

Computer Science

FROM THE CHAIR / Fall 2024

Dear colleagues and friends,

I hope you had a wonderful summer. We are proud to showcase some of the department's accomplishments over the past few months.

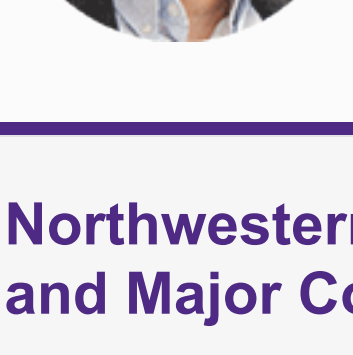
It's always exciting to be back on campus in early fall as the level of activity begins to change. Summer in Evanston is so beautiful that I am always a little sad that so many students are away.

Many years ago, we took a family holiday and spent some time in a quiet town in eastern Maui. One day I set off alone in the morning to find the red sand beach mentioned in the guidebook. Halfway there, I felt a bit nervous. The path was rocky, narrow, and steep, with plenty of serious-looking warning signs. There was hardly a soul in sight. At some point I decided to turn back. I realized that, if I slipped and fell, I might not be found for hours (or worse, days). That afternoon, I convinced my wife to join me and we both ventured out to see the beach. I walked very confidently until I reached the place I turned around the previous time, but we explored a bit more and suddenly the path got easier to navigate. We even reached the point where we could see the beach, but there was a very steep descent. Finally, the next morning, we woke up early and ventured out with our son and made it to the beach by 8 a.m. We were rewarded with a completely empty beach. For an hour we had this lovely, amazing spot all to ourselves.

Lesson learned: research is always more fun with collaborators, and an "open problem" alert is just a warning sign that should not deter us. Teachers in the classroom take us to the edge of knowledge and leave us to tinker. Then the challenge is to just go a bit further. Advisers can show us the pathways that are likely to lead to success, but confidence in your own abilities is paramount. Research is all about reaching the edge of knowledge and being bold enough to question assumptions and to re-think old approaches to doing things.

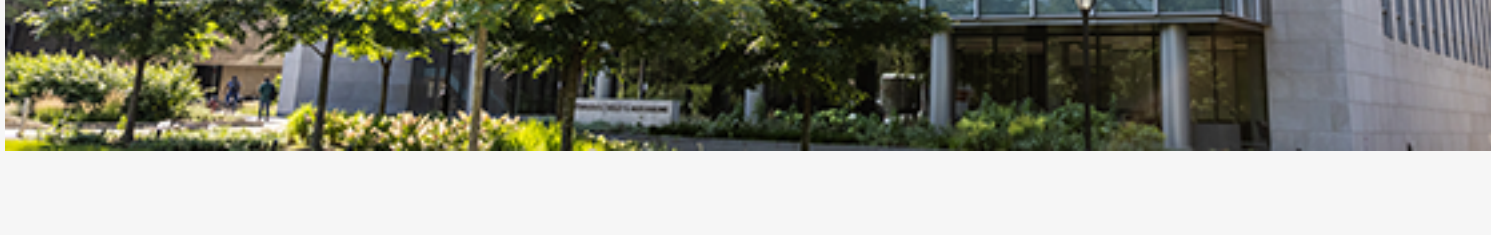
For this reason, we are excited by the great interest we have seen in the undergraduate student **research track** we launched last year. We are happy to accompany our undergraduates who bring fresh perspectives on the path to knowledge. Our students continue to do cutting edge work that is published in top CS conferences.

I hope you enjoy the latest news from Northwestern Computer Science below.



**Samir Khuller**  
Professor and Peter and Adrienne Barris Chair  
Department of Computer Science  
McCormick School of Engineering

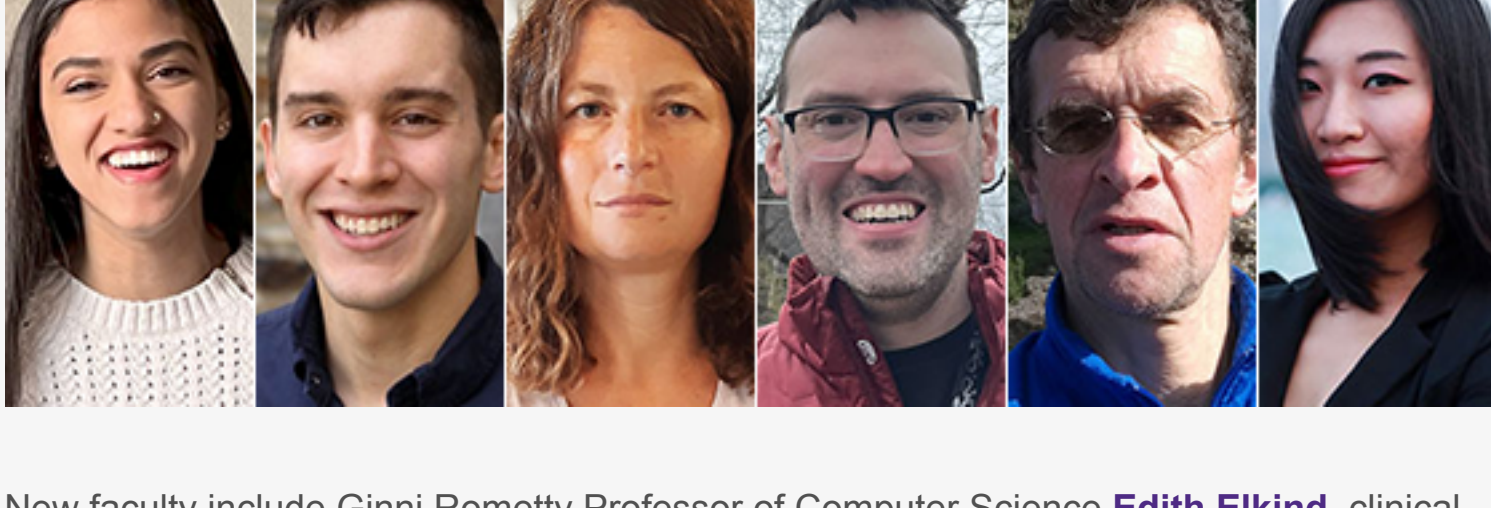
Northwestern Computer Science Launches AI Minor and Major Concentrations



The undergraduate computer science major now offers eight optional degree concentrations and non-CS majors across Northwestern can pursue a new minor in artificial intelligence.

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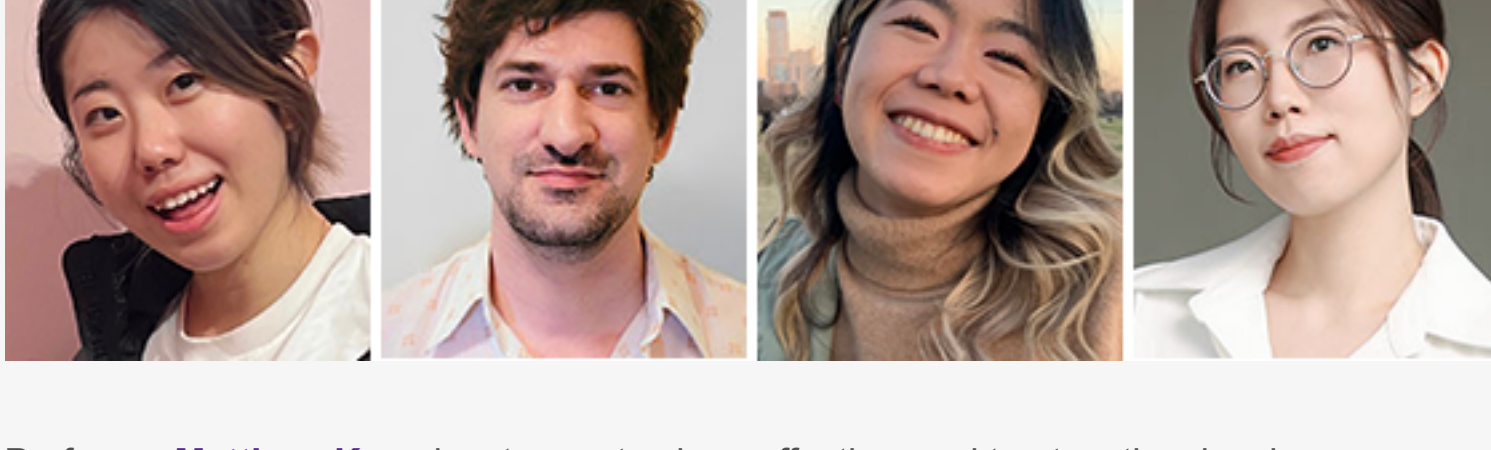
Northwestern CS Welcomes New Faculty



New faculty include Ginni Rometty Professor of Computer Science **Edith Elkind**, clinical assistant professor **Joshua D'Arcy**, research professor **Dmitri Pasechnik**, and faculty of instruction **Anjali Agarwal**, **Dietrich Geisler**, and **Yiji Zhang**.

[Meet our faculty »](#)

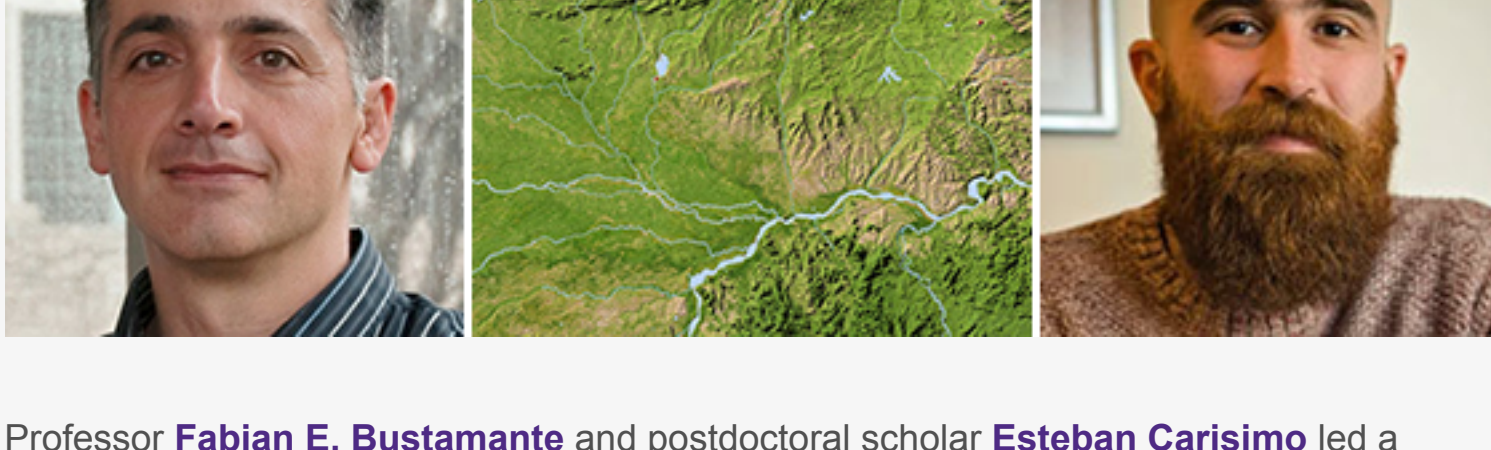
Building Informative and Trustworthy Election Forecasts



Professor **Matthew Kay** aims to create clear, effective, and trustworthy visual communication tools that empower citizens to engage knowledgeably with electoral information. The research team also includes former postdoctoral scholar **Fumeng Yang**, Technology and Social Behavior PhD student **Mandi Cai**, and fourth-year computer science and art student Grace Wang.

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Impact of the Venezuelan Crisis on the Country's Internet



Professor **Fabian E. Bustamante** and postdoctoral scholar **Esteban Carisimo** led a study to examine Venezuela's deteriorating Internet infrastructure amid the country's political and economic crisis.

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Northwestern to Lead \$20 Million National AI Research Institute in Astronomy



The new NSF-Simons AI Institute for the Sky (SKAI) unites 83 team members across 25 partner organizations to develop AI tools and accelerate astronomy's data-driven revolution. The Northwestern Engineering SKAI team includes co-principal investigator **Aggelos Katsagelos** and CS faculty members **Emma Alexander**, **Jessica Hullman**, **Han Liu**, **Aravindan Vijayaraghavan**, and CS affiliate **Ermin Wei**.

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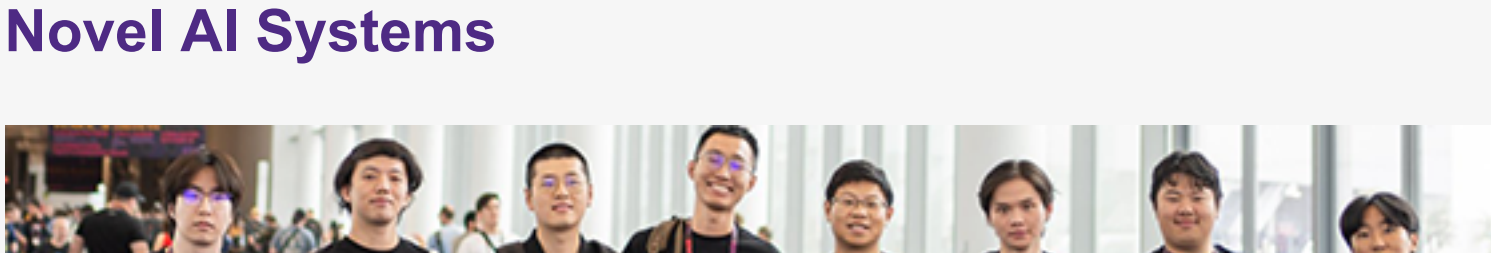
New App Performs Real-Time, Full-Body Motion Capture with a Mobile Device



Professor **Karan Ahuja** and his team developed MobilePoser, a new system for full-body motion capture that leverages sensors already embedded within consumer mobile devices, including smartphones, smart watches and wireless earbuds.

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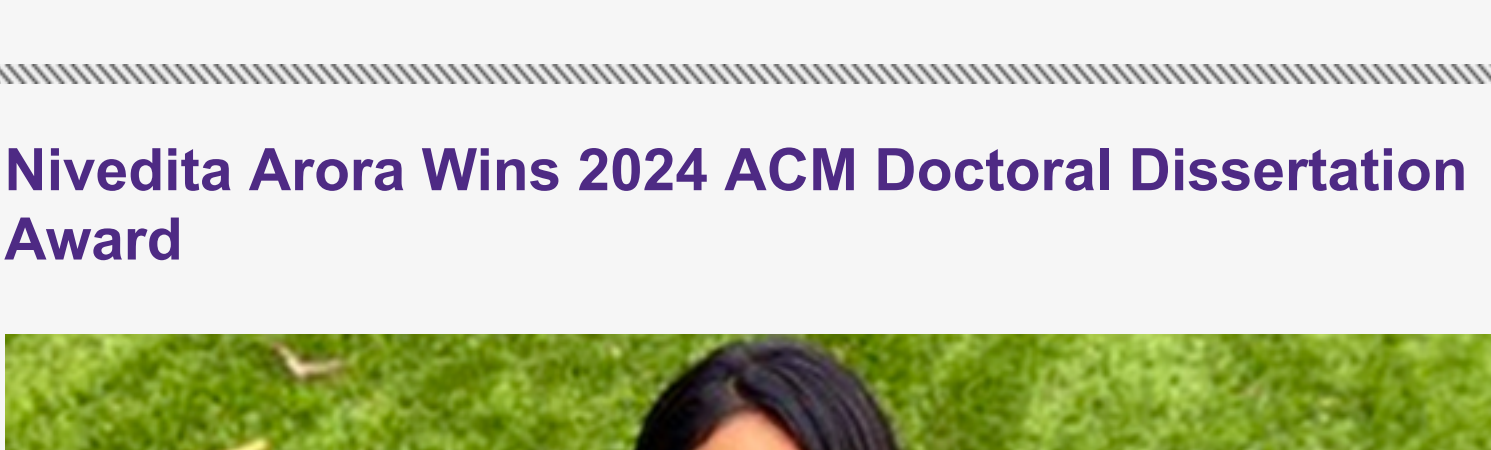
Safeguarding Critical Software Infrastructure through Novel AI Systems



A Northwestern Computer Science team led by Professors **Xinyu Xing** and **Yan Chen** is advancing to the final competition of the DARPA and ARPA-H AI Cyber Challenge.

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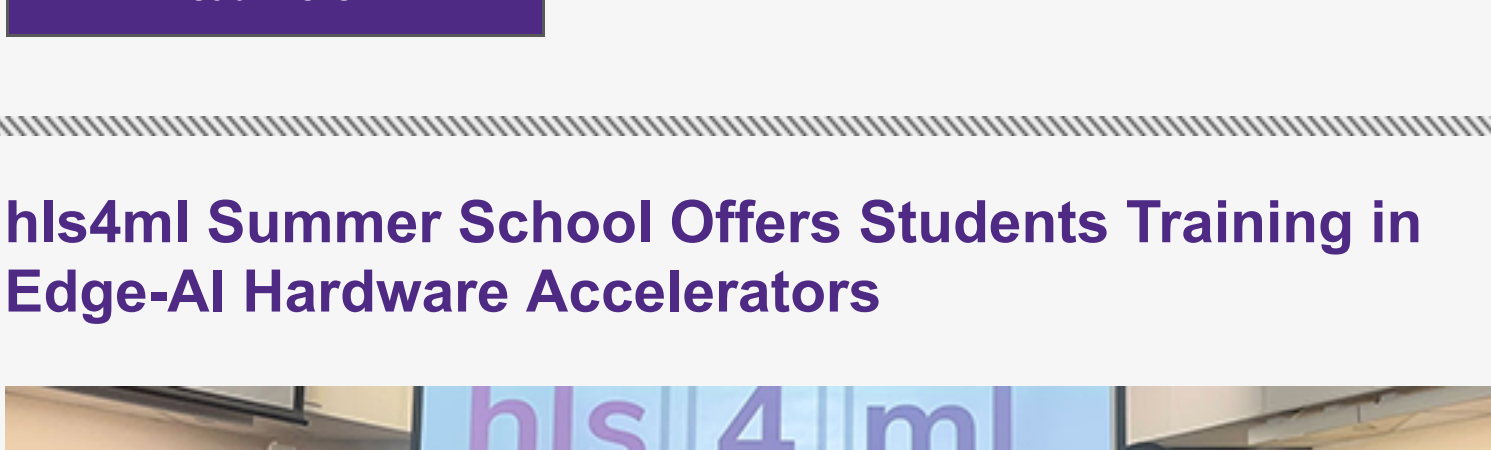
Nivedita Arora Wins 2024 ACM Doctoral Dissertation Award



The Association for Computing Machinery recognized Professor **Nivedita Arora** for her foundational work designing sustainability-first computing systems and exploring their applications.

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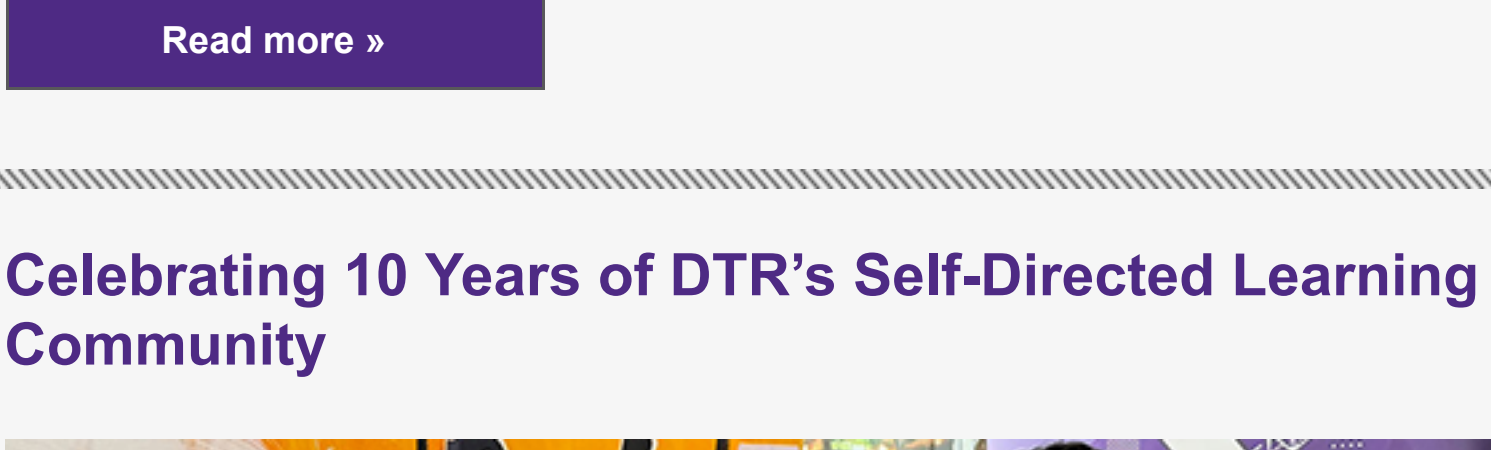
hls4ml Summer School Offers Students Training in Edge-AI Hardware Accelerators



Professor **Seda Ogrenci** organized a hands-on summer school for students to explore her team's open-source tool for designing machine learning inference in hardware using high level synthesis language.

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Celebrating 10 Years of DTR's Self-Directed Learning Community



In celebration of the 10-year anniversary of the Design, Technology, and Research (DTR) program, Professor **Haoqi Zhang** and DTR students organized a week-long series of public events, featuring an art installation, a screening of the DTR documentary, and an alumni panel.

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HONORS, AWARDS, AND DEPARTMENT NEWS

Professor **Karim Ahuja** was named to the *MIT Technology Review* "Innovators Under 35 Asia Pacific" list in the "Computer and Electronics Hardware" category.

Professor **Emma Alexander** participated in the Grainger Foundation **Frontiers of Engineering 2024 Symposium**.

Northwestern Computer Science celebrates the **promotions** of **Brenna Argall**, **Nikos Hardavellas**, and **Jessica Hullman** to full professor, as well as the tenure and promotion of **Eleanor O'Rourke**, and tenure of associate professor **Xinyu Xing**.

Professor of Instruction **Connor Bain** was inducted into the **Canvas Hall of Fame** for "Most Innovative Course Site." He was also a finalist for the "Best Use of Videos" award, which recognizes faculty who use Zoom or Panopto to deliver or supplement lecture content in an engaging and interactive way.

Professor **Andrew Crotty** received a **2024 Google Research Scholar Program Award** for his work developing novel deep learning compression algorithms designed to leverage semantic relationships inherent in datasets, such as functional dependencies or correlations between attributes.

**Elena Fabian** ('24) is a member of the inaugural class of **Berkeley Innovation Scholars** at Berkeley Law.

Professor **Matthew Groh** and a team including PhD student **Negar Kamali**, Professor **Jessica Hullman**, former postdoc **Angelos Chatzimpampas**, and Kellogg research assistant **Karyn Nakamura** identified **five categories of artifacts and implausibilities** to help people tell the difference between real and AI-generated images.

Professor **Nikos Hardavellas** joined the inaugural cohort of Computing Research Association **Future CRA Leaders** and attended the 2024 CRA Conference at Snowbird in July.

PhD student **Monisola Jayeoba** was awarded an American Association of University Women **International Fellowship**.

Professor **Anastasia Kurdia** was inducted to Northwestern IT's **"Mission: Accessible" Wall of Fame** for ensuring that the CS 150 Canvas course page meets seven core accessibility criteria.

A team including Professor **Manling Li** won an **Outstanding Paper Award** at the 62nd Annual Meeting of the Association for Computational Linguistics.

Professor **Eleanor O'Rourke**, computer science PhD student **Melissa Chen**, and computer science and learning sciences PhD student **Yinmiao Li** won the **Best Paper Award** at the 2024 ACM Conference on International Computing Education Research.

Professor **V.S. Subrahmanian** led a Northwestern team that developed a free platform called the **Global Online Deepfake Detection System** to help journalists substantiate the authenticity of audio, images, and/or videos.

[View all honors »](#)