

Electrical and Computer Engineering

FROM THE CHAIR / Fall 2025

Dear colleagues, alumni, and friends,

Our faculty, students, and alumni continue to push the boundaries of discovery and innovation, and I'm proud to highlight some of their recent achievements. This includes groundbreaking research in novel computing paradigms, applications of AI techniques to astronomy and healthcare, and quantum systems. These stories reflect the energy and vision that drive our department forward.

This newsletter is both a celebration of our accomplishments and an invitation to **stay connected with us**. I hope you enjoy catching up on our news and feel proud of the vibrant community we are building together.

Sincerely,



Randy Berry

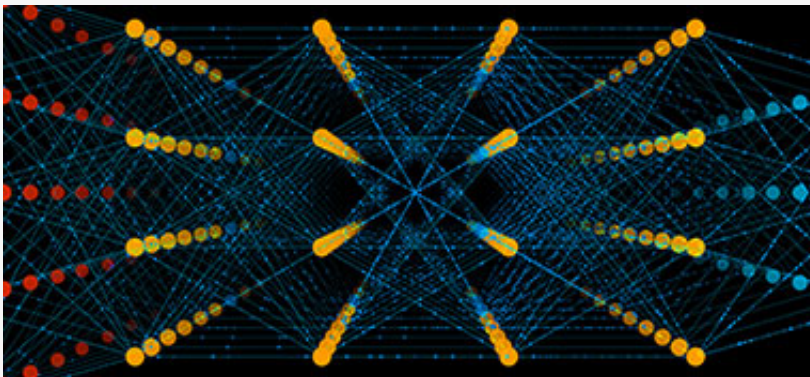
Chair and John A. Dever Professor
Department of Electrical and Computer Engineering
McCormick School of Engineering



Northwestern Scientists Launch Projects Using the Vera C. Rubin Observatory

Contributing to the decade-long Legacy Survey of Space and Time astronomical investigation, members of the NSF-Simons Institute for AI in the Sky (SkAI) — including Professor **Emma Alexander** and SkAI deputy director **Aggelos Katsaggelos** — will develop innovations at the intersection of astronomy and AI, transforming the speed and reliability of simulations and optimizing the design of instruments and surveys.

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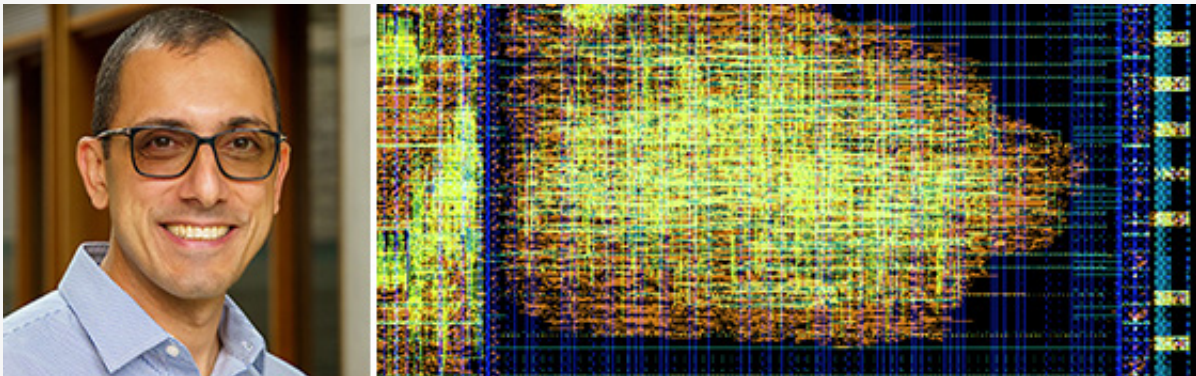


Professor Jie Gu Receives \$3.8 Million DARPA ScAN

Program Award

The Defense Advanced Research Projects Agency awarded Professor **Jie Gu** and co-PIs from Duke University and the University of Minnesota up to \$3.8 million through the Scalable Analog Neural-networks program to advance analog neural network accelerators toward large-scale deployment.

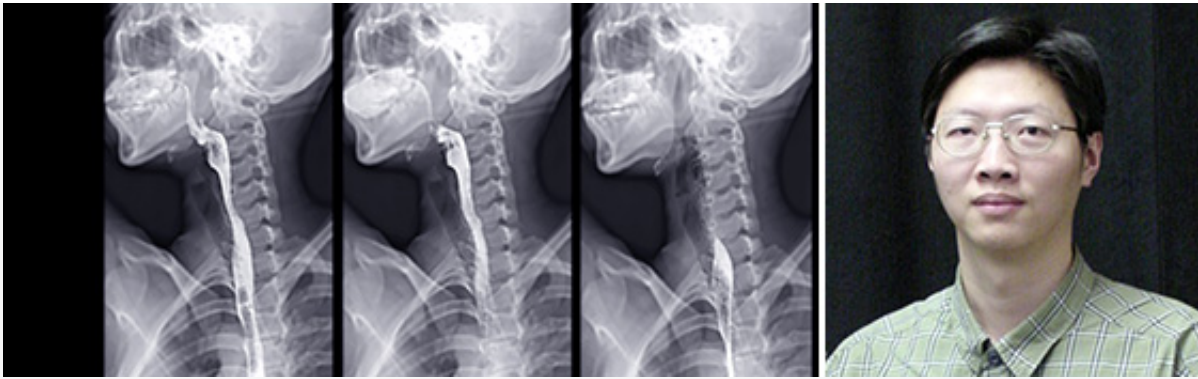
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A Scalable Probabilistic Computer

A team led by Professor **Pedram Khalili** demonstrated a scalable approach to building a probabilistic Ising machine. The researchers developed an integrated probabilistic computer that combines a custom-designed digital silicon chip with nanodevices based on the voltage-controlled magnetic tunnel junctions pioneered by Khalili's Physical Electronics Research Laboratory.

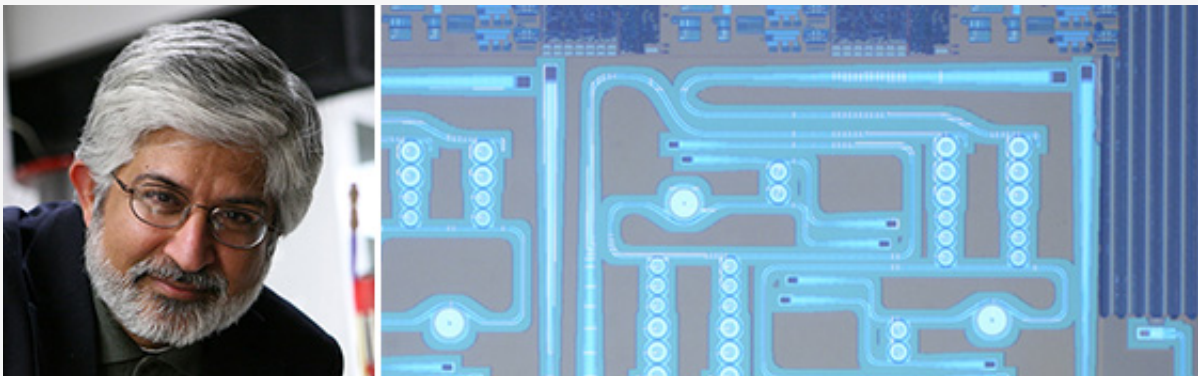
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Ying Wu Receives Support from the Pat & Shirley Ryan Family Research Acceleration Fund

Professor **Ying Wu** is working with Northwestern's **Bonnie Martin-Harris** on developing an AI-powered tool to enhance clinicians' ability to assess swallowing disorders (dysphagia) using X-ray videos from a procedure called the Modified Barium Swallow Study (*pictured*), the gold standard for evaluating swallowing.

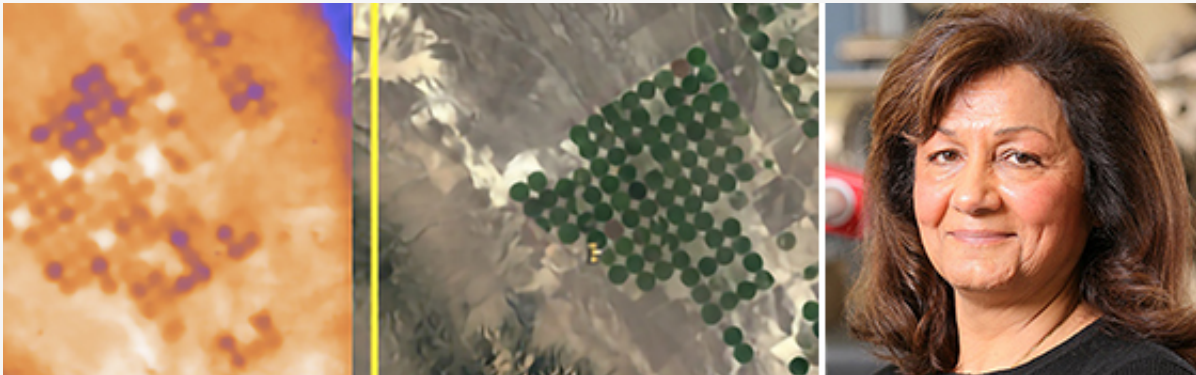
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First Electronic-Photonic Quantum Chip Manufactured in Commercial Foundry

Professor **Prem Kumar** and a multi-institution research team built a first-of-its-kind silicon chip combining a photonic quantum system with classical electronic control circuits.

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Pioneering Strained Layer Superlattice Technology

Professor **Manijeh Razeghi** and the Center for Quantum Devices at Northwestern University have developed breakthrough technologies in infrared photodetection and imaging — advancing applications ranging from wildfire monitoring to deep space exploration.

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Department News

Computer engineering alum **Avery Ching** ('02, PhD '07), advised by Professor **Alok Choudhary**, is defining how money moves worldwide as **CEO of Aptos Labs**.

Professor **Jie Gu** and PhD students **Qiankai Cao**, **Yuhao Ju**, **Zhiwei Zhong**, and **Edison (Zhengyu) Chen** (PhD '20) earned the **Best Paper Award** at the 2025 Great Lakes Symposium on VLSI.

Professor **Prem Kumar** was named on the **Researchers to Know 2025** list by the Illinois Science and Technology Coalition.

Jessie Sheflin, a combined BS/MS student in biomedical engineering and

computer science advised by Professor **Matthew Grayson**, won the **Best Student Paper Award** at the 2025 International Conference on Electrical BioImpedance, and Electrical Impedance Tomography. Co-authors include Northwestern Engineering's **Alan Sahakian**, PhD student in materials science and engineering **Sankalp Ganeshan**, and electrical engineering alumni **Amadou Bah** (MS '25) and **Claire Onsager** (PhD '24).

Professor **Jakub Szefer** and PhD student **Yizhuo Tan** (Yale University) received the **Best Paper Award** at the 2025 ACM Quantum Security and Privacy Workshop.

[View all news »](#)



2025 Fall Tech Career Fair

On Sept. 26, we welcomed 32 companies and more than 1,000 students to the 2025 Fall Tech Career Fair. Co-hosted by Northwestern Engineering's

Department of Electrical and Computer Engineering, Department of Computer Science, and the Engineering Career Development office, the event connected students with leading companies ranging across a variety of tech industries — including Accenture, Arm, Belvedere Trading LLC, Epic, Google, The Home Depot, McMaster-Carr, and TIBCO.



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