



Photo courtesy of Noble lab.

Note from the Chair



Dear friends and alumni,

The summer in Boston has brought a much-needed change from the long and cold temperatures of the winter. With the completion of graduation season and students off to their co-ops, a quieter campus means time to reflect on the past year and the many accomplishments of our students and faculty.

We have several career milestone achievements in the department. **Prof. Mona Minkara** and **Prof. Mohammad Abbas Yaseen** have been conferred tenure and promotion to the rank of Associate Professor. **Prof. Ambika Bajpayee** and **Prof. Qianqian Fang** were promoted to full Professor. Congratulations to Mona, Abbas, Ambika, and Qianqian. We thank them for their contributions to the department from the

initial days of the department to our current strong position. We wish them continued success and impact through their work!

Stefanie DeFronzo and **Catherine "Katya" Karpova** were awarded the prestigious **AHA Predoctoral Fellowships**. Stefanie and Katya are PhD students in **Prof. Guohao Dai's** lab. Congratulations to Stefanie, Katya, and Guohao on this fantastic recognition of their work.

Prof. Nikolai Slavov's work on proteomic and transcriptomic analysis was published in the June 24 issue of **Nature**. Based on proteomic, transcriptomic, and genomic data of >1000 human samples, Nikolai and coworkers demonstrated that alternate RNA decoding results in stable and abundant proteins in mammals.

A cornerstone of our calendar is the annual Bioengineering Research Symposium, which is organized and run by our graduate students. It showcases the breadth and depth of our research program, and is an opportunity for external stakeholders (advisors, industry, etc.) to hear about the fundamental and translational advances of our faculty and students. Congratulations to the Graduate Student Council, who ran an excellent Bioengineering Symposium on June 18 and presented awards for research excellence.

As we prepare for the start of the fall semester, we look forward to engaging with our alumni, stakeholders, and supporters to implement our vision for the department. In 12 years, the department has grown into a powerhouse in bioengineering education and research. We currently have 38 core faculty advising and training 560 undergraduates, 170 MS, and 150 PhD students. We strive to provide every student in our program with an experiential education that gives them the skills to reach their career goals, whether in industry, government, or academia. I invite our supporters to be a part of this journey, where your support can help us realize our vision of experiential education, impactful research, and service to our community.

Sincerely,

Abraham Joy
Chair and Professor of Bioengineering



DEPARTMENT OF BIOENGINEERING

Partnership Opportunities, Northeastern University

ABOUT: Situated in Boston, a global biotechnology hub, we offer BS, MS, and PhD degrees across four concentrations and cutting-edge research at the interface of engineering and medicine.

Research areas:

- 1. Biomechanics and Mechanobiology
- 2. Biomedical Devices and Bioimaging
- 3. Molecular, Cell, and Tissue Engineering
- 4. Systems, Synthetic, and Computational Bioengineering

Why partner with Northeastern Bioengineering?

- Department research spans a diverse array of topics
- Access to over 1000 students at the BS, MS, and PhD level
- Located in one of the world’s leading biotechnology and medical device hubs
- More than 3,800 employers already partner with Northeastern



**enrollment numbers are approximate*

COOPERATIVE EDUCATION (CO-OP) PLACEMENTS

Students work in their profession for four to eight-month periods as part of our curriculum, providing real-world experience. Employers access high achieving and motivated students. We’re always seeking partners at all levels of engagement.

INDUSTRY-SPONSORED CAPSTONE PROJECTS

Our senior undergraduates complete a capstone design course in which student teams are paired with a faculty advisor. Industry sponsors bring real engineering challenges for teams to design solutions. We’re actively recruiting industry partners to sponsor capstone projects.

INDUSTRY-SPONSORED FELLOWSHIP PROGRAM

Offered to a highly competitive group of incoming PhD students with outstanding academic achievement. Industry partners can sponsor fellows, forming connections with the next-generation of researchers.

FACULTY RESEARCH PARTNERSHIPS

Our faculty collaborate across industry, academia, and government, to conduct interdisciplinary research addressing global challenges. We invite companies to sponsor and co-develop projects with our faculty, across research areas.

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2026 Bioengineering Research Symposium

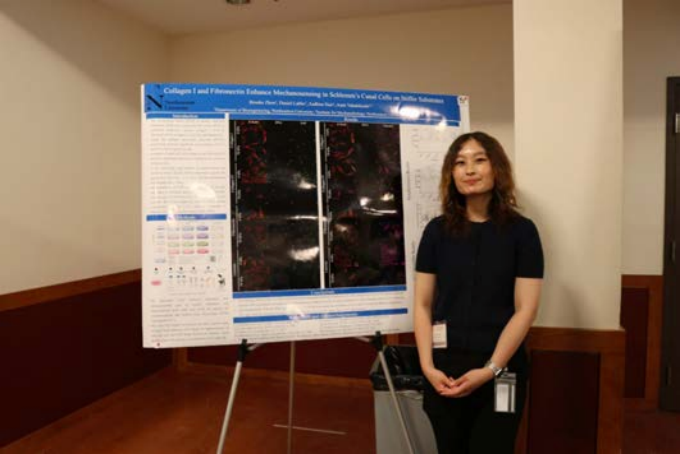


The 7th annual 2026 bioengineering research symposium was a success! Thursday, June 18, comprised of a full day of oral presentations, poster presentations, RapidFire thesis presentations, and a keynote speaker in the Curry Student Center ballroom. The Bioengineering Graduate Student Council planned and executed the event, with 60+ presenters in total.

Thank you to everyone who attended and presented.



Ashlynn McCann, PhD candidate.



Brooke Zhou, MS student.



Alumni and co-op panel. L to R: Ana Vargas, PhD alumna, John Bleakney and Rachel Walsh-Peterson, Co-op Coordinators, Andrea Duarte Rivera, MS'26 and Connor Powell, PhD candidate.



L to R: Nathan Caso, Harry Akligoh, Andrew Selvados, Daniel Labbe and Sahana Gangadharan, PhD candidates.



Akhilesei Krotov and Justin Cross, PhD candidates.



Agyapong Odame, PhD candidate, and Chidera Ezugu, MS student.



Justin Cross, PhD candidate.

COE 2026 Faculty and Staff Awards



The Department of Bioengineering won the COE Outstanding Staff Teamwork Award.

The 2026 faculty and staff awards featured several bioengineering members, back in January. Congratulations to the recipients.

Read about all of the awardees.



Former Dean Gregory Abowd and Professor Guohao Dai. Søren Buus Outstanding Research Award



Former Dean Gregory Abowd, Assistant Director of Academic Programs, Caroline Pridmore, and former employee Gina O'Brien McLelland. Gracious, Inspiring, Nonstop Achiever Award.



Former Dean Gregory Abowd and Associate Professor Aileen Huang-Saad. Outstanding Faculty Service Award.



Former Dean Gregory Abowd and Professor Nikolai Slavov. Distinguished Faculty Award.

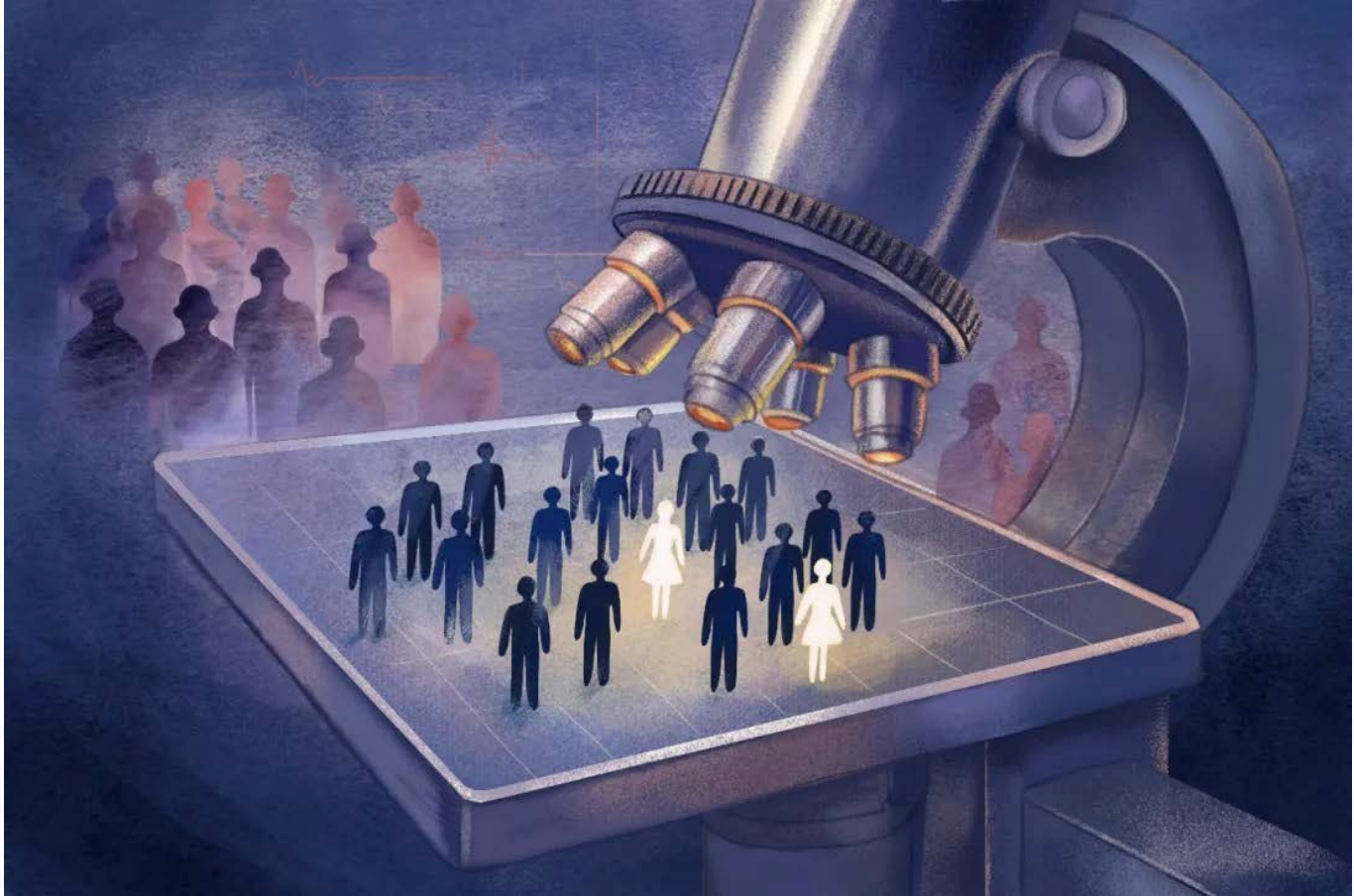


Former Dean Gregory Abowd and Associate Professor Rouzbeh Amini. Community Advocate Award.



Former Dean Gregory Abowd and Assistant Professor Tao Sun. Søren Buus Outstanding Research Award

Northeastern Engineering Professors on the Lack of Representation in Medical Research



MIE/BioE Professor Sandra Shefelbine and BioE Associate Professor Chiara Bellini discuss the lack of representation of women in medicine and medical research, specifically in their research areas of bone biomechanics and cardiovascular health—respectively.

Where are the women? Researchers are on a quest for more representation in medical research

In the Interdisciplinary Science and Education Complex on Northeastern’s Boston campus, models of human bones line shelves alongside machines that measure how much force it takes to break the real things.

It’s the lab of **Sandra Shefelbine**, a professor of bioengineering and mechanical and industrial engineering, who studies bone biomechanics. That includes how bone develops, adapts and changes in various conditions, such as with “hip hinge” sports, like hockey, that require players to bend over in a forward position.

Some of her recent research has focused on a hip joint condition called cam morphology, in which young players of these sports develop a bump, or cam, in part of their thigh bone, or femur. The cam forms in what’s known as the femoral neck, the narrower part of the bone directly below the part that fits into the hip joint.



“Bones are smart material,” Shefelbine says, because they adapt when the weight that they carry changes. That’s why children are especially prone to developing a cam in high-impact sports like hockey.

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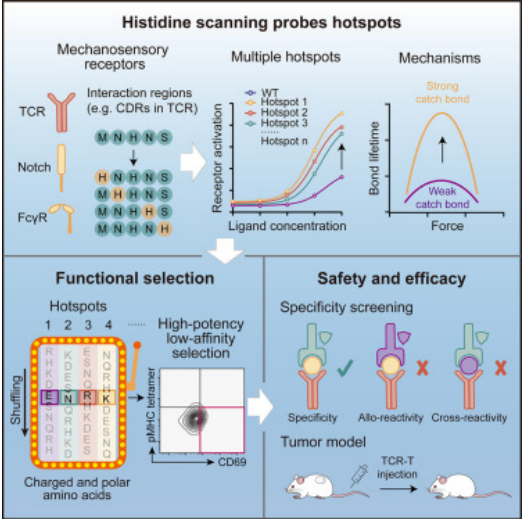
Read more.



Improving the Ability of Immune Cells to Distinguish Tumor Cells from Healthy Tissue



BioE Assistant Professor Yinnian Feng and an international team of researchers have published a breakthrough study in Cell titled “[Tuning the sensitivity of mechanosensory receptors through histidine scanning](#).” The study addresses a central challenge in T-cell therapy: while T cells use receptors (TCR) to recognize tumor antigens, many tumors evade the immune system by mutating those antigens. While engineering TCRs with enhanced sensitivity can help, it often creates a specificity issue where T cells can no longer distinguish between tumor cells and healthy “self” moieties, resulting in dangerous off-target toxicities.



The research team found that for a natural T cell operating in the body, mechanical force is the “missing factor” that allows it to achieve extraordinary precision. T cell activation correlates with the formation of catch bonds—non-covalent interactions that strengthen under mechanical force (similar to a Chinese finger trap).

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[Read more.](#)

Capstone Group Creates Affordable Wheelchair and Construction Manual for Capstone Project

One engineering Capstone group created a low-cost wheelchair out of wood and bicycle parts, also creating a step-by-step manual of the construction, making this wheelchair a more accessible solution to others who cannot afford a traditional wheelchair.

Student engineers share with the world instructions on making this wheelchair with wood and bike parts

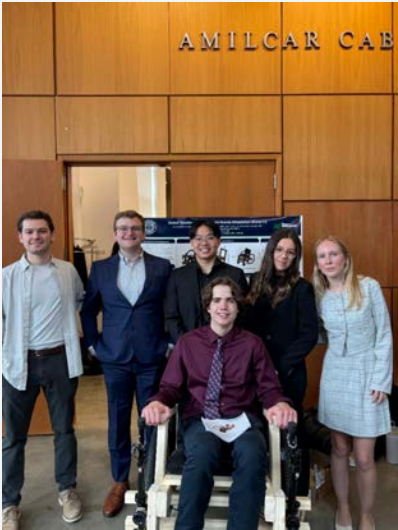
Building a functional wheelchair requires fewer materials than you might think.

Ask Northeastern fourth-year student Christopher Shih and his bioengineering capstone classmates.

This semester, they have been hard at work in the bioengineering capstone makerspace in Richards Hall developing a wheelchair prototype constructed from 12 pieces of wood, bicycle parts and some bolts and screws.

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[Read more.](#)



More Notable Awards

Faculty and student awards, internal and external.



Assistant Professor Monira Minkara was one of seventeen named a **2026 Camille Dreyfus Teacher-Scholar** by the Camille and Henry Dreyfus Foundation for her work in decoding the molecular logic of innate immune recognition. The award honors early-career faculty in the chemical sciences who have created an outstanding independent body of scholarship and are deeply committed to education with undergraduates.



Professor Nikolai Slavov was selected to receive the 2026 **Biemann Medal** from the American Society for Mass Spectrometry (ASMS), which is awarded to an individual early in their career in recognition of significant achievement in basic or applied mass spectrometry and is among the most prestigious awards in that field.



Maren Ritterbuck, E'27, bioengineering and biochemistry, received the **Barry Goldwater Scholarship**, one of the nation's most prestigious, merit-based awards for undergraduate students who plan to pursue research careers in natural sciences, engineering, and mathematics.



Andrew William Lynch, E'26, bioengineering and biochemistry, is the recipient of a **Harold D. Hodgkinson Achievement Award** for 2026, one of the highest honors a senior can receive.



Kiley York, E'26, bioengineering, is a recipient of the **2026 Compass Award**, which recognizes exemplary students from the senior class who have demonstrated a true dedication to the core values of leadership, volunteerism, academic integrity, and a commitment to Northeastern.

Current students and alumni were recipients of the 2026 **NSF Graduate Research Fellowship Program Awards**. This prestigious program recognizes outstanding graduate students who have demonstrated the potential to be high achieving scientists and engineers early in their careers. The five-year fellowship provides three years of financial support inclusive of an annual stipend.

Bioengineering recipients:

- Matteo Couto Frignani, BS '25
- Caroline Dial, BS '25
- Dawning JiaXi Fu , BS '26
- Hannah Higgins, PhD Candidate
- Jackson Jewell, PhD Candidate
- Karina Esperanza Millican, BS '25
- Miti Patel, BS '24



Associate Professor Rouzbeh Amini was named the 2025 Associate Editor of the Year by the ASME Open Journal of Engineering and Associate Professor Jessica Oakes was named the 2025 Associate Editor of the Year by the Journal of Biomechanical Engineering. The American Society of Mechanical Engineers (ASME) journal program is internationally recognized for its rigorous peer-review standards and its commitment to advancing high-quality research that serves the engineering profession and society at large.



This **award recognizes outstanding Associate Editors** who have gone above and beyond to ensure quality research contributions are published and demonstrate sustained excellence in supporting authors, reviewers, and editorial teams.



