

# MULTICAST

THE DEPARTMENT OF COMPUTER SCIENCE AT THE UNIVERSITY OF ROCHESTER



**HAJIM**  
SCHOOL OF ENGINEERING  
& APPLIED SCIENCES  
UNIVERSITY of ROCHESTER

|                           |    |
|---------------------------|----|
| From the Chair            | 2  |
| From Periscope to Sisense | 5  |
| Featured Grad Alumna      | 6  |
| Remembering Carceroni     | 8  |
| New Faculty               | 10 |
| Grad Alumni Notes         | 11 |
| Undergrad Alumni Notes    | 14 |
| Class of 2019             | 17 |
| Design Day                | 18 |



# From the CHAIR

## 2018–2019 in Retrospect



Sandhya Dwarkadas

2018–2019 was, as usual, a busy year. We continue to grow and had a graduating class of 168 students: 134 students graduated with a bachelor's degree—53 BA, 81 BS; 27 with a master's degree; and 7 with a doctorate degree. An additional 49 students completed a minor in computer science. Nearly half of our undergraduate students were double majors in over 20 fields. The interdisciplinary majors of data science, computational biology, computational linguistics, and digital media studies drew an additional 96 students (51 DSC, 23 BCB, 4 LIN, 18 DMS). More than 15 percent of the undergraduate senior class studied abroad. More than 20 percent of the senior class was involved in research with our faculty, as were almost all of our MS students.

I highlight some of our student, faculty, alumni, and staff accomplishments and accolades below:

### Undergraduate Students

- Jackson Abascal '19 was selected as a "Finalist" in the Computing Research Association's (CRA) Outstanding Undergraduate Research Awards competition. Jackson also received a Charles L. Newton Prize and was awarded the Arthur S. Gale Memorial Prize for "greatest achievement and promise" in mathematics.
- Sofia Carrillo '19 received the Doris Ermine Smith Award for significant achievement in mathematics, won a Student Leader Gwennie Award, and also received the Stoddard Prize for Proficiency in mathematics.
- Robert Gerami '19 received the ACUI Outstanding Undergraduate Award, as well as the Josephine C. Asbury Award for commitments to the community.
- Graeme McGuire '19 received a Fulbright grant and will be an English Teaching Assistant at a university in the nation of Georgia.
- Andres Ollarvez '19 received the David Merkle Leadership Award and was a finalist in the 2019 Forbes Entrepreneurial Competition.
- Isaac Wong '19 received a Victoria Finnerty Award, the Grace McCormack Award, and an Undergraduate Research Expo Dean's Award.
- Qiuyue Sun '20 was selected as an "Honorable Mention" in the Computing Research Association's (CRA) Outstanding Undergraduate Research Awards competition.
- Samuel Triest '20, advised by Yuhao Zhu, was a gold medalist in the ACM student research competition (SRC) at the 24th

ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS).

### Graduate Students

- PhD student Parker Riley, supervised by Professor Daniel Gildea, was awarded the Donald M. and Janet C. Barnard Fellowship in recognition of his strong research record, as well as his clear commitment to mentoring, outreach, and service to the department and the field.
- PhD student Andrew Read-McFarland was awarded the Edward Peck Curtis Award for Excellence in Teaching by a Graduate Student in recognition of his excellent service as a TA.
- PhD student Louis Jenkins was awarded the DoE Computational Science Graduate Fellowship.
- PhD student Sam Lerman received an Honorable Mention in the NSF Graduate Research Fellowship Program Competition.
- While many of our graduate students continue their cutting-edge research on campus, the summer of 2019 showed a particularly wide range of internship placements, including Adobe, Affectiva, Amazon, ARM, ByteDance, Facebook, Google, Innopeak Technology, Kwai, Megagon Labs, Micro Focus, Microsoft, MIT LL MSR Asia, NEC Labs, Nvidia, PingAn Health America, PNNL, Samsung, Snap, Tencent AI Lab (China), Uber, and VMware.

### Students in the Community

We continue to maximize our participation in the BRAID (Building, Recruiting, and Inclusion for Diversity) initiative—now going into its sixth year—to support community-building endeavors, including sending students to the Grace Hopper Conference for Women in Computing, the Lesbians Who Tech+Allies Summit, and the National Society of Black Engineers annual convention. Our Women in Computing group, URWiC, started an official Girls Who Code chapter, which works with local high schools. Every week, at least five volunteers go to a local library to help teach high school girls from the city of Rochester the basics of programming. URWiC also continues their engagement with the local Girl Scouts chapter. Our CS Undergraduate Council (CSUG) continues to provide free tutoring and peer advising for any student in need. We are proud of our students' community-building efforts!

### Faculty

This fall, we welcome Fatemeh Nargesian to the ranks of our tenure-track faculty and Adam Purtee to our teaching faculty. (See page 10)

Our faculty were particularly active externally, with four individuals on sabbatical this past year! Lane Hemaspaandra traveled to Switzerland and Germany (supported by an Alexander Humboldt Foundation award), Jiebo Luo was at Tencent and Futurewei, Ji Liu at Tencent as well, and Henry Kautz served as the director of the Division of Information and Intelligent Systems at the National

Continued on page 4

# Graduating Class 2018–19

168  
students

134  
graduating with a  
bachelor's degree

[53 BA, 81 BS, 27 MS, 7 PhD]

An additional 49 students completed a minor in computer science.

Nearly half of our undergraduate students were double majors with second majors in

math, comparative literature, business, studio arts, philosophy, political science, Japanese, digital media studies, economics, financial economics, linguistics, brain and cognitive sciences, applied mathematics, anthropology, history, physics, film and media studies, psychology, mechanical engineering, and statistics.

More than 20%  
of the senior class was involved in research with our faculty, as were almost all of our MS students.

Data science, computational biology, computational linguistics, and digital media studies drew an additional 96 students

Study abroad program

More than 15% of the senior class explored countries such as Hungary, the UK, Peru, Singapore, Italy, Spain, Germany, Denmark, and Japan.

Some have joined graduate programs at universities including

Carnegie Mellon University, University of Michigan, Cornell University, MIT, Duke University, WUSTL, University of Washington, NYU, UC Irvine, and our very own University of Rochester.

Many of our students have accepted positions in industry at companies such as

Amazon, Google, Microsoft, HP Enterprise, Facebook, Cray Inc., Tencent, Credit Suisse, FactSet, Oracle, Morgan Stanley, the Expedia Group, iRobot, the Naval Research Lab, and HomeAway.



## From the CHAIR con'd

Science Foundation (NSF). Henry is also the recipient of the 2018 ACM-AAAI Allen Newell Award for “contributions to artificial intelligence and computational social science, including fundamental results on the complexity of inference, planning, and media analytics for public health.” Jiebo Luo was named an AAAI fellow and also received the IEEE Region 1 Technological Innovation (Academic) Award for his contributions in computer vision and data mining. Three of us—Wendi Heinzelman, Jiebo, and I—were among the 56 newly elected 2018 ACM fellows, for contributions to “wireless communication systems and protocols and leadership in broadening participation in computing,” “multimedia content analysis and social multimedia informatics,” and “shared memory and reconfigurability,” respectively.

Within the University, Michael Scott received the 2018 Hajim Lifetime Achievement Award for his many accomplishments and contributions as the “quintessential professor.” George Ferguson was voted Professor of the Year by the Students’ Association. Computer science major Gebri Mishtaku ’21 says, “Professor Ferguson is as intellectually challenging as he is understanding and caring of one’s life goals . . . making him a teaching superstar in my eyes.” Zhen Bai and Ted Pawlicki received the University’s Sykes Engineering Faculty Award for courses in AR/VR interaction design and quantum computing respectively. Yuhao Zhu received a collaborative University Research Award to investigate support for deep neural network computations in the optical domain. Muthu Venkatasubramaniam also received a collaborative University Research Award to study secure genomic data analyses in critically ill infants.

### Alumni

In alumni news, Danny Sabbah ’82 (PhD) received the 2019 Hajim Distinguished Alumnus award. Danny is the former CTO and general manager of the Next Generation Platform at IBM Corporation, and current principal consultant at DSabbah LLC. In the fall of 2018, Matthew Boutell ’05 (PhD), Andrea Salgian ’01 (PhD), and Xipeng Shen ’06 (PhD) were promoted to full professor at Rose-Human Institute of Technology, the College of New Jersey, and North Carolina State University respectively. Nasrin Mostafazadeh ’17 (PhD) was named to Forbes Magazine’s 2019 “30 under 30 in Science” for her work on storytelling and commonsense reasoning.

### Administrative Staff

Among our excellent staff, undergraduate manager Brynn Wilkins won a Department Coordinator and Leader Award at the Career Center’s third annual Gwennies award ceremony for her partnership with them. This last year also saw growth and changes in our staff to help with our growing student population. Emily Tevens joined the team as the master’s program coordinator. Danielle Vander Horst joined the team of undergraduate coordinators. Jenna Price replaced Vanessa Phengsomphane as the department coordinator.

It has been a challenging, fulfilling, and fantastic year all around!



From left to right, Professors Luo, Kautz, Heinzelman, Dwarkadas at the June 2019 ACM Awards Banquet



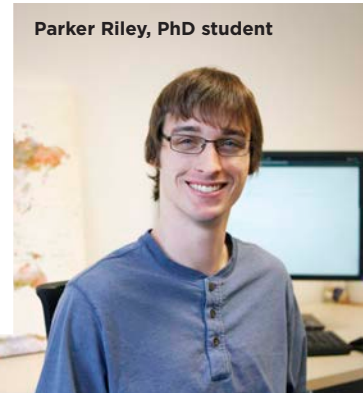
Jackson Abascal '19



Louis Jenkins, PhD student



Sam Triest '20



Parker Riley, PhD student



Giuyue Sun '20

## Update from 2013: Harry Glaser '07 and Tom O'Neill '07 From Periscope to Sisense



**When we interviewed Harry Glaser '07 and Tom O'Neill '07 for our 2013 Multicast newsletter ([www.cs.rochester.edu/assets/pdf/newsletter-pdfs/newsletter-2013.pdf](http://www.cs.rochester.edu/assets/pdf/newsletter-pdfs/newsletter-2013.pdf)), their fledging start-up, Periscope Data, was barely one year old. With a handful of employees who were mostly University of Rochester alumni, they hoped they were creating a product that would be powerful and in demand.**

Since 2013, their business, which catered to advanced data teams, has continued to grow in both size and reputation. They have moved to larger spaces more than once in the San Francisco area to accommodate their expansions. Their staff grew to over 150 employees. Through many iterations, their product has evolved to become an industry-leading platform for complex analysis that allows teams to experiment with machine learning and other advanced processes. Today, Periscope Data serves more than 1,000 businesses, including Adobe, Crunchbase, EY, Tinder, and ZipRecruiter.

With a unique business intelligence product and a well-crafted business model, they soon became well known in the hot data analytics marketplace. In November 2018, Deloitte’s 2018

Technology Fast 500 companies ranked Periscope Data No. 4 for fastest growing companies. The VP for People Operations at Periscope Data, Melanie Tantungco, has the company’s culture in mind with every person the company hires. Each job candidate is vetted for the core values of kindness, positivity, and inclusion. They believe these are essential for the company’s mission, which is to turn data teams into superheroes. Harry Glaser, Periscope Data CEO, recently said, “It has been my privilege to learn that building a tech start-up can also be an opportunity to improve the culture of our industry as a whole. While we have never been perfect, we have been fortunate to work hard on a more inclusive culture and to build a team that more broadly represents the population at large.” This effort has not gone unnoticed. In December 2018, Periscope Data was recognized by Comparably.com as one of the top companies in the US for creating a kind, positive, and inclusive workplace for women, diversity, and overall company culture. Employees also ranked Periscope Data among the top companies on compensation, leadership, perks and benefits, professional development, and happiest employees in those rankings.

Fast Forward: In May 2019, Periscope Data merged with Sisense, an Israeli business analytics company that aligned naturally with the products, services, and culture of Periscope Data. According to Glaser, “By combining forces, we’re creating a comprehensive business analytics platform that can serve every data user and team at a company, from a data scientist to a sales manager.” According to Tom O’Neill, formerly Periscope Data’s CTO, now Sisense’s Chief Cloud Officer, the merger “will require integration of not just the products but the cultures, processes, organizational charts, etc.” He will be in charge of getting the Sisense product and culture to be cloud-centric, building on the success of its on-premise product. Glaser’s title will be Sisense’s CMO and GM of the San Francisco office, where he will lead a world-wide marketing team to tell the story of the combined companies. Classmate Jason Freidman '07, one of the earliest hires of Periscope Data, said that the company’s engineers are excited, especially as they have talked more with Sisense engineers from Tel Aviv and discovered they are always helpful, kind, and friendly. Though there will be months of hard work ahead to keep current products active and moving forward while integrating each company’s products, it is an exciting undertaking for all involved.

The merger with Sisense has helped Periscope Data’s founders realize some of their long-term goals sooner than they might have reached them alone. Two strong, growing start-ups, Sisense and Periscope Data, are now one. They are ready to move forward in the business intelligence industry with a style of teamwork essential to the core of both organizations. It has been a whirlwind ride for Glaser and O’Neill, but they are ready for their next chapter. We wish them and the newly merged company well.



## Featured Graduate Alumnus: Xipeng Shen

# From North China to North Carolina (and Rochester in-between)



**Xipeng Shen** is a professor in the Department of Computer Science at North Carolina State University. He is the recipient of many career and research awards and honors throughout his career. He is an ACM Distinguished Speaker and a senior member of IEEE, a University Faculty Scholar, and an IBM Canada CAS Faculty Research Fellow. He has served as a consultant for numerous IT companies.

Prior to joining NC State in 2014 as a Chancellor's Faculty Excellence Program cluster hire in Data-Driven Science, Shen was the Adina Allen Term Distinguished Associate Professor in the Department of Computer Science at William & Mary. He received his PhD in computer science from the University of Rochester in 2006, a master's in intelligent systems and pattern recognition from the Institute of Automation, Chinese Academy of Sciences in 2001, and a bachelor of industry automation from the North China University of Technology in 1998.

### You graduated from the University of Rochester with a PhD in computer science. Why did you choose Rochester?

When I studied at the Chinese Academy of Sciences for my master's degree, my research was on Speech Recognition and Speech Synthesis, a research direction mostly belonging to the field of computer science in American universities. As a result, when I was applying for PhD programs to pursue advanced studies in that direction, my targeted departments were mostly CS departments.

The initial motivation for me to choose the University of Rochester was its strength in AI and the good match of the research directions of Professor James Allen (in NLP) and my interest at that time. After I got into the program, I realized that my true interest was not in symbolic AI but statistical machine learning-based AI. I learned that there was some great potential for combining statistical machine learning with program behavior analysis, which led me to join Professor Chen Ding's group after my PhD qualification exam.

As I was not a computer science major before joining Rochester, I lacked basic background knowledge in operating systems, compilers, databases, computer architecture, algorithms, computational theory, even discrete math. The first semester at Rochester was hence extremely challenging for me. But luckily, I caught up pretty quickly. At the end of the first semester, I managed to successfully pass all the courses with above average scores. In the third semester, I passed the PhD qualification exams with two "high

pass" and one "pass." In retrospect, I think that two factors helped me achieve significant progress in the short period of time. The first is the curriculum design in Rochester's computer science. The curriculum has a nice tiered structure and good coverage. It consists of some core courses (e.g., OS, Compiler) that offer some basic CS knowledge, which helps to level the backgrounds of different students. It requires some advanced courses in all three key CS areas (Systems, AI, and Theory) and imposes the requirements for students to do well in all of them, which helps prepare the students with a breadth of knowledge that is extremely helpful for creative research. The second is the culture at Rochester of helping each other. The students in computer science are like a big family. When I had trouble understanding a lecture, I could easily find a classmate who was willing to spend a couple of hours to re-explain the lecture to me.

### What do you remember fondly about Rochester's Department of Computer Science?

Many things! One of them is the champagne bottles. I introduced that tradition to my own research group at North Carolina State University; I have now nine bottles on my shelf.

### Which of your many research findings do you believe have been the most influential in your area?

Pioneering research on program optimizations on multicore and Graphic Processing Units. My work is among the first efforts for achieving systematic



understanding of the implications brought to programming systems by multicore CPUs and many-core GPUs. The seminal work of my group on multicore data locality analysis lays the foundation for modeling and optimizing program memory performance on modern multicore processors with shared cache. My work has established a set of influential compiler solutions for overcoming GPU weaknesses on supporting irregular computations and dynamic parallelism, which offered the first solution for automatic portable data placement on GPU memory, and contributed a programming framework that yields the state-of-art performance for pipeline computations on GPU.

The second is on advancing optimizing compilers to high-level semantic-based program optimizations, a new approach to removing large-scope redundant computations that have been elusive to both traditional compilers and domain experts. The approach has led to the development of an algorithm optimizer for a class of machine learning and data-intensive applications. By generalizing Triangle Inequality (TI) into a compiler optimization technique, it created TI-based strength reduction, a technique that speeds up a set of data mining and machine learning algorithms by orders of magnitude.



### Over the years, you have advised a large number of students. What is your approach to research advising?

Advising each student in accordance with their personal strengths and natural ability, and I always try to put myself in the students' shoes when advising them.

### On your website, you have several pictures of extracurricular activities with students in your research group, such as ping-pong and bowling. What has been your favorite part in leading this group so far?

My hope was that those activities could leave the students with some fun memory of their graduate life. They also helped with

the team building, which is important for collaborative research.

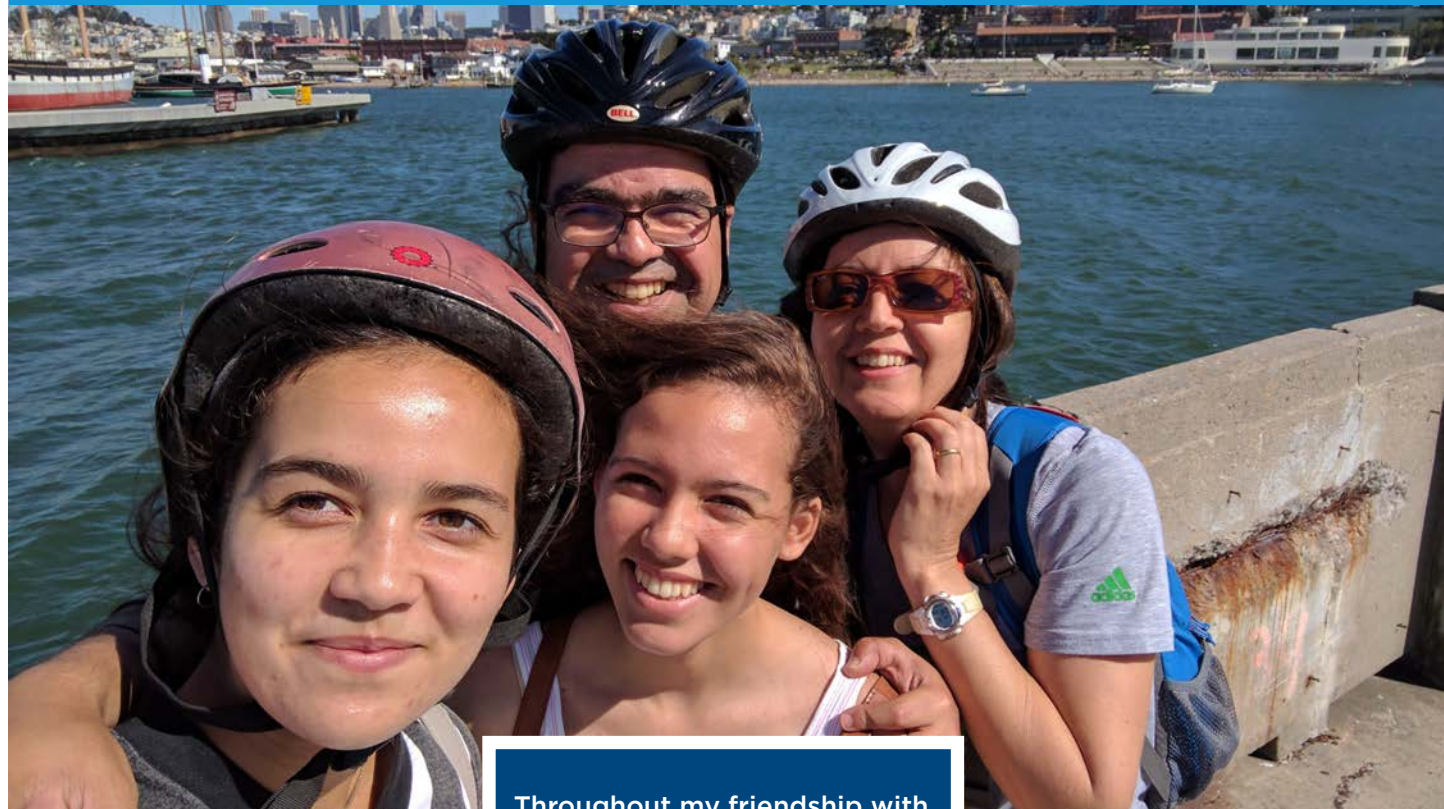
My favorite part in leading the group has been seeing the growth of the students.

### What advice would you give to undergraduate and graduate students who are currently enrolled in the University of Rochester's computer science programs?

Always stay ambitious, in both setting up the goals of your graduate study and in making your future career choice. It is important for materializing your potential and the value of your life. Meanwhile, don't forget to enjoy every minute in this precious period of your life.



# Remembering RODRIGO CARCERONI '01 (PHD)



**Rodrigo Carceroni** passed away last February at the young age of 45, after fighting stage four pancreatic cancer for 14 months. During that time, he bravely underwent several treatments, including chemotherapies and clinical trials, so he could stay with us a little longer.

**Hellen Pacheco** (*Rodrigo's wife*):

"Here is a picture of our family biking in San Francisco on Father's Day just two years ago. Laura (on the left) was born at Strong Memorial Hospital while he was still a PhD candidate at Rochester. She is now 19. Julia is 17. Rodrigo will always be remembered as a loving husband and father and we all miss him immensely."

**Kyros Kutulakos** (*Rodrigo's advisor*):

"I feel truly privileged to have met Rodrigo and to have worked with him during those formative years at Rochester. As my first PhD student, Rodrigo has a special place in my academic career, and in my heart. He was the 'dream student' any

Throughout my friendship with Rodrigo, it became obvious to me that he was all the things people thought he was: an incredibly smart person, a very hard and dedicated worker, and a great family man who spent a lot of time with his wife and two daughters, Laura and Julia. One thing that people might have overlooked or taken for granted about Rodrigo is that below the surface of this smart, hard worker, family man was a very gentle and beautiful soul.

—Eduardo Pinheiro '00

beginning faculty member could ask for: an exceptional scientist, an extremely dedicated student and—above all—a kind and decent person. We worked together more like colleagues than student and advisor . . . and I still remember very fondly the times we spent in the lab building multi-camera rigs, doing experiments, brainstorming ideas—and even driving from Rochester to Toronto in the middle of the winter to hand deliver our ICCV submission on time . . . Although Rodrigo's life was sadly cut way too short, his scientific work lives on, and his academic family will never forget the impact he had on each and every one of us."

**Kostas Daniilidis** (*Rodrigo's postdoctoral advisor*):

"Rodrigo Carceroni was a postdoctoral fellow with me at the GRASP Laboratory of the University of Pennsylvania after spending a few years as a lecturer in Brazil. I consider myself extremely fortunate to have had the opportunity to have worked

with Rodrigo for one year, from 2005 to 2006. Rodrigo gave the first algebraic solution to the emerging problem of finding the orientations of cameras given GPS positions (cameras had just come out equipped with GPS), a result that was presented as an oral paper at CVPR 2006. His warm and very humane personality had made him also an insightful mentor for my younger students who remember him so fondly. My close collaboration with Rodrigo confirmed my initial impression: Rodrigo was brilliant. He was thorough and scholastic in addressing very challenging problems without missing the point that a computer vision system has to "work" and not be only mathematically elegant. This showed later with the many, many patents under Rodrigo's name while at Google."

**Eduardo Pinheiro '00 (MS):**

"I first met Rodrigo and Hellen in January 1999 in Rochester. Rodrigo was senior to me in the CS program. He and Hellen quickly extended their helping hand to help me get acclimated to Rochester and the US (like them, I'm also from Brazil). Since then, our friendship has never weakened. We met again when we both joined Google and our friendship deepened. We had weekly lunches together at work and our families often planned events and holidays together. Out of the last 13 years, I spent at least 10 Thanksgivings with them. Throughout my friendship with Rodrigo, it became obvious to me that he was all the things people thought he was: an incredibly smart person, a very hard and dedicated worker, and a great family man who spent a lot of time with his wife and two daughters, Laura and Julia. One thing that people might have overlooked or took for granted about Rodrigo is that below the surface of this smart, hard worker, family man was a very gentle and beautiful soul. He made changes to his own life and personality to strive to achieve more harmony around him. His short life in no way diminishes this important lesson he taught us all, even if he wasn't trying to teach us anything explicitly— which is often how the best teachers teach—by living it. Thank you, Rodrigo, for 20 years of friendship."

**Robert Stets '99 (PhD):**

"Rodrigo always brings a smile to my face. He and I were roommates for our first three years in the computer science department, and then he and I both worked for Google in California, although in different areas, for over a decade. He had such enthusiasm for life and he made such strong connections with the people around him. I can remember our first year at Rochester when grad school was so busy and stressful. Rodrigo used to get the group of us all to go out and then by the end of the night, he would have us all laughing and having a great time. Then in these later years, when he and I got together it seemed like we could talk forever about new engineering challenges at work, politics, sports, or our families. Unfailingly he remembered everything about my family and how things were going. Rodrigo was always a great friend I could count on, and he always left me happier when I saw him."



## Recent PhD Graduates

**Dong Chen**

*Program Locality Analysis Based on Reuse Intervals*

Assistant Professor, National University of Defense Technology  
Advisor: Chen Ding

**Xiaowan Dong**

*Toward Efficient and Protected Address Translation in Memory Management*

Software Engineer, Google  
Advisor: Sandhya Dwarkadas

**Tianran Hu**

*Decoding Human Lives from Social Media Data*

Assistant Professor, College of William and Mary  
Advisor: Jiebo Luo

**Linfeng Song**

*Tackling Graphical NLP Problems with Graph Recurrent Networks*

Senior Research Scientist, Tencent Seattle  
Advisor: Daniel Gildea

**Sharanyan Srikanthan**

*Sharing-Aware Resource Management for Multicore Systems*

Software-Development Engineer, Intel  
Advisor: Sandhya Dwarkadas

**Phyo Thiha**

*Web and SMS Interfaces to Create and Share Personal Resilience*

*Testimonials for Youth Suicide Prevention*

Data Manager, GroupM  
Advisor: Henry Kautz

**Ryan Yates**

*Improving Haskell Transactional Memory*

Assistant Professor, Houghton College  
Advisor: Michael Scott



# We Welcome Our New Faculty



## Fatemeh Nargesian

Assistant Professor  
Department of Computer Science

Fatemeh Nargesian has joined the Department of Computer Science as an assistant professor after completing her PhD at the University of Toronto, where she was a member of the Data Curation Group.

Her primary research explores some of the key challenges of data management: how to manage extremely large data repositories—a concept known as a “data lake”—so that information can be searched far more efficiently and can be better integrated. She has also researched ways of making Open Data accessible and usable for data scientists.

The author or coauthor of more than a dozen journal and conference papers, she was recognized by the 43th International Conference on Very Large Data Bases in 2017. She has one US patent pending.

- Undergraduate degree(s): BS, computer engineering, Shahid Beheshti University
- Graduate degree(s): MS, artificial intelligence, Sharif University of Technology; MS, computer science, University of Ottawa; PhD, computer science, University of Toronto
- Most recent appointment(s): doctoral student at the University of Toronto



## Adam Purtee '18 (PhD)

Assistant Professor of Instruction  
Department of Computer Science

Adam Purtee has joined the Department of Computer Science as an assistant professor of instruction after serving as an adjunct instructor in the department.

His research interests explore artificial intelligence, in particular

the areas of machine learning, as well as how computer systems understand and interpret natural language and how information about the world can be understood by computer technology. He has worked on projects involving the parsing of language, speech recognition, machine translation, and logical inference and probability.

Purtee, who received his PhD in computer science from the University in 2018, has also been a lecturer at the Rochester Institute of Technology.

This fall he will teach courses on artificial intelligence, computer networks, and introductory computer science.

- Undergraduate degree(s): BS, computer science and mathematics, Arkansas Technical University
- Graduate degree(s): MS and PhD, computer science, University of Rochester
- Most recent appointment(s): adjunct instructor of computer science at the University of Rochester

## Share your thoughts on Multicast!

We're interested in hearing about who reads it, what content you like and dislike, and any thoughts you have on improving our communications. Scan the QR code to take the anonymous survey, open until the end of 2019.

Do you have any ideas for stories or articles to include in Multicast? We'd love to hear them! Send your thoughts to Emily Tevens at [etevens@cs.rochester.edu](mailto:etevens@cs.rochester.edu).

<https://tinyurl.com/multicastsurvey>



## Graduate Alumni Notes

(Organized by class year)

### Michele Denber (MS '80)

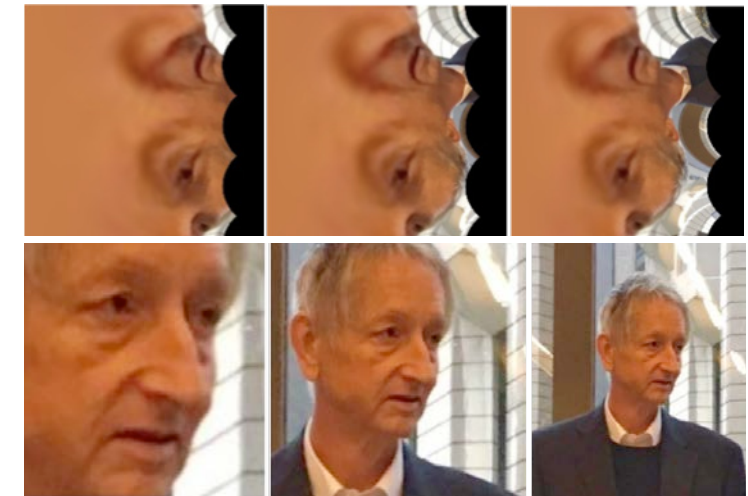
My news is that my Xerox Alto is working again. It took a long time and considerable effort to track down a variety of power supply and disk drive problems, and the invaluable assistance of the Computer History Museum in Mountain View, California, the Living Computer Museum + Labs in Seattle, Washington, and the Xerox Archives in Webster, New York. I've been archiving disks for Xerox including a set belonging to Alan Kay. We had an interesting discussion of harpsichords. If anyone has old Alto disks that they'd like copies of, I'd be glad to help. The extracted disk images can be run on a PC using Josh Dersch's Contralto Alto emulator. Next project: a transcontinental MazeWar tournament using all the remaining working Altos we can round up.

### Daniel Sabbah (PhD '82)

I was selected this year as the 2019 recipient of the Hajim School distinguished alum award for which I gave a short talk at commencement. I am also in the process of writing a book with some colleagues (an IBM fellow at IBM Research and a CS Prof. at GIT). The book is not out, so I will alert you when we post something substantive online. We will be giving a talk at IBM Research in mid-August on the topics. I am on the Hajim DAC and also the Arts & Sciences Advisory committee. I also serve on the Data Sciences advisory council.

### Robert Schudy (PhD '82)

I am now retired from my faculty position at Boston University, as emeritus. Retirement has reduced my administration and teaching responsibilities, allowing more time for writing and research. I am about 70 percent done with a book on administering online programs, with my colleagues Dan Hillman and Anatoly Temkin. It will be published in March. I am starting a second book on IT strategy and management with another colleague. Writing nonfiction books takes thousands of hours, even if the authors are experts in the subject matter. We are taking advantage of semiretirement by spending our winters in beautiful warm places. We spent last winter on the Broadwalk in Hollywood Beach, Florida, which is very



Cottrell shows the log-polar representation of Geoff Hinton

nice and did some local sailing with the Gulfstream Sailing Club. As I write this, we are driving to Maine to help friends build a house on Ironbound Island, which is one of the most beautiful places on earth.

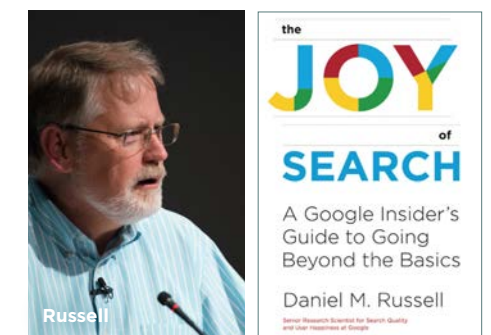
### Bryan Lyles (PhD '83)

I'm working three days a week and enjoying four-day weekends at my house outside of Asheville, N.C. Knoxville/Oak Ridge is a two-hour drive from my house, so it is easy to leave early Monday morning, spend two nights, and get back Wednesday evening. These days most of my technical work is related to cyber security for critical infrastructure.

### Gary Cottrell (PhD '85)

I was considering retiring but didn't realize how depressing it would be to have no new PhD students in the lab. So, I decided not to retire, and now I'm depressed about that! In any case, I have now negotiated a glide path to retirement and will be taking a young woman who I think is my last PhD student this fall. The GURU lab (Gary's Unbelievable Research Unit) has been busy with a couple of applied research projects and one more science-y. In a collaboration with Natural Product researcher Bill Gerwick at Scripps Institution of Oceanography, we've been using deep learning to try to learn a direct mapping from NMR spectra of natural compounds to a cluster space based on structure using Siamese Networks (we have an article in Nature Scientific Reports that still has a bug in Figure 5, so ignore that!). A second project is semantic segmentation of mouse

cardiac MRI images to speed cardiac research, in collaboration with Dr. Kirk Peterson in the Med school. Finally, I am working on an anatomically constrained model of the primate visual system, using properties like the log-polar transform from retina to V1. Here is a picture of Geoff Hinton at three scales, and the log-polar representation of the images, showing that size becomes a simple translation. Oh, and I just finished my first paper with Geoff!



### Daniel Russell (PhD '85)

I just completed a book, *The Joy of Search*, based on my work at Google (I've been there for 14 years!). It's a bunch of stories about how to do effective and accurate online research. It's a lot about Google, but not exclusively. My book will be available in a bookstore near you at the end of September.

### Henry Kautz (PhD '87)

Henry Kautz, a current faculty member of the CS Department, is on a three-year rotation at the National Science Foundation as Division Director for Intelligent Information Systems.





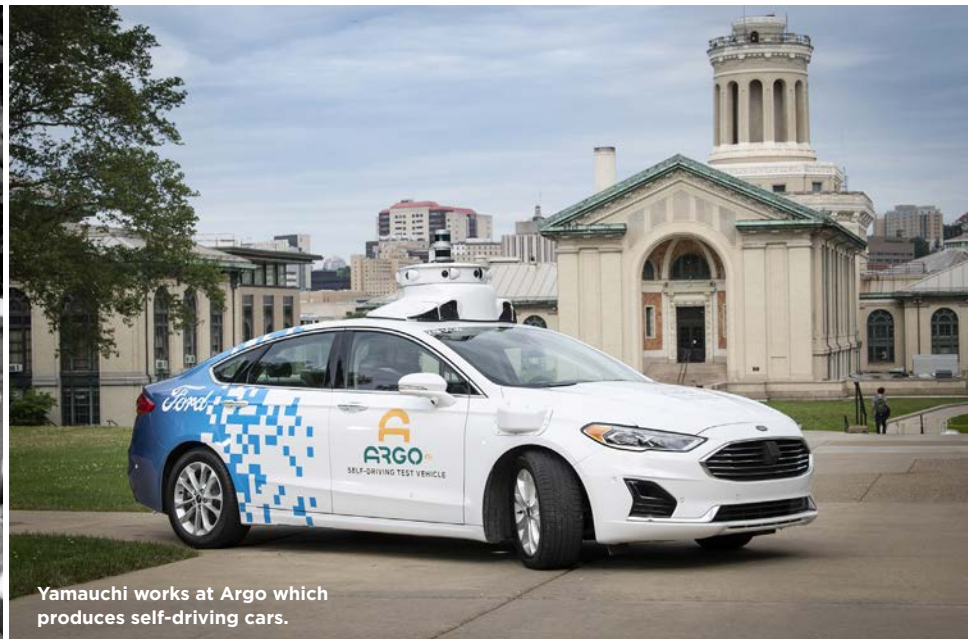
Loui

**Ronald Loui (PhD '88)**

I am still working on CivicFeed, which has moved from legislative analytics to PR/Communications alerting and media monitoring. Basically, I do a lot of regexps in awk, which I love (thanks Leo H, Joel S). We thought the NLP technology and lightweight software were our main advantages. But probably the big advantage has to do with serious respect for the staleness of data in fast-moving machine learning settings. Also, there is some probability I'll be covering a systems class at a local research university (a Rochester peer) in the fall. If so, I'll be sure to talk about Carla Ellis, RIG (Rochester Intelligent Gateway), and Parker/Ball/Rashid Xerox Alto games. Here is a selfie at our neighborhood falls in Bay Village, Ohio. Rochester alum, artist wife, epileptic dog.

**Neil Smithline (MS '89)**

Getting married in October to Dr. Kathleen Hipp and presented at OWASP AppSec California in February 2019.



Yamauchi works at Argo which produces self-driving cars.

**Mike Ciaraldi (MS '90)**

I have just retired after 20 years of teaching Computer Science, Robotics Engineering, and Playwriting at WPI (Worcester Polytechnic Institute). My play *Double, Double* was produced on campus this spring and my short story *Whistle While You Kill* was published in the *Alfred Hitchcock Mystery Magazine* last fall.

**Brian Yamauchi (MS '90)**

Brian Yamauchi has joined Argo AI's Autonomy Integration Team in Palo Alto, California, as a Senior Staff Software Engineer. Argo is a startup company that is developing self-driving cars. Argo was founded by veterans of Waymo and Carnegie Mellon's National Robotics Engineering Center and is funded by investments of \$1 billion from Ford and \$2.6 billion from Volkswagen. Argo's Autonomy Integration Team is responsible for ensuring that all of the software systems (perception, planning, control, etc.) work together to safely and effectively drive the vehicle. Argo's self-driving cars are currently being tested on public roads in Pittsburgh, Miami, Detroit, Palo Alto, and Washington, DC.

**David Coombs (PhD '92)**

Last September, I was elevated to Engineering Fellow at Raytheon. Engineering Fellows represent the top few percent of engineers and the top of the technical ladder in the company. This March, I was appointed to a four-year term

serving the Air Force Scientific Advisory Board as a volunteer civilian Special Government Employee.

**Michael Marchetti (MS '95)**

I started a new job last summer (2018) with RStudio, Inc. We make data analysis/statistics software for people who use the R language—lots of scientists, students, and companies.



Wisniewski

**Bob Wisniewski (PhD '96)**

The exciting news for me is that the A21 project—for which I am responsible for the software—has been made public.

**John Zhang (MS '97)**

Last year in November, I was promoted to the position of Senior Vice President and GM of Corning Display Technologies, the largest business division of Corning Incorporated. My wife and I now live in Taiwan with our three kids.

**Louis Hoebel (PhD '98)**

I am still hiking, rock climbing, and biking in the Blue Ridge Mountains; studying violin repair at the Univ. of New Hampshire in summers; winter hiking in the Sandia Mountains of New Mexico; international mountaineering over the next year in the Alps and Nepal.



Hoebel

**Myroslava Dzikovska (PhD '04)**

My employer is still Google in London, but I have an associated update: at the end of January 2019, I joined DeepMind working as part of the DeepMind Health team on Streams, an app that helps hospital nurses and doctors in acute care to respond to patient deterioration. I cannot claim any personal contribution yet, but I am very excited that the first version of Streams won the 2019 UK Patient Safety award for improving care for deteriorating patients. I am really enjoying being a part of the team, though my DeepMind tenure has proved to be a bit short. Alphabet is joining various projects into a single Google Health organization and my team is leaving DeepMind and going back to Google UK. So, I am now back to the same office I left six months ago. I am genuinely excited to be a part of the team that is making such a difference to doctors and patients, though, regardless of whether it is DeepMind or Google.

**Matt Boutell (PhD '05)**

Matt Boutell continues to enjoy teaching at Rose-Hulman Institute of Technology and will serve as chair this fall quarter while the regular chair is on a short sabbatical. Matt's son Caleb, born in Matt's first month as a PhD student in the department, will join older brother Jonathan as a student at Rose-Hulman this fall. How time flies!

**Paul Ardis (PhD '10)**

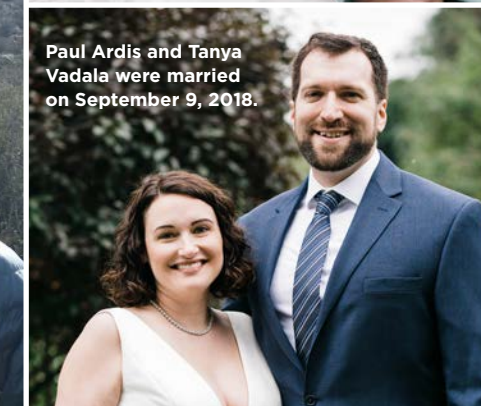
Updates over the last 12-16 months: had a daughter (Mae Carmen Ardis, born 5/16/2018). Got married (to Tanya Vadala, on 9/9/2018). Promoted to Research Platform Leader at GE—leading all digital aerospace research.

**Yi Chu (PhD '14)**

I have changed to a new job since last year. I am currently working at Workhuman as the NLP manager. Also, my third child, Daniel, is almost 18 months



Ardis's daughter was born on May 16, 2018.



Paul Ardis and Tanya Vadala were married on September 9, 2018.

now! This photo was taken when I was having a team off-site meeting at the Museum of Science. The cool skeleton is one of our ancient human ancestors who lived 1.6 million years ago! Another picture is from Christmas (little Daniel was only 11 months then!).



Finn

**Peter Finn (MS '16)**

My current employer is the University of Central Florida. I'm making educational video games for the university on a team of

five developers. We're currently making web games for PBS Kids, which is very interesting work.

**We want to hear from you!**

Please help us keep our alumni records updated by emailing us your current email, place of employment, and mailing address.

**Graduate alumni:** Emily Tevens (etevens@cs.rochester.edu)

**Undergraduate alumni:** Sara Klinkbeil (sklinkbe@cs.rochester.edu)



# Undergraduate Alumni Notes

(Organized by class year)



Richardson

## Josh Richardson '96

It's my eighth year at Chegg— the company that puts students first. We are headquartered in Silicon Valley, sunny California. This year I moved into a software architect role and collaborated with seven international development centers to create a reference architecture for all our various systems! Attached is a recent photo of me (from today) at Rochester. I am in town for the week while my son is at an NSA cyber-security camp at RIT. Meliora!!

## Luke Bakken '99

I've attached a photograph from my climb of Tahoma (Mt. Rainier) this past June. I've taken up mountaineering and that, along with other outdoor pursuits like backcountry skiing and trail running, is how I spend my free time. I've been working for Pivotal Software on the RabbitMQ Core Engineering team for the past two years and enjoy maintaining software used around the world.

## Sunil Abraham '00

My fourth child, Evelyn Marie Abraham, was born on July 26, 2019, in Summit, New Jersey.

## Brendan Heavey '02

This year I was promoted to Manager of the Risk Revenue team in the Actuarial Department at Independent Health in Buffalo. Risk Adjustment is a very interesting field to be in right now especially due to health care policy changes being in the headlines almost every day. I would encourage new CS graduates to consider the field because there are a great number of start-ups that are likely to be successful if they can navigate the constantly changing environment. My CS education at Rochester prepared me exceedingly well for the challenges I face every day!

## David Feil-Seifer '03

I've just been promoted to Associate Professor in Computer Science and Engineering at the University of Nevada, Reno.

## Eric McCarthy '03

I'm still living in Tucson, Arizona, however after DesertNet lost its largest client and needed to significantly downsize, I'm now working remotely as a React and Node.js developer at InfoArmor, an Allstate



Bakken



Acharya



Lanoye-Crumiller

company based in Scottsdale, Arizona. It's been a wild ride, as the company has more than doubled in size since I have joined.

## Jivko Sinapov '05

I'm still at Tufts University, finishing up my second year as Assistant Professor.

## Athul K. Acharya '06

I'm getting married in September.

## Marshall Crumiller '06

On June 22, I was married to Autumn Lanoye, class of '09, in Buffalo N.Y. I'm currently working at Genworth Financial in Richmond, Va., doing actuarial modeling.



Coimbra and family

## Zaiming He '06

I am right about to switch roles. I am currently a Lead Data Scientist at Boston Consulting Group. On August 5, I will start as VP Auction Strategy and Yield Management at Everquote.

## David Lu '07

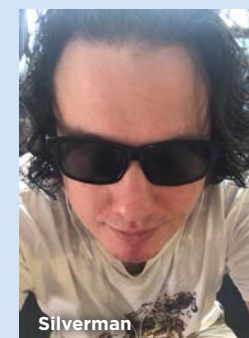
I am now co-chair of the Program Committee for ROSCon2019, the premier conference for the open source robotics software.

## Hilario Coimbra '08

My wife, Melissa, and I welcomed a baby girl into our family last November! Her name is Penelope, and she is starting to crawl and pull herself up on things. She is an incredibly adorable and happy baby, although we are now slightly terrified that when we turn around she is on the move!

## Sean Lander '08

My daughter, Morgan Lander, was born last August, and I have moved to working at my start-up Space Shark Studios full time making educational and VR video games.



Silverman

## Michael Silverman '08

I Am still working on my company, Silverware Games, Inc. Our team now involves a publisher, social media guru, and artist extraordinaire: Say Mistage. Attached is a selfie, and a piece of art I did the last few days ago. As a hobby I've started doing doodles and composing music.



Lander



Silverman's art



Pershing's baby

## Christopher Clingerman '09

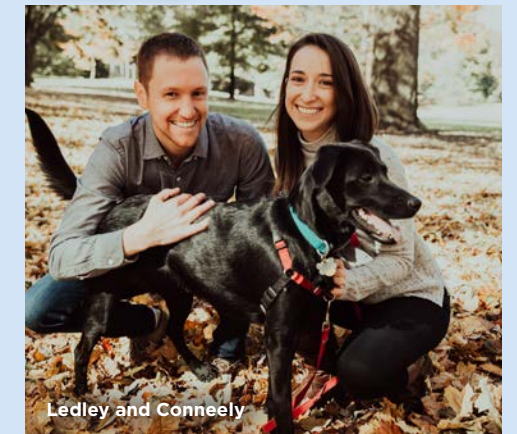
I moved to the Netherlands for work!

## John Pershing '10

In the last year, Kate and I had our first child, John Arthur Pershing IV. He was born on June 23, 2018. We have also relocated from Manhattan to Westchester (continuing our steady trek back to Rochester one small hop at a time!); our son certainly appreciates the yard to run around in. I continue to be 1010data's VP of Software Engineering, where we have recently launched DSCVR, an ad-hoc data analytics tool that enables a user with an Excel-level skillset to be productive with data cleaning/analytics at the terabyte scale. We're hiring and if anyone is looking for full-stack engineering positions they should reach out to me!

## Chelsea Flint '12

I'm now at Partners + Napier as a social media specialist. You'd be surprised how handy a CS degree is in digital marketing.



Ledley and Conneely

## Adina Karantza (formerly Rubinoff) '12

Got married in the past year. As a result, I'm now going by Adina Karantza.

## Harry Ledley '12

Married Becca Conneely on June 22. The doggo (Luna) turned two as well. I am still at ActionIQ but I've transitioned from being an Engineering Manager on the Fullstack team to being the Engineering Manager on the Distributed Systems team.



**Dan Panzarella '12**

I moved to DC to take a job with Endgame (not the Avengers movie). It's an infosec company providing endpoint protection to the likes of the US Navy, MLB, Mars (think candy) and others. And then a year later we got bought by Elastic, the company behind elasticsearch! So, I'm now a security engineer at Elastic. And life updates! My wife and I are currently pregnant, expecting child #2 in December.

**Tait Madsen '15**

I recently started a new job at XNOR, a very exciting start-up focused on on-device ML; we were recently in the news for a partnership with Wyze cameras.

**Catherine (Katie) Hart '16**

I started a new job in July at Accretive Technology Group!

**Dan Hassin '16**

My start-up, Nowsta, just raised a Series A and is hiring in NYC (Brooklyn)!

**Maggie Curtis '17**

I'm currently working at Policygenius, Inc. as a Software Engineer II. I started back in March. I've travelled quite a bit in the past year: I went to the Adirondack Mountains; Austin, Tex.; Miami Fla.; San Francisco Cal.; and I just got back from a cruise to Alaska out of Seattle, Wash., a few weeks ago! The cruise actually brought us to Victoria, British Columbia, which was the first time I've been back to Canada since I was born there, so that was pretty awesome.



**Alessandro Incerto '17**

I have a small start-up. I launched an App called Do Up in the App Store (download it if you wanna try it out). The

purpose of the App is to connect beauty professionals with clients. People can search for the service that they need and find the best stylist in the area for



Martucci

this service. Ratings and comments are per stylist, so people don't need to worry about going to a salon and being unsure of the talents of the stylist that provides the service. There is an article in *Business Today* if you want to check it out.

**Mikayla Konst '17**

I'm still working at Google, but this fall semester I'll be headed to New Orleans to teach an intro Python course at Dillard University through the Google in Residence program.

**Honglin (Colin) Zheng '17**

I've graduated from UCLA and started my career as a software engineer at Google.

**Nick Martucci '18**

Since graduation I have started working on a master's degree in computer science at Georgia Tech. I am a Pathways Co-op at the Kennedy Space

Center in Florida and have been on a work rotation since February of this year. Here is a picture of me with the Mobile Launcher at Pad 39B, from which the SLS rocket will launch for Artemis 1.

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# CONGRATULATIONS TO THE CLASS OF 2019!



Zubair Ab Aziz  
Jackson E. Abascal  
Kennedy C. Agusi  
Steven A. Allaben  
Rahaf Saad A. Alqarni  
Abdullah Fahad Alsayari  
David R. Anuta  
Joe Azar-Williams  
Samantha Bahr  
Gavin D. Baker  
Aslan Bakri  
Ignacio Danilo Bassi Zambelli  
Alex Robert Benishek  
Simon Budker  
Thomas Andrew Burt  
Daniel Jacob Cancelmo  
Claudia Sofia Carrillo Vazquez  
Bo Chen  
Junyang Chen  
Xiao Cheng  
Po-Chun Chiu  
Timothy C. Chu  
Wenyi Chu  
Famous D. Clark  
Joshua S. Cohen  
Patrick William Conway

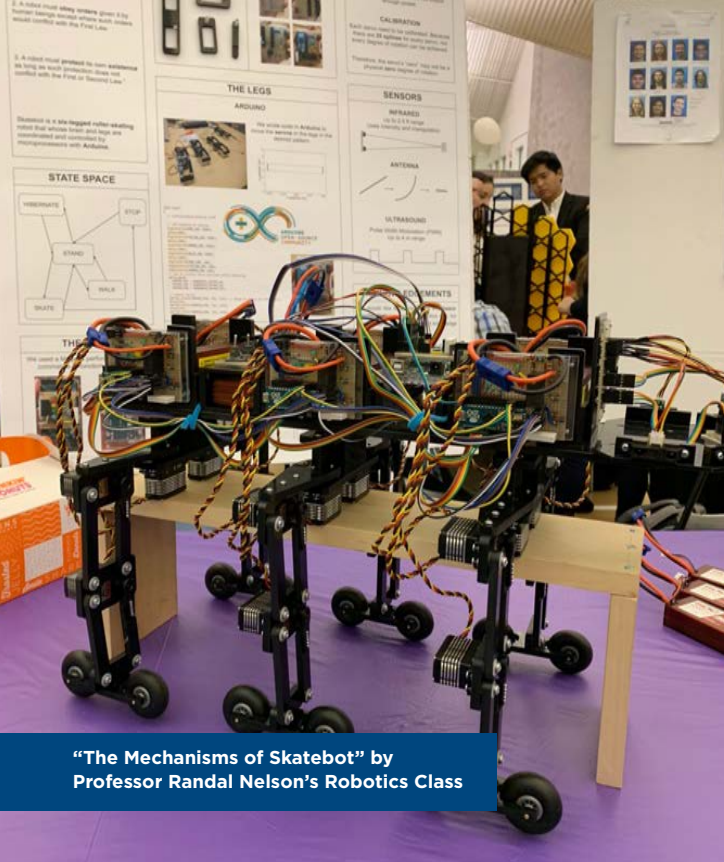
Colin James Corliss  
Rose Cricchio  
Alexander David Crowley  
William J. Cunningham  
Jerry Dai  
Christopher K. Dalke  
Matthew J. Delsordo  
Baijie Deng  
Akshay Sudhir Desai  
Ellen Marie Desjourdy  
Petar Martinov Dinev  
Zhaoxiong Ding  
Melanie Dookharan  
Patrice Douge  
Yuchen Du  
Conley Marina Ernst  
Azmayeen Fayeque Rhythm  
Patrick Ryne Ferner  
Princeton C. Ferro  
Jack Frederickson  
Ramani K. Gadde  
Robert Gerami  
Marcelo L. Gheiler  
Scott A. Giles  
Alisha Leela Grama  
Jordy F. Guntur

Ali Hamdani  
Sammy Haq  
Henry C. Hawthorn  
Xinran He  
Michael C. Henry  
Phillip David Hetzler  
Mara Hollenback  
Michaela G. Houk  
Joseph S. Hur  
Maisha Idris  
Claude Irankunda  
Christopher D. Janidlo  
Fiona Anne Jones  
Benjamin P. Kane  
Adam Kaplan  
Deirdre M. Kelliher  
Theresa M. Kettelberger  
Thanh Kha  
Chang Kyung Kim  
Sooyoung Kim  
Benjamin David King  
Daniel M. Kiselev  
Tyler D. Knight  
Alan Yi-Gu Kuo  
Jovan-Gianni Lee  
Won Kuk Lee  
Haokun Liu  
Yujie Liu

Yumeng Liu  
Bei Lu  
Gianna Leigh Macri  
Christian P. Mangulabnan  
Graeme Coates McGuire  
Alex C. McKinley  
Benjamin Nemeth  
VietDuy Nguyen  
Andrew George Nyaisonga  
Andres E. Ollarvez  
Vincent Ou  
Deng Pan  
Joon Sung Park  
Fernando Parnes  
Vasim I. Patel  
Sandesh Paudel  
Michael A. Pearson  
Rose V. Peck  
Austin Peng  
Zachary H. Polansky  
Tallis A. Polashenski  
Juan F. Puerto  
Raul Rodriguez  
Jonathan Roman  
Sophie Sackstein  
A.B. Salazar

Saralinda E. Schell  
Kayla Gabrielle Sell  
Sharfuz Zaman Shifat  
Brandon J. Smart  
Jeremy A. Spiro  
Ryan Spurr  
Lee Stovall  
Yuqi Su  
Hecheng Sun  
Samantha N. Tetef  
Cormac Liam Tighe  
Joseph E. Traversy  
Sarah Grace Venuti  
Hai Vu  
Timothy M. Walsh  
Xiaoya Wang  
Eric S. Weiss  
Brooke Cara Werner  
Isaac Wong  
Chaoying Xue  
Yifei Yang  
Alana C. Zakroczemski  
Jianhao Zhang  
Siyang Zhang  
Yigong Zhang  
Xiaoyu Zheng

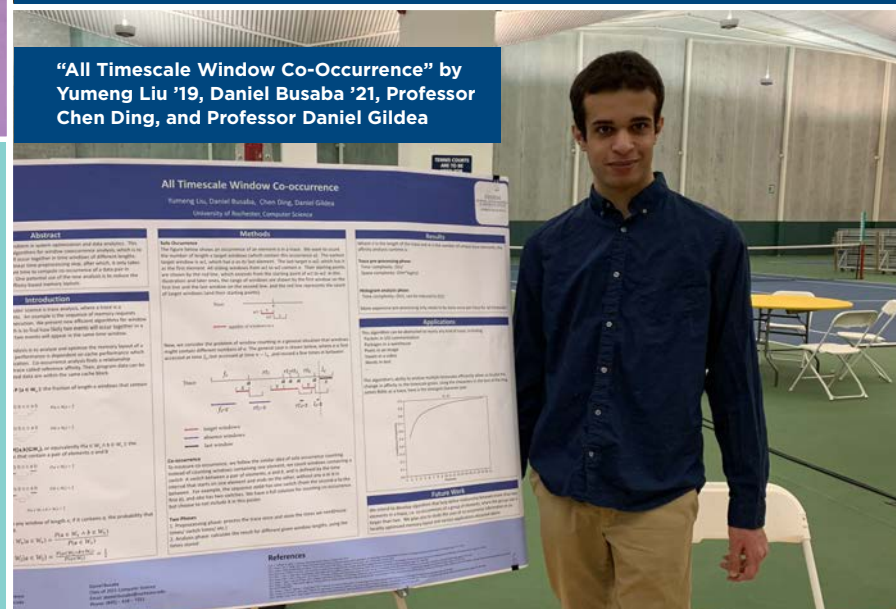




"The Mechanisms of Skatebot" by Professor Randal Nelson's Robotics Class

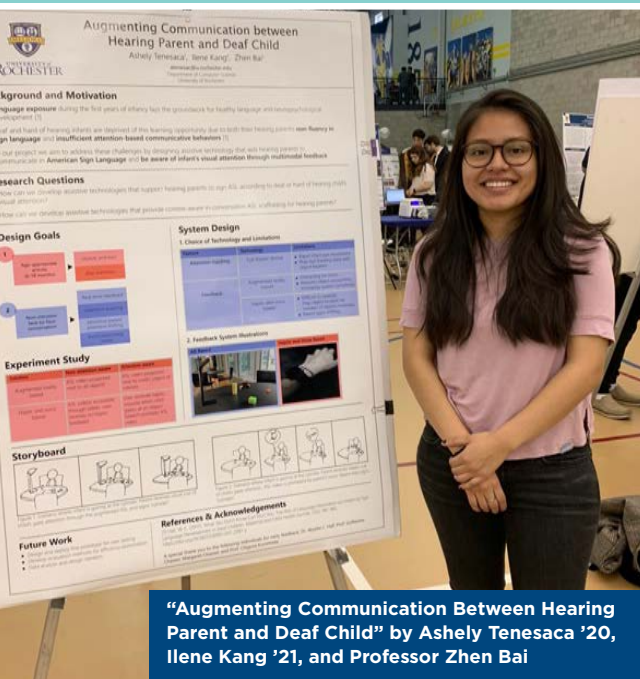


"Hyperion" by Nicole Naselaris '19 (Optical Engineering), Sifan Yi '20, Junhan Duan '20, Alana Zakroczemski '19, Sydney Dlhopsky '21, Tyler Phillips (Laboratory for Laser Energetics), Heriniaina Fenotoky Rajaoberison (Laboratory for Laser Energetics), Li Zhang, Professor Jannick Rolland (Optics), Professor Yuhao Zhu, Professor Zhen Bai, and Daniel K. Nikolov (Optics).



"All Timescale Window Co-Occurrence" by Yumeng Liu '19, Daniel Busaba '21, Professor Chen Ding, and Professor Daniel Gildea

# Design Day



"Augmenting Communication Between Hearing Parent and Deaf Child" by Ashely Tenesaca '20, Ilene Kang '21, and Professor Zhen Bai



"The Mechanisms of Skatebot" by Professor Randal Nelson's Robotics Class

# Lunch with Sandhya

University of Rochester Alumni have lunch with department chair Sandhya Dwarkadas in San Francisco in June 2019!



# The Babies

Our department is ecstatic to have had so many new additions this past year, including three faculty and staff babies!



Julian Masahiro Cabrera-Kiso, Graduate Coordinator Michelle Kiso's son, was born on June 10, 2019.



Serena Marie Loporcaro, instructor Joe Loporcaro's daughter, was born on July 1, 2019.



Everett Zhu, Professor Yuhao Zhu's son, was born on March 19, 2019.





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**Department of Computer Science**

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Box 270226  
Rochester, NY 14627-0226

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**Multicast Team**

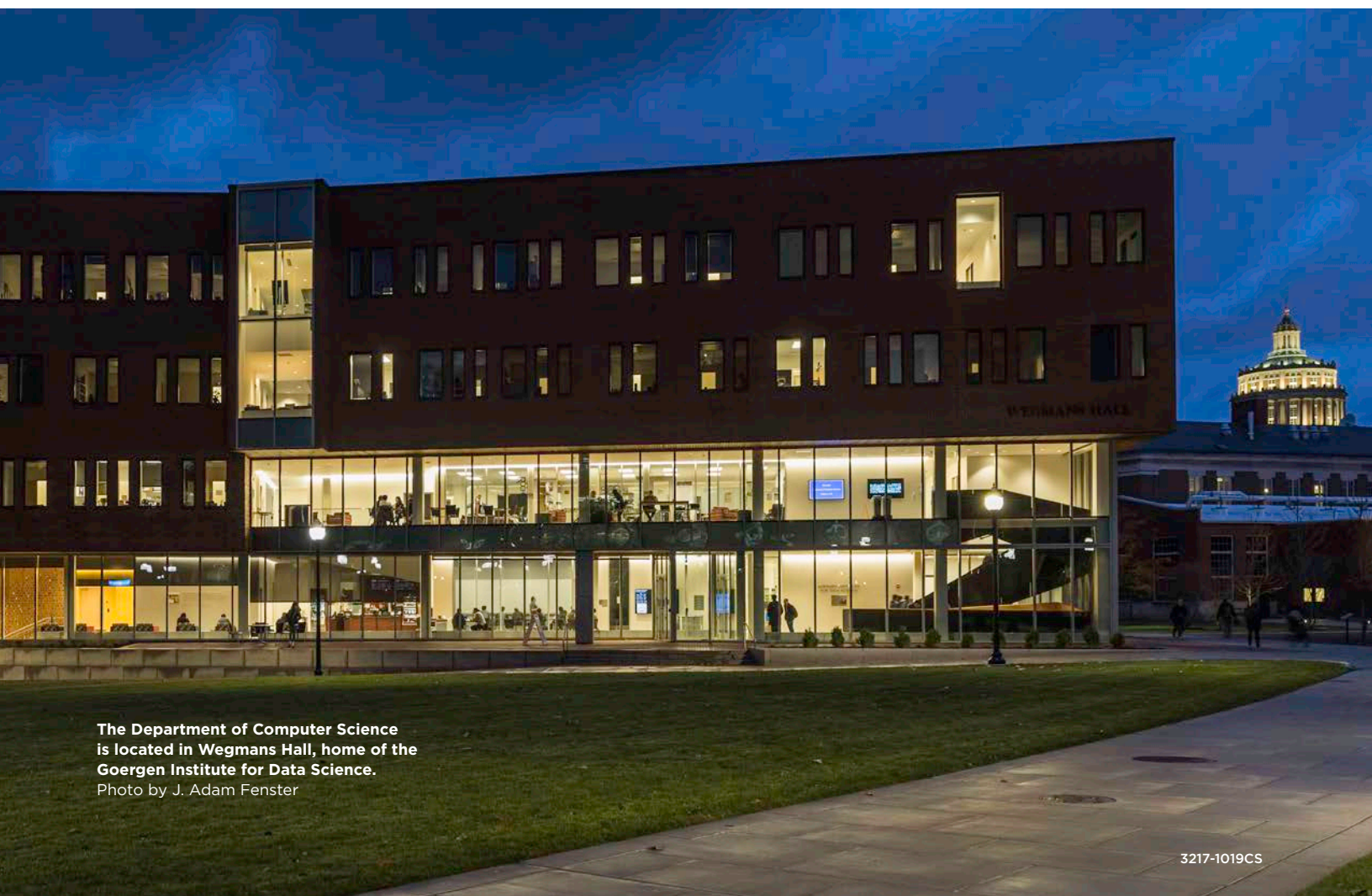
Faculty advisor: Randal Nelson

Editors: Brynn Wilkins and Emily Tevens

Contributors: Sandhya Dwarkadas, Marty Guenther, Harry Glaser, Tom O'Neill,  
Fatemeh Nargesian, Adam Purtee, Xipeng Shen, Hellen Pacheco, Randal Nelson

Design: Creative Services, University Communications

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The Department of Computer Science is located in Wegmans Hall, home of the Goergen Institute for Data Science.  
Photo by J. Adam Fenster