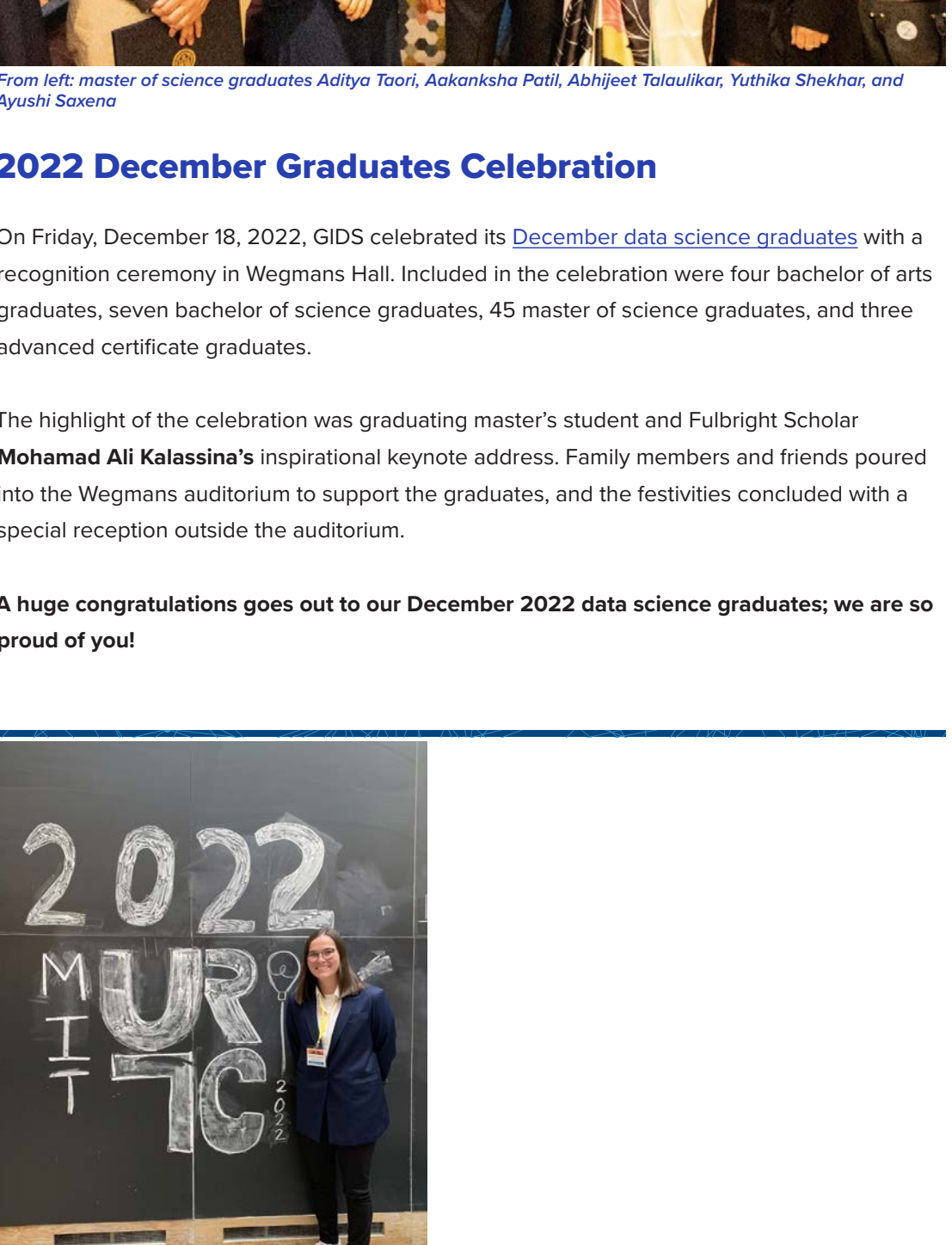


GOERGEN INSTITUTE FOR DATA SCIENCE

Fall 2022 Newsletter
From the University of Rochester



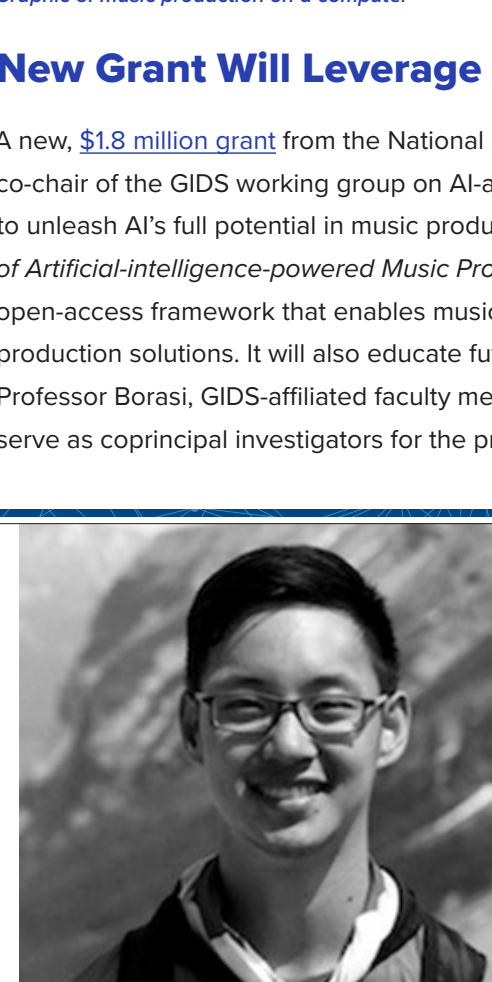
From left: master of science graduates Aditya Taori, Aakanksha Patil, Abhijeet Talaulikar, Yuthika Shekhar, and Ayushi Saxena

2022 December Graduates Celebration

On Friday, December 18, 2022, GIDS celebrated its [December data science graduates](#) with a recognition ceremony in Wegmans Hall. Included in the celebration were four bachelor of arts graduates, seven bachelor of science graduates, 45 master of science graduates, and three advanced certificate graduates.

The highlight of the celebration was graduating master's student and Fulbright Scholar **Mohamad Ali Kalassina**'s inspirational keynote address. Family members and friends poured into the Wegmans auditorium to support the graduates, and the festivities concluded with a special reception outside the auditorium.

A huge congratulations goes out to our December 2022 data science graduates; we are so proud of you!

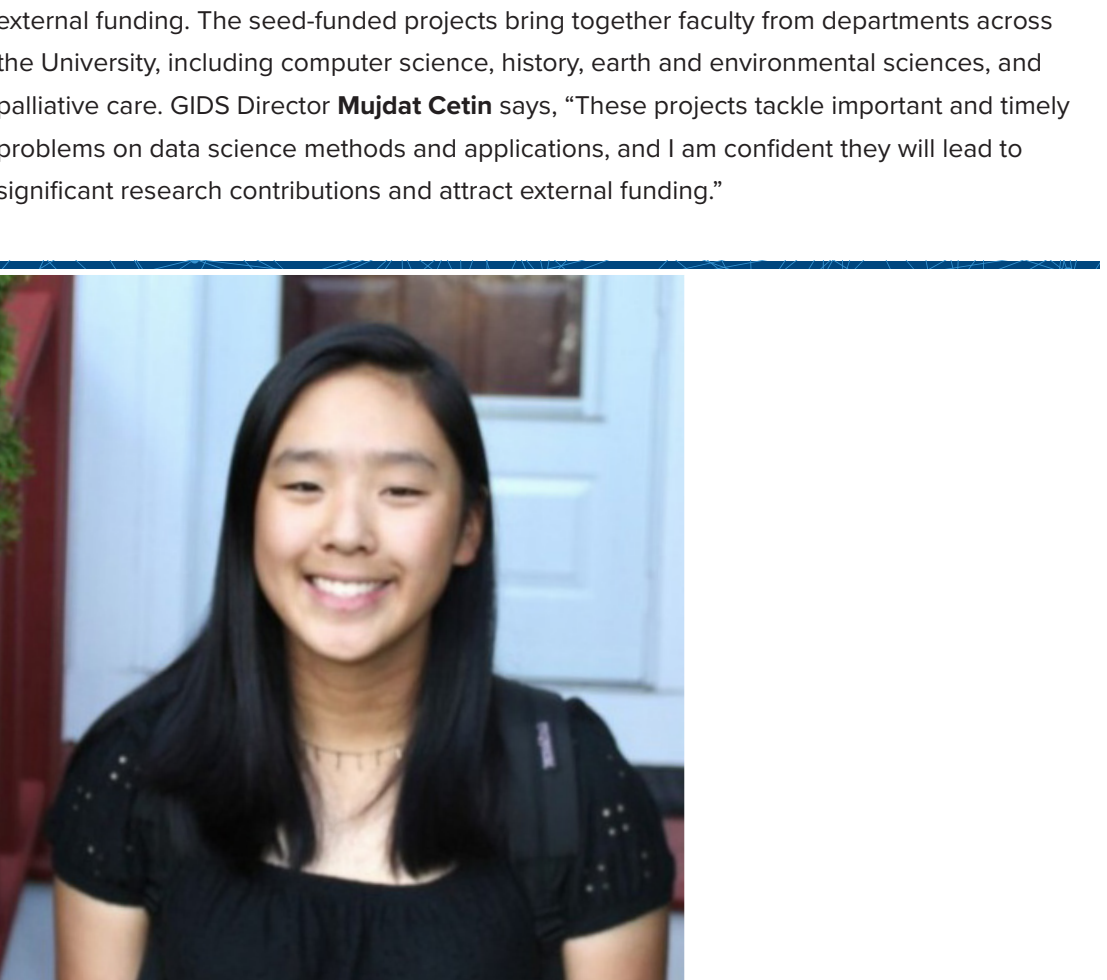


NSF REU student Merritt Cahoon at the 2022 MIT IEEE Undergraduate Research Technology Conference

Over the Summer

GIDS' 2022 NSF-funded [Research Experience for Undergraduates](#) (REU) was a huge success. Ten students from across the country spent the summer working with Rochester faculty on exciting interdisciplinary research projects that combined machine learning, music theory, and cognitive science. REU student **Merritt Cahoon** (Samford University), who was mentored by GIDS-affiliated faculty member **Zhen Bai**, went on to present her work at the 2022 MIT IEEE Undergraduate Research Technology Conference and scored in the top five at the conference. Cahoon continues to stay engaged with the REU program; she and Professor Bai were recently selected to participate in a [research advocacy training program](#) organized in Washington, DC, by the Council for Undergraduate Research.

In August, the [UR Biomedical Data Science Hackathon](#) marked its third year with nearly 100 participants. The hackathon was organized by the GIDS life sciences and biomedical data science working group, led by co-chairs **Amanda Larracuente**, **Matthew McCall**, and **Justin Fay**. Students were challenged with predicting gene expression differences using data from a research paper on gene expression dynamics in yeast.



Graphic of music production on a computer

New Grant Will Leverage AI for Music Production

A new, [\\$1.8 million grant](#) from the National Science Foundation (NSF), led by **Raffaella Borasi**, co-chair of the **GIDS working group** on AI-augmented learning and work, will explore how to unleash AI's full potential in music production. The project, titled *Toward an Ecosystem of Artificial-Intelligence-Powered Music Production (TEAMuP)*, aims to create a user-friendly, open-access framework that enables musicians and AI researchers to collaborate on music production solutions. It will also educate future musicians on AI technologies. In addition to Professor Borasi, GIDS-affiliated faculty members **Zhiyao Duan** and **Jonathan Herington** will serve as principal investigators for the project.



Anson Kahng, left, and Hangfeng He



Faculty Spotlight: Anson Kahng and Hangfeng He

In July, GIDS welcomed two new faculty members to our team, **Anson Kahng** and **Hangfeng He**.

Professor Kahng, an assistant professor of data science and computer science, received his PhD in computer science from Carnegie Mellon University in 2021 before completing a postdoctoral fellowship at the University of Toronto. In his first semester, Professor Kahng taught graduate-level Computational Intro to Statistics; this spring he will teach the computer science course Algorithmic Game Theory.

Professor He, also an assistant professor of data science and computer science, received his PhD in computer and information science from the University of Pennsylvania in 2022. He taught Artificial Intelligence during the fall semester and will teach Natural Language Processing this spring. He also gave a research talk to the GIDS community in October, titled *Moving Beyond Scale-Driven Learning*.

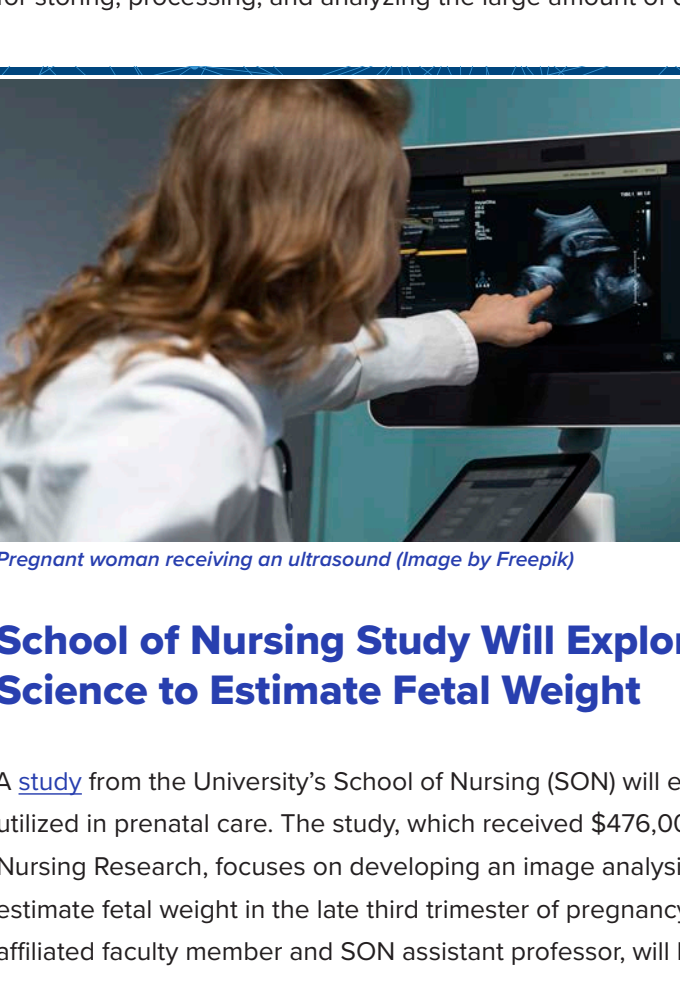
A warm welcome to Professor Kahng and Professor He!



Talulope Olugbaji, an assistant professor of earth and environmental sciences, leads one of the research projects supported by GIDS seed funding

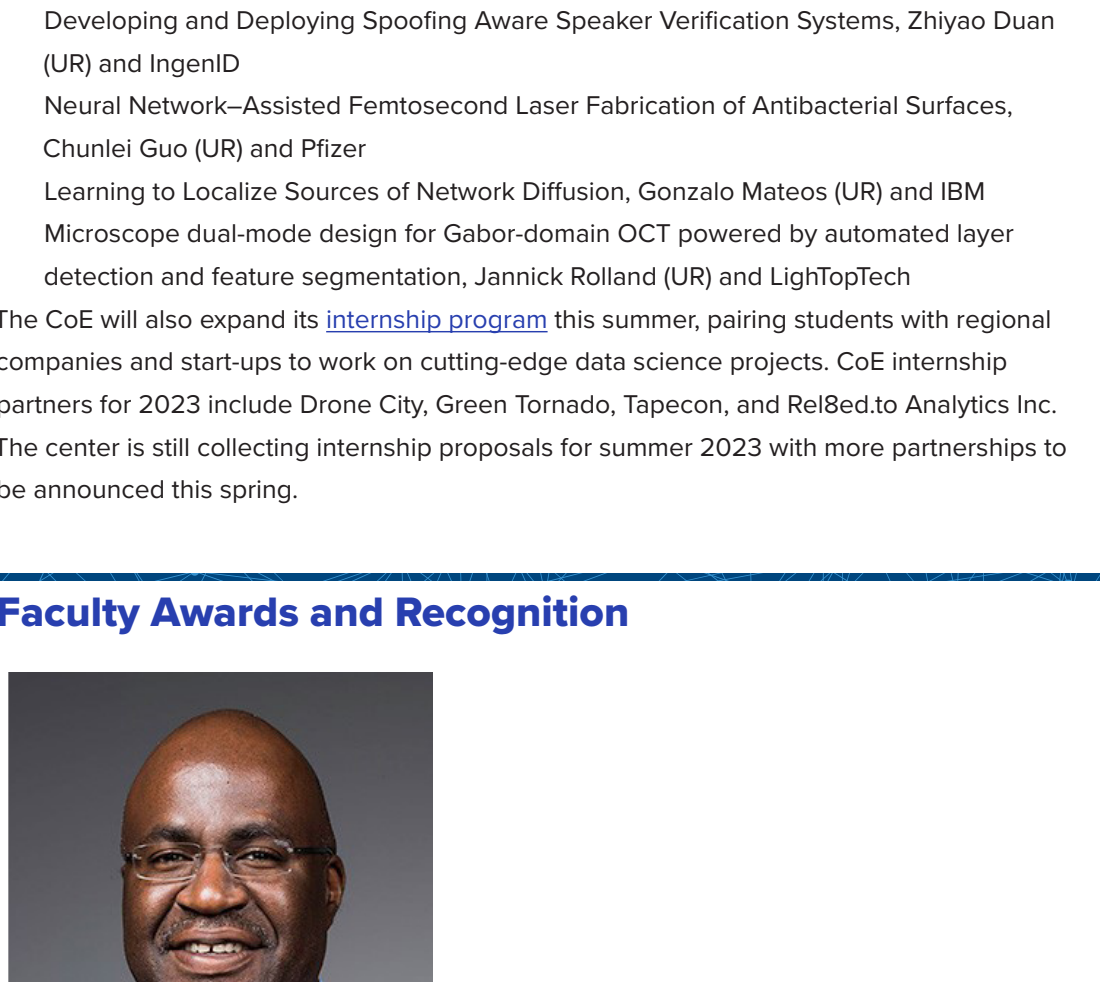
GIDS Seed-Funded Research Projects Promote Interdepartmental Collaboration

This fall, GIDS awarded [10 research projects](#) with approximately \$20,000 each, to explore interdisciplinary research areas related to data science, with the goal of attracting major external funding. The seed-funded projects bring together faculty from departments across the University, including computer science, history, earth and environmental sciences, and palliative care. GIDS Director **Mujdat Cetin** says, "These projects tackle important and timely problems on data science methods and applications, and I am confident they will lead to significant research contributions and attract external funding."



Student Spotlight: Emily Xu

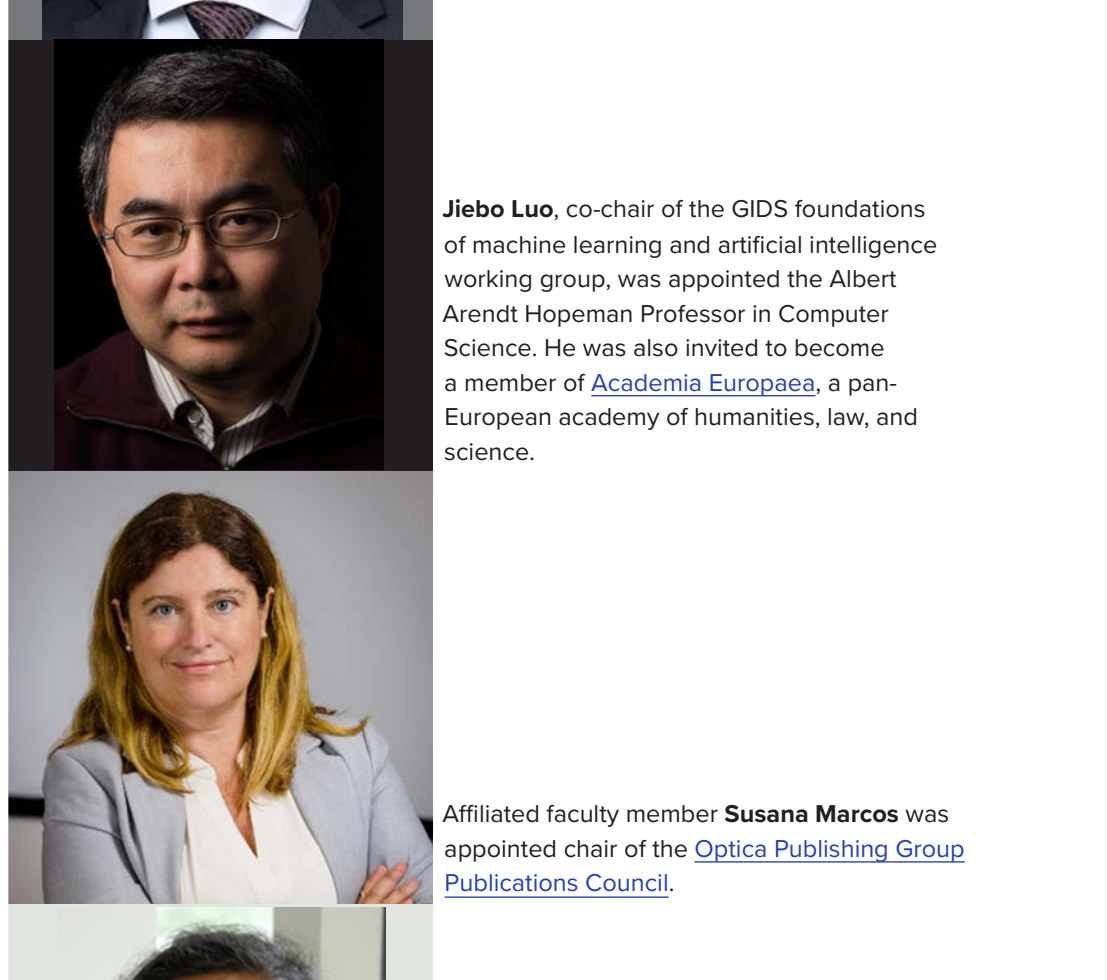
In late September, eight University of Rochester data science students traveled to Orlando, Florida, to attend the [2022 Grace Hopper Celebration \(GHC\)](#), a series of conferences designed to support the research and career interests of women in computing. GIDS undergraduate **Emily Xu '24** was among the attendees and secured a summer internship with Kohl's Corporation through the connections she made at the conference. Of her GHC experience, Xu says "It was amazing to see so many young women and nonbinary people in tech—it was so empowering."



Researcher Geemi Wellawatte from the White Lab (run by affiliated faculty member Andrew White) explains her work

GIDS at Meliora Weekend

On Friday, September 30, GIDS hosted a Data Science Open House and Research Fair in Wegmans Hall as part of the [University's Meliora Weekend](#). Faculty and staff chatted with current students, parents, and alumni, and several campus-wide research groups presented their data-science-related work.



Graphic of colored vaporizer pens

New Survey Shows that Bans on Fruity Flavors Did Not Deter Vapers

In early 2020 the US Food and Drug Administration banned the sale of many flavored e-cigarettes, with the goal of reducing e-cig use in young adults. However, [research](#) from GIDS-affiliated faculty member **Dongmei Li** indicates that the ban did not decrease e-cig use and has not prevented young people from obtaining or using flavored tobacco products. Professor Li, who leads several research efforts on the use and impact of tobacco and e-cigarettes, says the issue is that the ban didn't cover newer products, allowing for a policy loophole. She believes a more comprehensive ban on flavored e-cigarettes and increased monitoring of policy implementation and compliance could reduce future tobacco use in young adults.

From left: capstone students Noah Boonin, Brooke Brehm, Miguel Novo Villar, Stefano Bastianelli, and Sara Elgayer deliver their final presentation to project partner Wegmans Food Markets

Capstone Projects Give GIDS Students Hands-On Data Science Experience

For their fall 2022 [data science capstone course](#), students spent the semester applying their classroom learning to real-life problems with the goal of providing innovative business solutions to partnering organizations. Fifty-seven students worked on 11 capstone projects, cleaning, processing, and analyzing data and presenting their solutions to diverse stakeholders. The hands-on projects paired student teams with a variety of companies, government agencies, and nongovernmental organizations and gave students end-to-end project experience, honing their communication and data science storytelling skills. Fall 2022 partners included Wegmans Food Markets, Paychex, the United Nations, and NASA.

Ajay Anand teaching the course Time Series Analysis and Forecasting in Data Science

GIDS Deputy Director Ajay Anand Receives Goergen Teaching Award

Congratulations to GIDS Deputy Director **Ajay Anand**. Professor Anand recently received the [2022 Goergen Award for Excellence in Undergraduate Teaching](#), which recognizes distinction in undergraduate teaching among faculty in Arts, Sciences & Engineering. Professor Anand joined the University in 2017 and has worked hard to expand its data science curriculum, providing valuable hands-on learning experiences to GIDS students through the Time Series Analysis and Data Science Capstone courses.

Clockwise from top left: Kefu Zhu, Hailing Zhu, Tony Wang, Li Sun, Oliver Lei, Yue Zhao, Ajinkya Deshmukh, Ravi Dugh, Ledion Lico, and Sahar Nasiri

Alumni Spotlight

Over the fall semester, several data science alumni participated in GIDS activities. **Kefu Zhu '20 MS**, **Hailing Zhu '18 MS**, and **Zhuoyou (Tony) Wang '18 MS** gave virtual career talks to current GIDS students, highlighting their career paths, work projects, and best practices for finding a job in data science.

Li Sun '21 and **Zhiyu (Oliver) Lei '22** gave virtual talks on their experiences applying to graduate school.

Sahar Nasiri '19 MS, **Ledion Lico '21 MS**, **Ravi Dugh '21 MS**, and **Ajinkya Deshmukh '20 MS** contributed to fall capstone projects.

Yue Zhao '18 MS spent the semester collaborating with GIDS on data science research projects.

Thank you to our stellar alumni for staying connected and giving back to the GIDS community.

Graphic of the glymphatic system

Research Spotlight: New Grant Explores the Mechanisms of the Glymphatic System

A [\\$15 million grant](#) from the National Institutes of Health (NIH) will bring together several teams of researchers to better understand the glymphatic system, the waste removal system of the human brain. The multi-institution grant will be led by the University of Rochester with **Maiken Nedergaard**, codirector of the Center for Translational Neuromedicine, at the helm. A team led by GIDS-affiliated faculty member **Douglas Kelley** has received \$2 million to build fluid dynamics computer simulations to document the flow of cerebral spinal fluid (CSF). Professor Kelley also will co-lead a data science core with GIDS Director **Mujdat Cetin** and Professor **Jiebo Luo**, co-chair of the GIDS foundations of machine learning and artificial intelligence working group. The data science core has received \$2 million to provide innovative methods for storing, processing, and analyzing the large amount of data generated by the project.

Pregnant woman receiving an ultrasound (Image by Freepik)

School of Nursing Study Will Explore Using Data Science to Estimate Fetal Weight

A [study](#) from the University's School of Nursing will explore how data science can be utilized in prenatal care. The study, which received \$476,000 from the National Institute of Nursing Research, focuses on developing an image analysis algorithm to more accurately estimate fetal weight in the late third trimester of pregnancy. **Caïtin Dreisbach**, a GIDS-affiliated faculty member and SON assistant professor, will lead the project. In early December, Professor Dreisbach gave a [research talk](#) to the GIDS community, discussing the research and its implications for clinical assessment during pregnancy.

Graphic of a researcher next to a supercomputer

CoE Forges Industry Partnerships through Research and Internship Programs

The New York State Center of Excellence in Data Science (CoE) continues to foster strong industry-academia collaborations. The center recently awarded \$500,000 of funding to [eight research projects](#) that pair researchers with industry partners:

- Development of a Framework for the Evaluation of Spatial Audio System Performance, Mark Bocko (UR) and Immerstech
- Architectural Support to Increase Resilience in Machine Capabilities, Michael Huang (UR) and AMD
- Auto Auction Data as a Leading Indicator of Economic Activity and Vehicle Valuation, Jason Kuruzovich (RPI) and ACV Auctions
- Domain Adaptation Using Vision Transformers, Andreas Savakis (RIT) and Kitware
- Developing and Deploying Spoofing Aware Speaker Verification Systems, Zhiyao Duan (UR) and IngeniD
- Neural Network-Assisted Femtosecond Laser Fabrication of Antibacterial Surfaces, Chunlei Guo (UR) and Pfizer
- Learning to Localize Sources of Network Diffusion, Gonzalo Mateos (UR) and IBM
- Microscope dual-mode design for Gabor-domain OCT powered by automated layer detection and feature segmentation, Jannick Rolland (UR) and LightTopTech

The CoE will also expand its [internship program](#) this summer, pairing students with regional companies and start-ups to work on cutting-edge data science projects. CoE Internship partners for 2023 include Drone City, Green Tornado, Tapecon, and Rel8ed to Analytics Inc. The center is still collecting internship proposals for summer 2023 with more partnerships to be announced this spring.

Faculty Awards and Recognition

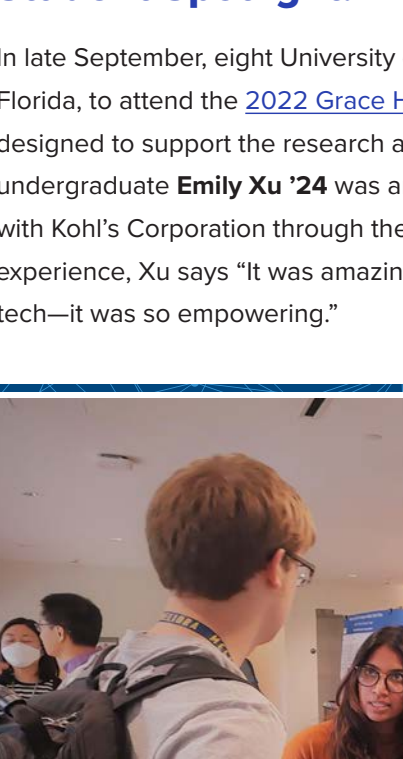
Affiliated faculty member **Marvin Doyley** was appointed the [Wilson Professor of Electronic Imaging](#) and was named a fellow of the IEEE.



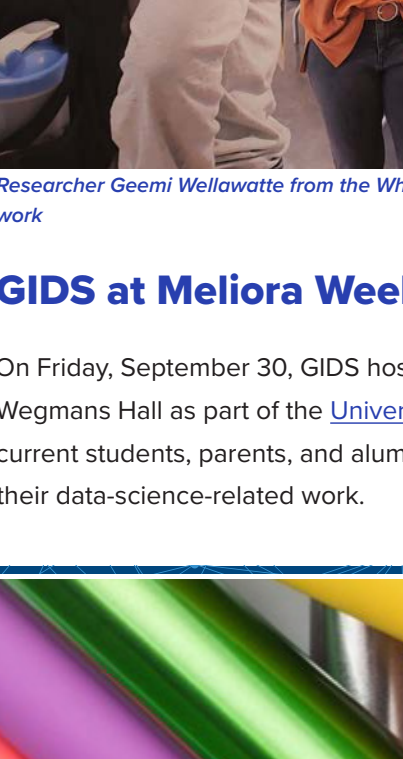
Affiliated faculty member **Ralf Haefner** received an [NSF Career Award](#).



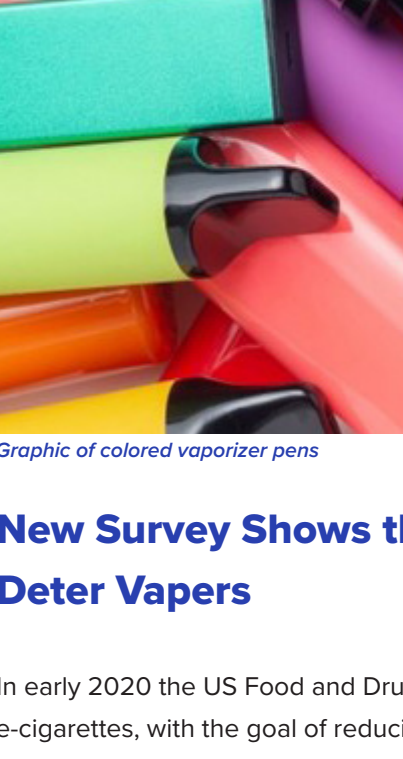
Affiliated faculty member and former GIDS Interim Director **Ehsan Hoque** was named a [Distinguished Member of the Association for Computational Machinery \(ACM\)](#) for his outstanding scientific contributions to computing.



Affiliated faculty member **Tom Howard** received an [NSF Career Award](#).



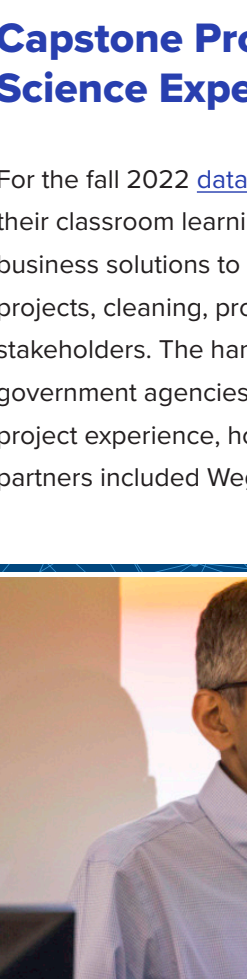
Jiebo Luo, co-chair of the GIDS foundations of machine learning and artificial intelligence working group, was appointed the Albert Arendt Hogeman Professor in Computer Science. He was also invited to become a member of [Academia Europaea](#), a pan-European academy of humanities, law, and science.



Affiliated faculty member **Susana Marcos** was appointed chair of the [Optica Publishing Group Publications Council](#).



Affiliated faculty member **Sreepathi Pai** received an [NSF Career Award](#).



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