facilities—a true focal point for Tiger spirit."

RIT has two Division I teams—men's hockey and women's hockey—and 22 Division III teams that compete in the Liberty League. In addition, thousands of students participate in club and intramural sports.

Bob Finnerty '07 MS

Athletic renovations include construction of a full stadium complex featuring locker rooms, training facilities, and concessions, as well as a press box and premium suite accommodations.

Shown below is a rendering of the **new outdoor track** with an upgraded synthetic running surface.

Rendering by LaBella Associates





PARTNER SHIPS

PREPARING STUDENTS FOR A GLOBAL SOCIETY

RIT Dubai President Yousef Al Assaf, left, and RIT President David Munson, right, showcase the new **RIT Dubai campus** to Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of The Executive Council of Dubai.

Photos by RIT Dubai



RIT's global campuses **celebrate**

While students have engaged in virtual international experiences throughout the pandemic, they once again began crisscrossing the globe last fall for in-person international education experiences.

Thirteen students from RIT's campuses in China, Croatia, Dubai, and Kosovo and 11 students from RIT's international exchange partners came to Rochester last fall through the Global Scholars Program. Meanwhile, Rochester students began studying abroad again.

Enrollment at RIT's global campuses reached a record high of nearly 3,000, with Dubai growing the most.

RIT China

In 2015, RIT became Beijing Jiaotong University's first international partner committed to delivering joint business degree programs at its Weihai location, and one of many renowned international partners offering graduate degree and exchange partnership programs at the Beijing campus.

Construction is underway on building a new complex in Weihai that will include a stadium, athletic center, large classroom-type spaces, and an auditorium.

The athletic center will be roughly 2,000 square meters, including six badminton courts and two basketball courts. The student activity area will feature a 1,400-square-meter theater, a dance studio, piano room, and mental health counseling room.

The complex is expected to be complete this spring.

RIT Croatia

RIT Croatia is celebrating its 25th anniversary this year. Established in 1997, RIT Croatia now has more than 2,600 alumni achieving great things in more than 40 countries around the globe. RIT Croatia began in the small coastal city of Dubrovnik and added a second campus in the capital city of Zagreb in 2011.

Donald Hudspeth, president and dean of RIT Croatia, said that people are at the heart of what makes RIT Croatia special.

"The one thing that began in 1997, and has remained the same throughout all these years, is the strong spirit and the quality of relationships between the members of our community," said Hudspeth. "We remain very connected with our alumni, from the first group in 2001 to the most recent in 2021. The landscape has changed since 1997, and we have grown significantly, but the connections, they're still the same."



Located in Dubai Silicon Oasis, the campus spans 129,000 square meters with collaborative teaching and research spaces designed to accommodate up to 2,300 students.



RIT Dubai student Abdallah Khan shows his formula car project to officials at the campus grand opening ceremony in November.

milestones

RIT Dubai

RIT Dubai completed phase one of construction on its new state-of-the-art campus and began officially operating out of the new location in the Dubai Silicon Oasis last year. A grand opening ceremony took place in late November.

Phase one of the new campus was built with an overarching theme of interactive learning and spans 129,000 square meters with collaborative teaching and research spaces designed to accommodate 2,300 students. Campus planners said it was envisioned to be a positive and healthy environment to encourage independence, informal and creative meetings, socializing, and participation.

At the heart of the new campus is a centralized courtyard with an innovation center as its focal point, overlooked by all other academic buildings. Two main axes connect the different functions of

the campus with the Innovation Lab at their intersection, resembling the core of a quantum microchip.

The campus includes a wide range of spaces designed to facilitate instruction, learning communities, research and innovation laboratories for experiential learning, and collaborative meeting and events areas.

RIT Kosovo

Last fall, RIT Kosovo launched a new BS in computing and information technologies. The program emphasizes a hands-on approach to technology and versatility. Students can concentrate in web administration, database, networking and communications, web development, or enterprise administration. The major requires students to complete two blocks of co-op before graduation.

Kosovo also offers a BS in applied arts

and sciences with professional concentrations ranging from economics and statistics to energy policy studies, management and entrepreneurship, security studies, and graphic design and multimedia.

Last fall at the graduate level, RIT Kosovo jointly developed and launched the MS in professional studies program focusing on strategic foresight and innovation in collaboration with RIT's School of Individualized Study, Office of International Education, and RIT Dubai.

Luke Auburn '09, '15 MS

Eleni Ioannidis, a third-year chemical engineering student, adjusts a cylindrical cell winder in the Battery Prototyping Center.



Battery Prototyping Center

doubles capacity

Since opening six years ago, RIT's Battery Prototyping Center has nearly doubled its research and development projects with battery manufacturers from Boston to Silicon Valley.

More industries are exploring designs for commercial quality lithium-ion batteries and seeking experts at the center to provide research about the development of different

styles of batteries—pouch-shaped and cylindricals, for example, two common formats. They also seek center researchers to act as objective, third-party testers of new products and materials—using data to improve a company's manufacturing processes, secure new funding, and, ultimately, to launch new businesses.

The Battery Prototyping Center is a \$2.5 million facility

based at RIT and supported through funding by New York State Energy Research and Development Authority and Empire State Development. Established to support early-stage development of next generation lithium-ion cells and materials, the team has worked with more than 100 customers from academia, government, a variety of industry manufacturers

and technology hubs, and completed multiple projects with the companies since 2015.

"We've had companies 'graduate' from our facility, purchase similar equipment to what we have based on work with us, and then stand up their own businesses," said Matthew Ganter, director of the Battery Prototyping Center. "We try to help companies move forward—and hopefully



A. Sue Weisler

to serve clients

move the industry and technology forward, too.”

Along with sending materials to the center for testing, today more are renting the space and working alongside Ganter and the scientists.

“Now it’s more collaborative work where we are training employees to come in and utilize the facility and we are helping them as needed,” he said.

Center facilities are currently booked daily through July.

Training extends to RIT’s students who work as co-ops for one or two blocks during the semester or as student lab assistants. Ganter also teaches a course in battery design as part of the chemical engineering program in RIT’s Kate Gleason College of Engineering. He is developing graduate level programs in manufactur-

ing, materials, and cell design, taking advantage of the cross-disciplinary connections with several of RIT’s colleges as well as other campus technology centers such as the NanoPower Lab, engineering clean room, and AMPrint Center.

“There is synergy in techniques that can be used to design and build batteries as well as scale production for manufacturing,” he said.

Lithium-ion batteries have been used since the 1990s, and demand has increased with the rise in electric and hybrid vehicles, storage systems, and consumer electronics. Installation of battery cells that are reliable, cost effective, and recyclable is critical to the growth of the multi-billion dollar industry.

Michelle Cometa '00



Garth Fagan Dance partnership

RIT students are already benefitting from a new partnership with Garth Fagan Dance. Performing Arts Scholars Program students are taking master classes and students are working on a semester-long arts management capstone project to deliver suggestions for the internationally known dance company to potentially implement.

RIT and its National Technical Institute for the Deaf

announced in February 2021 the partnership with Garth Fagan Dance for a cooperative-creative-connection to begin in August.

Since then, more than 30 RIT students began taking master classes with members of Garth Fagan Dance in their downtown Rochester studio.

“The students are wonderful,” said Natalie Rogers-Cropper, director of the Garth Fagan Dance School. “One or two

could one day be pros.”

In addition, five students with diverse backgrounds took a semester-long executive MBA capstone course in RIT’s Saunders College of Business in the fall, learning arts management and the business side to running such an endeavor.

One of the students, George Rodriguez, of Dallas, said his team didn’t know what they would be working on when they started the course, but

they were allowed to select their project.

“Each member of my team felt that helping a nonprofit dance organization would be challenging, yet the most rewarding,” Rodriguez said. “After digging into the details of Garth Fagan Dance and eventually their relationship to RIT, we knew we made the right decision to help a performing arts studio achieve its goals of teaching the community a



Natalie Rogers-Cropper, center, school director for Garth Fagan Dance, leads a master class of RIT students as part of a partnership with RIT/NTID.

opens with a spirited first act

A. Sue Weisler

style of dance that should be preserved and shared with the world.”

This spring will see RIT students engaged in co-ops at Garth Fagan Dance, helping with its business and computing needs. A new special topics course, “Garth Fagan Dance Technique Perspectives,” will be offered through the RIT Dance Program.

Founded in 1970, Garth Fagan Dance is an internation-

ally acclaimed contemporary American dance company based in downtown Rochester. Its founder, Garth Fagan, may be best known for his Tony and Olivier award-winning choreography for Disney’s Broadway Production of *The Lion King*.

“We’re extremely excited about the Garth Fagan Dance-RIT/NTID Cooperative-Creative-Connection, an innovative, interactive academic and artistic partnership to enhance

and expand the educational experience through the intersections of technology, science, design, and performing arts,” said Thomas Warfield, RIT’s director of dance.

The partnership will allow collaboration on mutual projects, which may include social justice and community outreach, gaming and film animation, and music programming collaboration.

Warfield said NTID is

specifically identified in the partnership because NTID is where RIT’s dance program and lab was founded and is based.

He said more than 500 RIT students are currently involved in dance classes and clubs, and that number is likely to grow with the partnership and RIT’s Performing Arts Scholars Program, which already has 72 dance scholars.

Greg Livadas

The **MAGIC Center** makes its state-of-the-art facility available for industry and commercial use. Students serve as professional resources for commercial productions, like this Wegmans Meals 2Go commercial produced by Optic Sky Productions.



Optic Sky Productions

MAGIC alliances prove mutually beneficial

Recalling his early days as a student at RIT in 1994, Chris Edwards '97 (film and video production) quickly learned it takes a village to make anything ambitious.

"This is especially true in the collaborative medium of moviemaking, so when RIT's MAGIC Center was launched, I knew this bleeding-edge facility was going to need strong support from companies who are on the front lines of media innovation," said Edwards, now CEO and co-founder of THE THIRD FLOOR Inc. (TTF), the multinational, award-winning visualization studio hatched on the third floor of George Lucas' Skywalker Ranch in northern California.

Edwards helped the founders of RIT's MAGIC Center win a MegaGrant from Epic Games, the largest academic grant ever awarded by the industry's leading game engine developer.

The grant allows professors to participate in hands-on training with some of the world's leading visualization and virtual production experts.

"Now, RIT is the first university to have

access to our curriculum and real-time visualization tools, placing students at the front of the pack for sought-after positions within the burgeoning entertainment industry," Edwards said.

These kinds of alliances—several of which are with alumni-founded companies such as TTF, Optic Sky Productions, and Mountain House Media—have helped fuel MAGIC Center and MAGIC Spell Studios since opening in 2018.

Students received hands-on, one-of-a-kind learning experiences, for example, while serving as professional resources working for Optic Sky on a series of Wegmans Meals 2Go commercials at MAGIC.

The MAGIC Center promotes the university's academic mission by capitalizing on the energy, synergy, and convergence of multiple academic programs through project-based curriculum, faculty research, and scholarship.

MAGIC Spell Studios supports the entrepreneurial ambitions of students and faculty who are seeking to publish

and distribute films, games, interactive experiences, or start new digital media studios. It also is the home of outside commercial activity in film production, animation, digital design, and game development, allowing outside companies to interact with RIT's best creative minds.

As a New York state-designated digital games hub, MAGIC also is collaborating with an ever-growing number of game studios across the Empire State. One of those studios, Vicarious Visions (VV), now part of Blizzard Entertainment, signed a partnership agreement with RIT in 2020 that includes new collaborations and scholarship opportunities for students at two of the university's colleges.

"Vicarious Visions and its partnership with RIT have been mutually beneficial over the years," said Simon Ebejer, studio head at Vicarious Visions. "We look forward to working with RIT and helping each other continue to make New York a haven for AAA game development for years to come."

Rich Kiley

Enrollment from all RIT campuses

Last fall, RIT enrolled a record 19,718 students, up more than 5 percent from the previous year.



Students studying at RIT's global campuses

Enrollment at RIT's global campuses in China, Croatia, Dubai, and Kosovo continues to grow steadily and has more than doubled in 10 years.



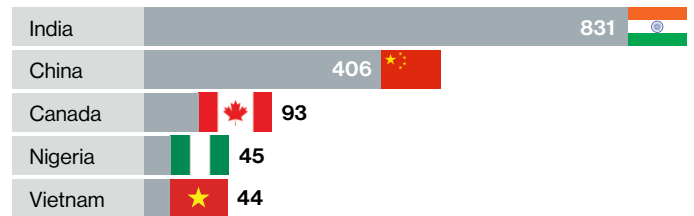
Enrollment for students from under-represented races/ethnicities (AALANA)

RIT is prioritizing increasing enrollment of African American, Latino American, and Native American (AALANA) students. Excludes global campuses.



International student enrollment at RIT's main campus

Last fall, RIT had 1,896 students from more than 100 countries outside the United States enrolled at its main campus. These are the top five countries outside the U.S. that RIT students came from.



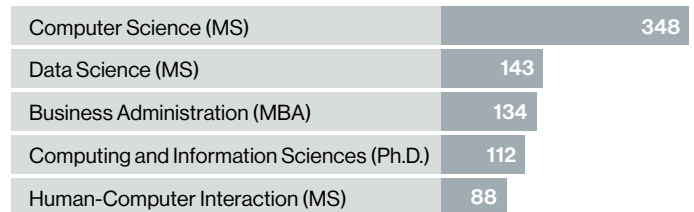
Degree programs with the highest enrollment at RIT's main campus

RIT's main campus enrolled 14,055 undergraduate students and 2,819 graduate students last fall across nine colleges and two degree-granting institutions.

Undergraduate



Graduate



Sponsored research awards

RIT's sponsored research awards surpassed \$76 million for the 2020-2021 fiscal year, another significant milestone in spite of the challenges posed to research efforts brought about by the COVID-19 pandemic.
In millions of dollars



Research expenditures

Based on the NSF Higher Education Research and Development (HERD) Rankings, which ranks universities based on their research expenditures, RIT is now in the top 50 private research universities and the top 20 for those universities without a medical center.
In millions of dollars



Research proposals

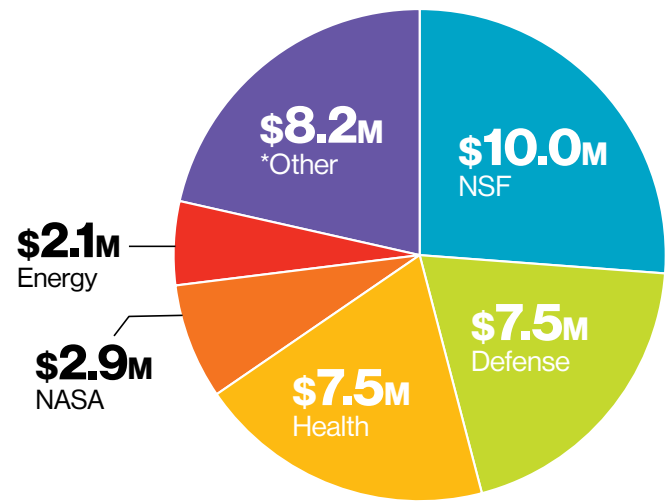
Researchers submitted a record number of proposals in fiscal year 2021.



Federal awards by agency

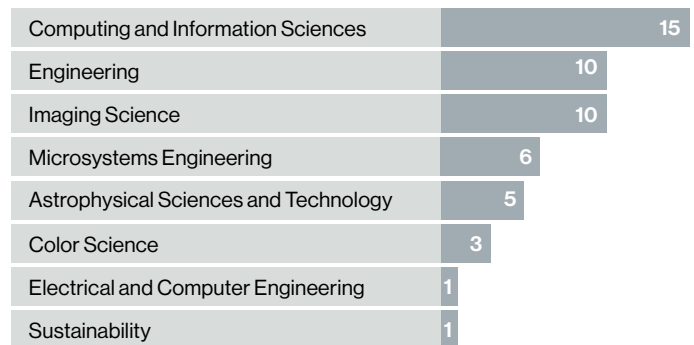
The federal government awarded more than \$38 million during the 2020-2021 fiscal year.

**All other federal agencies, such as Agriculture, Justice, and Labor.*



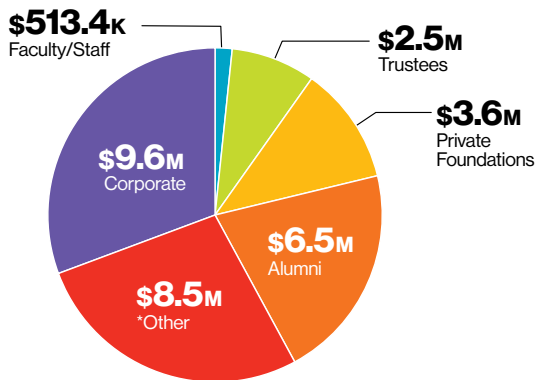
Ph.D. degrees awarded in 2020-2021

The number of Ph.D. degrees awarded has gone up each year over the past five years, and last May RIT awarded its first Ph.D. in electrical and computer engineering.



Giving by source

Total philanthropic giving in fiscal year 2021: \$31,162,182
 *Includes students, friends, former faculty/staff, and parents



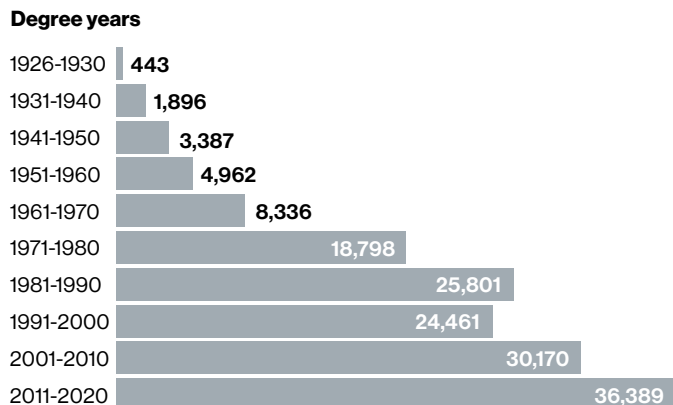
Where alumni live globally

Top five locations outside the U.S.

Country	Alumni total
Croatia	1,773
Kosovo	1,122
India	672
Canada	407
Dominican Republic	370

Alumni by decade

More than 150,000 people have graduated from RIT since 1926.



Alumni population by chapter

RIT has nearly 140,000 living alumni, and they are active in chapters across the U.S. and around the globe.

Location	Alumni total
Rochester	40,517
New York City	9,055
Washington, D.C.	5,844
Boston	5,703
Buffalo	3,780
Syracuse	3,404
Central Florida	3,364
Philadelphia	3,058
Bay Area	2,777
Albany	2,569
South Florida	1,678
Los Angeles	1,645
Chicago	1,628
Colorado	1,552
Seattle	1,540
Raleigh/Durham	1,414
Atlanta	1,389
San Diego	1,381
Phoenix	1,199
Austin/San Antonio	1,115
Charlotte	1,098
Dallas/Ft. Worth	988
Pittsburgh	949
Cleveland/Akron	897
Detroit	857
Utica/Rome	840
Houston	635
Cincinnati/Dayton	615

Experience the Future



At RIT, we're always on to something extraordinary. **Imagine RIT: Creativity and Innovation Festival** is the university's signature event. Explore upwards of 400 interactive exhibits, research projects, hands-on demonstrations, and performing arts. Join us for a day of discovery.

Saturday, April 23

10 a.m. – 5 p.m.

rit.edu/imagine

What will
we think
of next?



IMAGINE RIT
CREATIVITY + INNOVATION FESTIVAL