

Computer Science

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December 5, 2025 / Bulletin #11

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IMPORTANT DATES & REMINDERS

Monday, December 8, 2025 Fall Exams begin

Monday, December 15, 2025 Grades due 3:00 PM

Friday, December 19, 2025 Fall 2025 Degrees Conferred

Wednesday, December 24, 2025 Winter Recess Starts - University Closed

Through January 1st, 2026



We want to hear from you!

Please send any upcoming news and events to news@cs.northwestern.edu to be included in future bulletins &/featured on our socials/website.

Events for the bulletin must be emailed by Thursdays 12PM to be in that Friday's bulletin.

Missed a seminar? No worries!

**View past seminars via the Northwestern CS Website
(northwestern login required).**

[View Past Seminars »](#)

UPCOMING SEMINARS

December

11th - Danli Luo

January

5th - Ari Holtzman

12th - Rana Hanocka



Bridging Computation and Matter: Programming Intelligence into Physical Systems

Danli Luo, University of Washington

Abstract:

Scientific discovery faces an asymmetry: machine learning models can predict thousands of novel materials in seconds, simulations can systematically explore vast design spaces, yet physical validation requires months of manual experimentation. While software is programmable and rapidly iterable, physical experimentation remains fragmented across specialized, infrastructure-heavy labs and tacit expertise. This gap raises a central question: how can physical experimentation match the programmability of software? My research addresses this by bridging computation and matter through programmable materials, fabrication systems, and laboratory infrastructure that introduce software-like adaptability into materials, biological processes, and experimental workflows. I pursue this vision through three interconnected research thrusts: materials that encode intelligent behaviors without electronics; fabrication platforms that harness biological growth as a controllable manufacturing process; and modular automation systems that transform experiments into self-optimizing workflows. In this talk, I will present systems ranging from self-burying seed carriers to mycelium-based bio-fabrication platforms to modular lab automation frameworks that learn from execution and optimize protocols in real time, illustrating a pathway toward democratizing experimental access, accelerating materials discovery, and bridging the programmability gap between software and physical reality.

Biography:

Danli Luo is a PhD candidate in Human-Centered Design & Engineering at the University of Washington, with an M.S. in Materials Science and Engineering from Carnegie Mellon University. Her research reimagines scientific instrumentation by embedding programmability and physical intelligence directly into materials, biological processes, and experimental workflows. Drawing from human-computer interaction, robotics, and bio-inspired design, she develops materially intelligent instruments, adaptive fabrication platforms,

and autonomous laboratory systems used by restoration ecologists, materials scientists, synthetic biologists, chefs, and educators. Her work has been published in Nature, Science Advances, RSC Advances, CHI, and UIST, featured on the cover of Nature, exhibited at the London Design Biennale, and licensed by Fortune 500 companies. Danli's honors include MIT Technology Review 35 Innovators Under 35, Heidelberg Laureate Forum Young Researcher, and Fast Company's World Changing Ideas Honorable Mention.

🕒 **Thursday, December 11, 2025**
10:00 AM - 11:00 AM CT

📍 **Mudd Hall, 3514,**
2233 Tech Drive, Evanston, IL 60208

[More Information »](#)

CS Department Events

SAVE THE DATE: WINTER PUBLIC LECTURE SERIES

More Details to Come

🕒 **Wednesday, January 28, 2026**
4:00 PM - 5:00 PM CT

📍 **TBA**

Awards

CONGRATULATIONS ABRAHAM FLYNN

*First Place for the Pitch
Competition at National
Society of Black
Engineers' (NSBE) Fall
Regional Conference in
Cincinnati, OH*



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Computer Science

**UG Student
Abraham
Flynn wins
First Place for
the Pitch
Competition at
National
Society of
Black
Engineers'
(NSBE) Fall
Regional
Conference in
Cincinnati, OH**

CONGRATULATIONS ZHENYU PAN

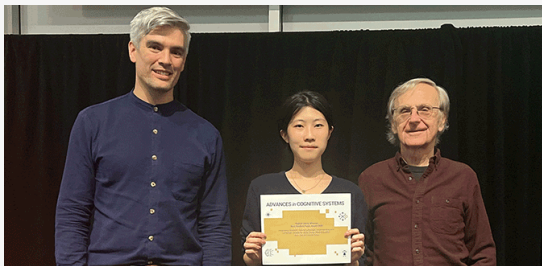
*A winner of the
Lambda's Research
Grant Program &
2025 NeurIPS
Scholar Award*



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**PhD Student
Zhenyu Pan
Wins 2025
NeurIPS
Scholar Award
& Lambda's
Research
Grant Program**

CS News



PhD Student Kexin Zhao Wins Best Student Paper Award at ACS 2025

Zhao and Professor Ken Forbus demonstrated the effectiveness of combining symbolic and neural methods for word sense disambiguation.

[*Read More*](#)



Northwestern Department of Computer Science
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