Welcome to the Hajim Spring State of the School Address. While this is certainly a different format than we are used to, I am glad we can get together to share information and celebrate accomplishments within our school, and I thank Jon Powers from ECM for setting up today’s event. If there are any questions as I am presenting, please feel free to use the Q&A button at the bottom of the page. I am not sure if I will have time to answer questions live, but I will certainly respond after the presentation to any questions I haven’t addressed.
Before we begin, it is with a very heavy heart and great sadness that I inform our community that Randal Nelson, associate professor of computer science, passed away over the weekend. Randal had been at the University for over 30 years, and was very involved in the undergraduate program of the department, leading the UR Robotics group and teaching a course on robot construction among others. This is a huge loss not just to the computer science department but to our entire community.

As one of Randal’s former students, Morgan Sinko, noted: “Randal Nelson was the best adviser and mentor a student or engineer could hope for. He demanded the best work possible from his students, but in return he helped them grow by leaps and bounds in his classes and projects.”

Our deepest condolences go out to Randal’s wife and children and the CS department as they mourn the loss of a vibrant and active member of the community. Randal will be sorely missed.
• We all know this is a trying time, as we deal with the transition to remote operations, concern for family and friends and our community, some of us are supporting school-age kids with their remote learning, some are supporting younger kids or older parents while juggling work responsibilities, and we are all adjusting to social distancing requirements and the impacts this has on our daily lives.

• I am extremely proud of the faculty, staff and students in the Hajim School, who have all come together to quickly move courses and operations on-line and, most importantly, to support one another through this trying time. Our department chairs and program directors, in particular, have done an enormous amount of work to keep departments running smoothly in this new environment and I want to particularly thank them for all they have done.

• I wanted to start with an update on our current status and planning for the future.
  • Teaching: All courses and events are now online for spring and
will all be online for summer. We are currently planning for different scenarios for the fall. Most likely we will have many students who will not be on campus in the fall. Even if our campus is opened up by then, it is quite likely that international students will not be able to arrive in time for the start of the fall semester. Additionally, we may have domestic students who have a hard time returning to campus due to family issues or personal reasons. So we are starting to plan for hybrid models where some students are on campus and some are remote. Stay tuned for how each of us will need to plan for this most likely scenario.

- Research: Labs for the most part have been completely shut down. Where possible, research is being done remotely; faculty and students are running simulations, analyzing data, developing code, writing papers, developing grant applications, and preparing for future experiments once labs open up. So while this is certainly putting a wrench in many of our researcher’s plans, we know that they are doing everything they can to remain as productive with their research as possible. I also encourage all researchers to start planning for how to ramp-up once this is approved by state, local and university officials. Mostly likely, ramp-up will be measured, such as ensuring social distancing is maintained in the labs through shift work.

- Financial challenges: The University is facing real financial challenges at the moment. In AS&E we were starting with a structural budget deficit due to larger tuition discounts provided to students for the last few years. Our admissions and financial aid team has worked extremely hard this year to bring this back into alignment, but now we are faced with even bigger but short-term financial challenges due to refunds for room and board, costs to transition online, as well as lost revenue for summer and potentially fall. We are currently working to address these challenges while looking at potential longer-term revenue possibilities as well. This will be a time of belt-tightening for all
and I want everyone to be prepared for that. At the same time, we have many opportunities to take what we have learned from our transition to online to create efficiencies and to develop new opportunities and we will be embracing these moving forward.

• Before moving on, I want to thank so many who have helped make it possible for us to transition to remote work and learning, but especially to our outstanding IT team: John Strong, Jim Prescott, Bob Lindholm and Joe Pasquarelli and the folks who provided crash course training in teaching online, including formal workshops by Eric Frederickson and Lisa Brown as well as crash-course sessions by Scott Seidman and probably others as well. I have heard from many faculty how incredibly valuable these sessions have been (one faculty member described Scott’s course as a “life-saver!”).
I also want to give a shout-out to Associate Dean of the Hajim School Paul Funkenbusch and all of our Senior Design Instructors who had to quickly pivot from helping students finish design projects to determining what to do next.

They did what all good engineers do: they analyzed the problem and the constraints and set out to optimize the solution, in this case how to provide the best educational experience for our students under the circumstances. They engaged students in the problem solving exercise and pivoted to remote design, how to document what had been done so others can take up where one left off, and how to cleanly wrap up a project that was abruptly shut down, as sometimes happens in the “real world”.

I believe our students will be all the stronger and more resilient in their careers for having gone through this experience. Please do participate in our remote Design Day this year and provide feedback and encouragement to our students—information will be forthcoming soon!
Many of the Hajim community members have gone out of their way to help address the issues we are facing with this pandemic. For example, Greg Gdowski, director of our CMTI master’s degree program in medical device design, along with Chris Muir, professor in mechanical engineering, John Miller in the Taylor Hall machine shop, and students in the CMTI program, have worked closely with Medical Center clinicians on several projects aimed at protecting our doctors and nurses on the front lines and ensuring they have the equipment they need.

This has included work on converting ventilators to serve more than one patient at a time, and most recently on devising intubator boxes, like the one at left, to shield caregivers as they insert ventilator tubes into the airways of patients in the emergency room and in ICU’s and operating rooms.

This has been an incredible effort. Chris Muir, for example, turned out two different intubator shield prototypes over the course of three days – on top of transitioning his senior design students to remote learning.
As another example, Jim McGrath, professor of biomedical engineering, and Ben Miller, professor of dermatology with joint appointments in biomedical engineering and optics, are both working on new devices that can quickly detect the presence of antibodies to COVID-19 from blood or tissue samples, so we can determine who has been exposed to the disease.

In addition to helping determine who might be safe to return to public spaces, these platforms will also help us better understand the mechanisms of how the coronavirus attacks our lungs and other organs.
A final example is from the work of Jiebo Luo, professor of computer science and his students, who studied Twitter comments during the 2016 presidential campaign. They are doing similar research analyzing public perceptions and the impact of the pandemic by studying tweets related to COVID-19 to determine what might be learned about public perception of the virus and related disease by supporters of different political candidates.
While we are adjusting to life under the pandemic, it is important to remember that we still have a lot to be thankful for and to celebrate. As you may recall, 2020 is the 100th anniversary of the ratification of the 19th amendment that gave women the right to vote, as well as the 200th birthday of Susan B. Anthony. To recognize these momentous events, the university created Celebration 2020. As part of this, in the Hajim School, we decided to look back and recognize and celebrate women who were important to the Hajim School’s history. Starting with these two inspiring women, who, as the Rochester Times Union reported in 1935, were “majoring in distinctly masculine pursuits.”

According to the article, “While many college girls are just beginning to shop for fall wardrobes,” Norma Doell “has already started the academic year in faded shop clothes. Only girl ever to take the optics course, she was hard at work yesterday at the River Campus machine shop....”

“Her girlhood chum, Miss Marie E. Bessey, is majoring in mechanical engineering and is scheduled to take the same shop course later in the year.”

Four years later, both received their BS degrees, becoming the first women engineering graduates in the University’s history. In doing so, they dispelled any doubts about their prospects in a field that was even more male-dominated than it is today.
As you may have noticed in Hajim Highlights prior to the disruption caused by the coronavirus, we will be highlighting notable women in the Hajim School history throughout this year. In doing so, we not only recognize their accomplishments, but also showcase what we are losing out on as long as women continue to be underrepresented in STEM fields.

Hopefully our efforts will further raise consciousness around this issue, and generate further impetus to the efforts we have already undertaken in the Hajim School to increase the diversity of student enrollment, faculty and staff.

Stay tuned and be prepared to be inspired by the amazing women we will highlight throughout the year...
As I’m sure you all know by now, the University has begun to transition to its new student information system, UR Student, which is replacing the existing student information system.

Activities that are taking place in UR Student this spring include student onboarding, advising, and student registration for the fall 2020 semester.

While there have been and certainly will continue to be hiccups throughout the transition, I have been impressed in my exploration of the new technology and know this will be a major step forward for our student system once we get through this transition. We all recognize that this week, where students are registering for the fall semester, is and will continue to be tough as we find issues that need addressing, please be patient as the UR Student team works as fast as possible to address these issues as they arise. Thank you to everyone who has spent countless hours building, testing, exploring and revising the system.
There’s great news to report out of Washington, D.C. The U.S. Department of Energy’s National Nuclear Security Administration announced an agreement to support the University’s Laboratory for Laser Energetics with a supplemental cooperative agreement in the amount of $279.9 million for fiscal years 2020–23. Added to previously executed agreements, there is now a record amount of funding authorized for the lab. As LLE director Michael Campbell notes, this is a great expression of the agency’s long-term support for LLE and helps ensure that the lab’s leading role in fusion, high-energy-density science, and advanced high-intensity lasers and optics will continue in Rochester.
Another positive development is the installation of a 335-kilowatt integrated solar panel array and energy storage system—about one-third the area of a football field—that was activated atop the Goergen Athletic building earlier this semester to not only provide renewable energy on sunny days, but to serve as an open, public demonstration of how that energy can be stored for cloudy days as well. The array was built with a grant from NYSERDA as part of the authority’s REV Campus Challenge. PI of the project, Doug Kelley associate professor from Mechanical Engineering, notes that, “There are very few systems anywhere in NY state that have this much storage, and storage is really important as we look forward to electricity grids running primarily on renewables, because we can’t turn sunlight and wind on and off as needed.”

Along with many capital projects, the installation of the batteries to store the energy has been put on hold until we are back on campus, but we expect installation to resume as soon as we return.

A public-facing website has just been opened to the public that shows the amount of solar energy being collected each day. These data show that, indeed, there is sun in Rochester!
Thanks to a generous donation from Ed Hajim, chair emeritus of the UR Board of Trustees, we are able to continue our annual Art of Science competition, in an on-line format this year.

Despite the disruption of closing campus and moving to remote operation, we received close to 70 submissions for this year’s competition, and they are pretty terrific! I am especially moved by the images related to the COVID crisis. We are currently in the judging stage to select the top three, and there is also a people’s choice award, so please vote for your favorite!
A warm welcome to Melodie Lawton, who has joined the Department of Chemical Engineering as an assistant professor (instructional track) and laboratory director.

Melodie started her career working at Bausch & Lomb as a process engineer, after earning her BS in chemical engineering from Polytechnic University.

She later earned her MS in materials science and engineering at RIT. And a PhD in bioengineering at Syracuse University.

Following her PhD, Melodie taught at Bucknell University as a visiting assistant professor.

This semester, Melodie is teaching Chemical Engineering Practice to juniors, and she will also direct the undergraduate labs.
After a lot of hard work by the AME faculty and staff, the new recording studio in Gavett Hall is up and running and has exceeded all expectations in giving its students the skills they need to enter—and keep up with—the rapidly changing field of audio and sound engineering.

The AME program has been quite successful, as it allows students to pursue their passion for music and become engineers at the same time. Courses blend the “fun stuff”—recording and sound design—with “highly technical and rigorous” training in acoustics, electronics, digital signal processing, and software design: a combination that companies are looking for. The curriculum also puts an emphasis on hands-on projects that students can show to employers.

We are all certainly looking forward to when AME and the rest of us can get back to using our facilities!
As described in Hajim Highlights earlier this year, a new Ethics of Technology (H1PHL006) cluster has now been approved. I am excited about and strongly recommend this cluster to all of our engineering and computer science undergrads. It addresses ethical concerns associated with technological innovation and its social and environmental impact. It introduces students to methods of ethical analysis, ethical frameworks, and their significance for professional decision-making. Students will gain valuable skills and ways of thinking by taking these courses, skills that will serve them well not just in their profession but throughout their lives.
Silicon Valley Road Trip

Thanks to an anonymous donor, 24 University students – 21 of them from the Hajim School – were able to participate in a **three-day Silicon Valley Road Trip during winter break**, visiting 11 tech companies ranging from startups like Clever Inc. to big giants like Amazon, Facebook, Intel, and Google.

This trip, as in the past, was **organized by the Gwen M. Greene Center for Career Education and Connections**, which does a great job of prepping students ahead of time. At most of the companies, students met Hajim School alumni now working at them, and had a great opportunity to network and size up what it is like to work at a tech company.

Thanks to **Joseph Testani**, assistant dean and executive director, and **Megan Vargulick**, director of employer and alumni connections, both at the Greene Center, for all their hard work in organizing and chaperoning the students.

We’ll keep our fingers crossed that funding can be found for another trip next year.
Talking to our delegation

As I do annually, I was in Washington, D.C. back in February to both learn and advocate on behalf of topics of immediate concern to the Hajim School and engineering schools across the nation.

The occasion was the 3-day Public Policy Colloquium of the American Society for Engineering Education (ASEE) Engineering Deans Council, organized by the council’s Public Policy Committee.

This year’s topic was the engineering and computer science talent America will need by 2050 and the policies that must be adopted now to ensure those needs are met.

I then had the opportunity to meet with members of our own delegation, including Senate minority leader Chuck Schumer, to advocate for topics of importance to the Hajim School, including increased research funding and support for international students.
Thanks to Tyrone Jimmison and Derek Swanson from Hajim Advancement, and all of our department chairs and program directors who helped us pull together points of pride documents for each department and program.

These will allow us to showcase the unique strengths of our departments and programs and enable new connections to be made with alumni, friends and companies interested in supporting the outstanding research and academics at the Hajim School.
In particular, I want to highlight an initiative within BME to celebrate their 20 year anniversary. BME has come a long way since it was started back in 2000, including growing into:

- one of the most popular majors in the Hajim School, only surpassed in the past couple years by CS enrollments
- a shining example of how a department can achieve gender equity with 50% women faculty, 50% women undergraduates, and 45% women graduate students
- committed to supporting and promoting under-represented students
- housed in a new building
- a successful collaboration between the Hajim School and the School of Medicine and Dentistry

Events to celebrate this milestone will be conducted virtually for the foreseeable future but we will certainly find ways to celebrate in person at some point all that BME has achieved!
Student initiatives . . .
This year’s graduating Grand Challenges Scholars cohort is our largest yet, and includes students from multiple disciplines addressing a wide range of challenges. Please check out their posters at the 2020 Virtual Undergraduate Research Expo! They will be available for comment until April 24.
Members of our Engineers Without Borders student chapter and their advisor were back in the Dominican Republic during winter break, visiting the Escuela Taller Santa Maria Josefa Rossello primary school.

They had planned the visit as a final monitoring and sign-off on a water disinfection system and new piping installed on previous visits to provide 400 pre-kindergarten through eighth grade students with drinking water. Instead they had to address a problem with hard water and loss of water in one of the buildings due to a well that was improperly installed before the project began.

The students, to their credit, took it all in stride, and addressed the issues presented to them. I applaud the students’ persistence, and the organizational skills that have enabled the chapter to keep this project going since 2014.
The students who participated last summer in the Digital Heritage of West African Monuments Field School -- the Ghana field school studying historical forts along that country’s coastline — have been busy since then analyzing data and writing papers for presentation at the Structural Analysis of Historical Construction 2020 conference in Barcelona in September. Their paper, with three undergraduate authors involved, was recently accepted for presentation.

Last year’s field school, the third, was particularly eventful. The Ghana Museum and Monuments Board requested a last-minute engineering analysis of Fort Amsterdam. The students and their faculty leaders -- Renato Perucchio and Chris Muir of mechanical engineering, Mike Jarvis of history, and Christopher DeCorse of Syracuse University — literally had to completely revamp their schedule the day before the school started, and still managed to not only complete the analysis at Fort Amsterdam, but also accomplish archaeological work at Elmina Castle.
We are proud to have a number of outstanding student athletes among our Hajim undergraduates.

Congratulations to the **women’s field hockey team**, which **won the Liberty League Conference title** for the second time in team history with a 1-0 win over Vassar.

**Emma Schlechter ’20** of chemical engineering **scored the lone goal and was named the Most Outstanding Player** of the two-game tournament.

During the title game, goalie **Kate Kujawa ’20** of mechanical engineering **made a great save**, diving to her right to block a penalty corner shot and keep Vassar off the board.

The team also includes **Kathryn Colone ’21**, **Karina Bridger ’23**, **Nikki Mercer ’22**, and **Catherine Hauser ’20** of biomedical engineering; **Amanda Strenk ’22** of chemical engineering; **Maya Haigis ’20** and **Leona Fisher ’22** of data science; **Lesley Leatherman ’23** of electrical and computer engineering; and **Brianna Madison ’23** of engineering science.
As another example of our dedicated student athletes, Stephen Savchik '20 of data science became only the third men's diver in University history to qualify for the Division III national swimming championships. Unfortunately, the meet was canceled because of the pandemic. Nonetheless, Stephen was recently named to the Division III All-America team by the College Swimming Coaches Association of America. Stephen, a Garnish Scholar, participated in a DAAD-rise research internship in Germany this past summer.
Research Initiatives

Several research initiatives have also made progress over the last year.
Mujdat Cetin of electrical and computer engineering was recently named the Robin and Tim Wentworth Director of the Goergen Institute for Data Science. Mujdat is not only an internationally-recognized researcher, but he has a wealth of leadership experience within his research field. We know he will be an outstanding leader who will continue to advance GIDS as not only a University priority but also as a national and international presence in the field of data science.

As interim director, Mujdat has been busy setting up working groups to help identify areas where GIDS can actively collaborate with researchers across the university, as shown here.

When you see that more than half of the co-chairs are Hajim School faculty, you realize why GIDS is an important partner for us.
Daniel Benoit, professor of biomedical engineering, and director of the Materials Science program, has been working hard since last summer re-energizing the program and giving it greater prominence.

As you can see the program has been in place for more than 50 years, and just as Rochester has had a strong tradition of material-based manufacturing, materials science is integral to much of the work we do here at the University. Indeed, the program consists of 60+ affiliated faculty drawn from departments across AS&E and the medical school.

Danielle is hoping to forge even more collaborations around research areas that could leverage major NSF grants.
For example, faculty have been developing interdisciplinary research groups around the topics of:

1) quantum materials;
2) materials for energy harvesting and storage;
3) sustainable materials;
4) machine learning/AI and biomedical materials;
5) materials under extreme conditions; and
6) processing/manufacturing/scale-up.

Work has continued remotely to advance these important research areas.
Recently, a new cluster was formed as part of the University Committee for Interdisciplinary Studies (UCIS), focusing on Sensors and Diagnostics.

This is an inherently interdisciplinary field, with a multitude of applications from medical diagnostics, to machine health, to photography, and engaging faculty and students from departments and centers across the University.

This initiative, co-chaired by Ben Miller and Jim McGrath, will focus on activities that will bring together interested researchers from across the University to enhance interactions, develop scientific collaborations, and stimulate new and productive scholarly activities.
There is also a new group of faculty from Life Sciences, Optics, and Data Science meeting to determine potential new research areas in biological imaging, building off our historical strengths in imaging and optics.

So far there have been two well attended workshops, new collaborations, and establishment of a new high-content imaging core with an andor dragonfly spinning disc microscope, shown here, in Goergen Hall.

A group led by Michael Welte, chair of Biology, Scott Carney, director of the Institute of Optics, and Mujdat Cetin, director for GIDS, recently submitted an application to the Beckman Foundation to develop a user-friendly single objective light sheet microscope that provide unprecedented 3D imaging of bacterial communities, the evolution of animal tissues and organs from a single cell, and molecules and cells traversing tissue barriers.

This will generate huge amounts of data, so the initiative will also develop new strategies for data management, computational imaging, and image analysis. We look forward to seeing how this important new initiative evolves.
Our initiative in High Energy Density Physics has continued their strong momentum over the last year. They
• recently moved into new quarters in the Bausch and Lomb building
• successfully launched on-line courses in HEDP taken by researchers at Lawrence Livermore and UCSD
• are working towards a certificate and master’s degree in HEDP
• were recently invited for a virtual reverse site visit for a Physics Frontier Center

We wish the group, led by Rip Collins from Mechanical Engineering and the LLE, the best of luck in the next stages of development of this initiative!
As the birthplace of quantum optics, the University of Rochester is well poised to further our understanding of quantum technologies. A group of faculty from across AS&E has been meeting regularly to advance our work in quantum, focusing on theory, materials, computing, sensing and chemistry. They have partnered with a number of institutions to submit grants to further our research in this area, and we are working with our government relations group to obtain infrastructure that will help us advance our capabilities in this area.
In engineering, there are many opportunities to turn our research into practice through tech transfer. At UR, this process is managed by the UR Ventures office.

After gathering feedback from faculty during a survey last year, UR Ventures went through a reorganization and will now have an office dedicated solely to the River Campus, in addition to a separate office for the Medical Center.

The River Campus office will be headed by Johnny Fahner-Vihtelic and Curtis Broadbent, who have offices in the CSB building.

I have been working with UR Ventures over the past few months to explore new ways to identify promising technology that can be licensed to industry or that can form the basis for a start-up venture. We have been exploring new policies (including changes to the IP policy currently being reviewed by the UR Faculty Senate) and procedures to ensure transparency in how decisions are made and to provide consistent communication and set timelines for decision-making. I have also been working with my alumni groups to obtain an industry perspective of tech transfer that may inform changes moving forward. We will continuing working to ensure that valuable technologies are protected and have viable paths towards commercialization.
Finally, I want to share some recent faculty, staff, alumni and student awards. As you’ll see, we have a lot to be proud of!
Given our small size, it is truly remarkable to see how many awards and external recognitions our faculty garner!

Miguel Alonso, professor of optics, has been named the new editor-in-chief of *Optics Letters*, taking over from Xi-Cheng Zhang, our former Institute of Optics director, who held the post the last five years.

Julie Bentley, associate professor of optics, was elected a Fellow of OSA for “outstanding international leadership in optical design shown through international conference organization, innovative optical design methods, and an unparalleled level of excellence in teaching and mentoring.”

Julie is also the recipient of the 2019 RRPC Education Award from the Rochester Regional Photonics Cluster for being “instrumental in teaching and helping many young optics entrepreneurs develop their first designs and launch their optics businesses.”

Bob Boyd, professor of optics, was co-winner of the American Physical Society’s
2020 Frank Isakson Prize for Optical Effects in Solids. Bob, who is also affiliated with the Materials Science Program, is being recognized for pioneering contributions to the discipline of composite optical materials and metamaterials,

Rip Collins has been appointed as the Tracy Hyde Harris Professor in Arts, Sciences and Engineering. This is one of our University’s oldest professorships.

Diane Dalecki was installed as the Kevin J. Parker Distinguished Professor in Biomedical Engineering. It is appropriate that the professorship is named in honor of Kevin, the William F. May Professor of Engineering and dean emeritus of engineering and applied sciences, in recognition of his longstanding contributions to medical imaging, image processing, and scanning techniques.

Marvin Doyley, professor of electrical and computer engineering, was inducted as a fellow of the American Institute for Medical and Biological Engineering (AIMBE) for “outstanding contributions in developing algorithms for elastography and the application of elastography to vascular mechanics and disease.”

Henry Kautz, professor of computer science and founding director of the Goergen Institute for Data Science, has been selected to receive the AAAI Robert S. Engelmore Memorial Lecture Award by the Association for the Advancement of Artificial Intelligence. Henry is being honored for “outstanding research contributions in the area of knowledge representation, data analytics, and data mining of social media for public good.”

Jennifer Kruschwitz, assistant professor of optics, has been elected a board member of the Inter-Society Color Council, the principal professional society in the field of color in the United States.

Jiebo Luo, professor of computer science, was appointed editor-in-chief
of the IEEE Transactions on Multimedia, a monthly peer-reviewed scientific journal covering multimedia technology and applications.

Benjamin Miller, Dean’s Professor of Dermatology with joint appointments in biomedical engineering, biochemistry and biophysics, and optics, was also inducted as a fellow of the American Institute for Medical and Biological Engineering (AIMBE) for “the development and application of versatile optical biosensor platforms, including Arrayed Imaging Reflectometry and integrated photonic sensors.”

William Renninger, assistant professor of optics has received both a prestigious National Science Foundation CAREER award and an RO1 research grant from the National Institutes of Health. Will’s CAREER award will support his research in coupling light waves and acoustic waves for optomechanical applications. His RO1 grant will enable him to pursue ways of improving three photon imaging — considered one of the most promising techniques for deep brain imaging — in collaboration with Chris Xu, a Cornell University professor who is one of the pioneers in the field.

Jannick Rolland was selected as the 2020 recipient of The Optical Society (OSA) Joseph Fraunhofer Award/Robert M. Burley Prize. Jannick is being honored for numerous creative and innovative applications in several fields of optical engineering including astronomy, medical imaging, augmented and virtual reality, image science, and freeform optics. Jannick also has been named an Engineer of Distinction by the Rochester Engineering Society.

Nick Vamivakas, professor of optics and AS&E Dean of Graduate Studies and Postdoctoral Affairs, was selected as the 2019 Young Engineer of the Year by the Rochester Engineering Society.

Stephen Wu, assistant professor of electrical and computer engineering, received an NSF CAREER Award to study the transformations of two-dimensional (2D) materials—as thin as a single layer of atoms — when they are stretched and pulled in transistor-scale device platforms, in ways
that could transform electronics, optics, computing, and a host of other technologies.
And one last faculty award to mention!

As part of the ongoing research expo, Chen Ding, professor of computer science, received the College Award for Undergraduate Teaching and Research Mentorship during a virtual presentation ceremony last Friday. Chen has offered research internships to at least 48 undergraduates, including eight he welcomed into his research group last summer alone. He takes a keen interest in what his interns are doing, visiting with them daily, getting to know them individually, answering questions, and hosting team-building activities. Thank you, Chen, for all you do for our students!
And speaking of computer science, the department has been ranked No. 5 in the country by CSRankings for computer vision for the year 2019, trailing only Carnegie Mellon University, Stanford University, University of Central Florida, and University of California/Berkeley, with MIT and Cornell University right after. CSRankings is a metrics-based ranking of top computer science institutions around the world. This is very impressive given the department’s relatively small faculty size — and the fact that computer vision is one of the most active areas in AI. Congratulations to CS!
I also want to recognize the outstanding work of our staff, many of whom have received Bravo Chips this year.

Anna Alden, Cindy Gary, Emily Tevens and Tim Woodward are all part of the Hajim School; Terra Buttram works in Human Resources; Linda Cassidy works in Physics and Astronomy; Peter Lootens works in the Campus mail center; Sarah Mossey works in creative services at University Communications; and Luis Rosario works in AS&E IT. Thanks to all of you for your support of the Hajim School!
We have some undergraduate student awards to celebrate as well.

Chemical engineering major Junior Beauclaire Mbanya ’20, was among the 145 Schwarzman Scholars selected this year from a global applicant pool. Alumnus Suman Kumar was also selected this year.

Both Beauclaire and Suman Kumar are supposed to begin a multidisciplinary one-year master’s degree next August at Schwarzman College, located at China’s prestigious Tsinghua University in Beijing. We hope that they are able to participate in this prestigious opportunity one way or another given the current situation.
The Wells Award recognizes Hajim students who also excel in the humanities, with a minor or dual major in that field -- and have the highest GPAs at the end of their junior year.

**Congratulations to our three Wells Award recipients** this year. They are seniors **Nathan Nickerson**, who is majoring in mechanical engineering with a minor in art history; **Jarrod Young**, who is earning a dual major in computer science and Spanish; and **Melissa Wen**, a computer science and brain and cognitive sciences double major who is also earning a minor in studio arts.
Our National Society of Black Engineers student chapter received the Boar’s Head Award at the University’s annual medieval-themed feast celebrating the beginning of the Rochester winter.

NSBE was nominated by the Student Organization for Caribbean Awareness for its contributions to the African-American student community at our University, citing their study halls where underrepresented students can connect with each other and where first- and second-year students can learn from upper-class students.

Even if a student leaves the Hajim School, they are still welcome and encouraged to remain a part of NSBE. The group also provides tutoring and organizes programming in conjunction with the Greene Center, both prior to and after the national and regional NSBE conferences.

For the Hajim School, NSBE is an integral part of building peer support and is a necessary component for retention and graduation. We congratulate NSBE for this well-deserved recognition of all of their hard work.
Our graduate students and researchers have also been garnering a number of awards.

Aaron Bauer, a research engineer in Jannick Rolland’s group at The Institute of Optics, has been named the 2020 recipient of the Kevin P. Thompson Optical Design Innovator Award by the Optical Society (OSA). Aaron has been an important contributor to the Center for Freeform Optics.

Heta Gandhi, a PhD student in the lab of Andrew White, assistant professor of chemical engineering has received a prestigious fellowship from the Molecular Sciences Software Institute (MolSSI) to further refine a new software program the lab developed to conduct its simulations of peptide self-assembly.

Tyler Godat, an optics PhD student working with David Williams, the William G. Allyn Professor of Medical Optics. Tyler received the Optical Society of America Fall Vision Meeting Young Investigator Award for his recent presentation in Washington DC on “In vivo classification of macaque foveal ganglion cells through optical recording of responses to chromatic and luminance flicker.”
Varchas Gopalaswamy, a Horton Fellow at the Laboratory for Laser Energetics and PhD student in the lab of Riccardo Betti, chief scientist at LLE and the Robert L. McCrory Professor of Mechanical Engineering received the Chiyoe Yamanaka Award at the International Conference on Inertial Fusion Sciences and Applications in Japan.

Alec Salminen, a PhD student in the lab of James McGrath, professor of biomedical engineering is the winner of this year’s Falling Walls competition, and was slated to represent the University in the final Falling Walls lab competition in Berlin. Alec described his work on a device that recreates the complex brain microenvironment on an inexpensive microfluidic chip. Alec is the second member of the McGrath lab to win this competition. Kilean Lucas took first place two years ago.

Fernando Zvietcovich, a PhD candidate in the lab of Kevin Parker, the William F. May Professor of Engineering and dean emeritus of engineering and applied sciences is the winner of the 2020 SPIE-Franz Hillenkamp Postdoctoral Fellowship in Problem-Driven Biomedical Optics and Analytics. The annual award of $75,000 supports interdisciplinary problem-driven research and provides opportunities for translating new technologies into clinical practice for improving human health.

Zhengyuan Yang, a fourth-year PhD student advised by Jiebo Luo, professor of computer science, has won the 2020 Twitch Research Fellowship to support his research on video and language.
We also have outstanding alumni who receive University and national awards. Three of our alumni were inducted into the University’s Athletic Hall of Fame. They are:

**Rachel Cahan** ’08 of mechanical engineering, one of the most decorated goaltenders in Rochester field hockey history, now a mechanical design engineer for SRAM, a manufacturer of bicycle components.

**Jenny Rogers Green** ’02, who graduated with dual degrees in computer science and brain and cognitive science. She was a star offensive player for the women’s lacrosse team and is now a transit service planner for GoTriangle, the regional public transportation authority serving Raleigh, Durham and Chapel Hill, NC.

**John Paul Moran** ’89 of optics, a long distance runner who earned All-America honors and later founded Blue Wave Marketing, a digital firm.

Other alumni award recipients include:
Daniel Blumenthal, ’81 of electrical engineering, now a professor at the University of California Santa Barbara, is the recipient of OSA’s 2020 C.E.K. Mees Medal for his work with photonic integrated circuits and their applications.

Manuel Guizar-Sicairos ’08 (M) ’10 (PhD), an Institute of Optics alumnus and currently a beamline scientist at the Paul Scherrer Institute in Switzerland is the 2019 recipient of the International Commission for Optics (ICO) Prize for 2019.

Susan Houde-Walter ’83MS ’87PhD, and a former Institute of Optics professor, and CEO of LMD Power of Light Corp. (doing business as LaserMaxDefense) will receive the 2019 Engineer of the Year Award from the Rochester Engineering Society.

Suman Kumar ’19 of mechanical engineering, was selected as the recipient of the Global Engineering Student Award from the University of Colorado at Boulder, and was picked as a Schwarzman Scholar.

Shawn D. Rochester ’97, of chemical engineering was selected as one of the International Human Rights Commission Relief Fund Trust’s top 100 Human Rights Defenders, who will be listed in the trust’s 2019 Almanac. Shawn is the CEO of Good Steward LLC.

Katie Schwertz’08, an Institute of Optics alumna was been elected a director of SPIE, the international society for optics and photonics.

Donna Strickland ’89 (PhD), our Institute of Optics alumna who shared the 2018 Nobel Prize for Physics, was been appointed a Companion of the Order of Canada

Andrew Wunder ’04 (MS ’05) was announced as the first-ever recipient of the Department of Chemical Engineering’s new Young Alumni Achievement Award, which will be given annually to recognize graduates
within the last 15 years for their service to society, their professional and technical accomplishments, and their demonstrated leadership. Andrew, currently the director of operations at Henkel in Lyons, NY, has also served on the department’s Advisory Board, providing key insight into the current industry and how the department can improve its undergraduate program.
While we must remain off the campus we all know and love, and we certainly have very real financial constraints that must and will be addressed in the coming year, leading to belt-tightening and tough decisions ahead, there is still plenty that we have to be grateful for. We are a strong and resilient community and I have no doubt we will emerge from the current challenges in a position to continue providing world-class education and research and making the world “ever better”.

Students created this Minecraft representation of the quad, and this has led to a community effort to recreate campus in a virtual environment. While we certainly hope to get back to the physical campus as soon as is safely possible, until then, we will be sure to connect remotely and virtually and continue moving our research and education missions forward. Meliora! Thank you all for attending the presentation today.