

Industrial Engineering and Management Sciences

FROM THE CHAIR / Fall 2024

Dear IEMS family and friends,

As the leaves change and a new academic year unfolds, I am excited to welcome four new faculty members to our department. Their diverse expertise and fresh perspectives will strengthen our community and advance our mission of excellence in research, teaching, and service.

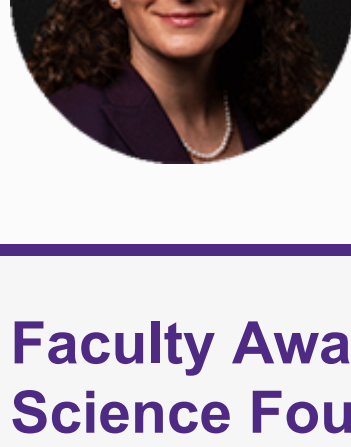
This past academic year, we undertook a strategic planning process that led to the articulation of our overarching vision: data-driven discovery, design, and decision-making. Aligned with this vision, Professor **Dashun Wang** will lead a \$20 million National Science Foundation research initiative aimed at optimizing technology innovation by enhancing the measurement, understanding, and acceleration of scientific progress. Professor **Barry Nelson** was honored with the prestigious 2024 Saul Gass Expository Writing Award for his work in stochastic simulation, along with three acclaimed textbooks, reflecting the highest standards of academic writing and pedagogy. Professor **Noshir Contractor**, newly appointed executive director of the United Kingdom-based Web Science Trust, will play a pivotal role in advancing web science research and education as generative AI reshapes the digital landscape. To support and expand our strategic plan, we have announced **two new faculty positions**.

Our educational programs continue to thrive, empowering students with the tools and expertise to lead in a data-driven world. Since its inception in 2011, our Master of Science in Machine Learning and Data Science, formerly Master of Science in Analytics, has prepared students to harness the value of complex data and design enterprise AI solutions.

We are proud to highlight the achievements of our students and alumni. Alum Yian Yin (PhD '22) was recently recognized in *Forbes*' 2024 '30 Under 30' list in the science category for his pioneering work on tools to understand technological advancement. In addition, we celebrated the exceptional careers of Christina Kosmowski (BS '98) and Max Shen (PhD '00), recipients of the IEMS Distinguished Alumni Award. The ceremony, which featured a keynote address by Northwestern President Michael Schill, was a wonderful opportunity to honor their achievements and reconnect with our alumni community and the IEMS Advisory Board.

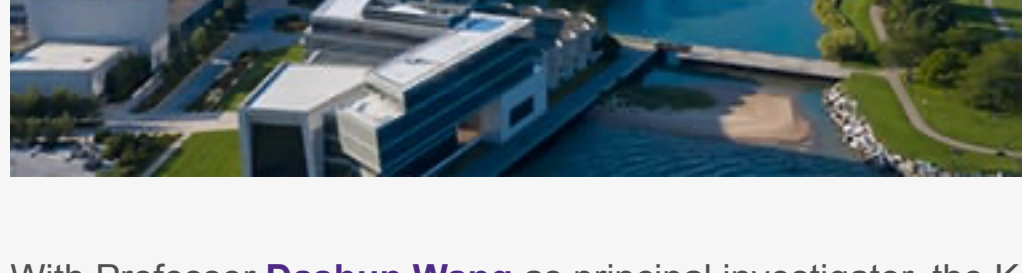
I encourage you to explore these stories in full and learn more about the remarkable ways our department is shaping the future of industrial engineering and management sciences. Thank you for your continued support, and I look forward to connecting with you throughout the academic year.

Warm regards,



Simge Küçükyavuz
David A. and Karen Richards Sachs Professor and Chair
Industrial Engineering and Management Sciences
McCormick School of Engineering

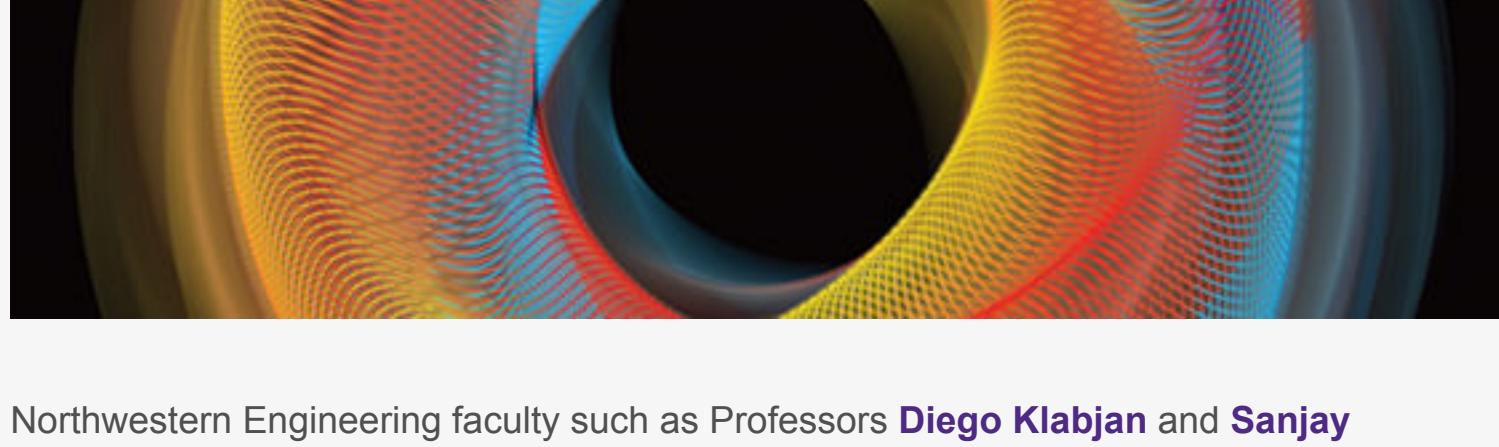
Faculty Awarded \$20 Million Grant from National Science Foundation



With Professor **Dashun Wang** as principal investigator, the Kellogg-McCormick research program will work on measuring, understanding, predicting, and accelerating technology innovations.

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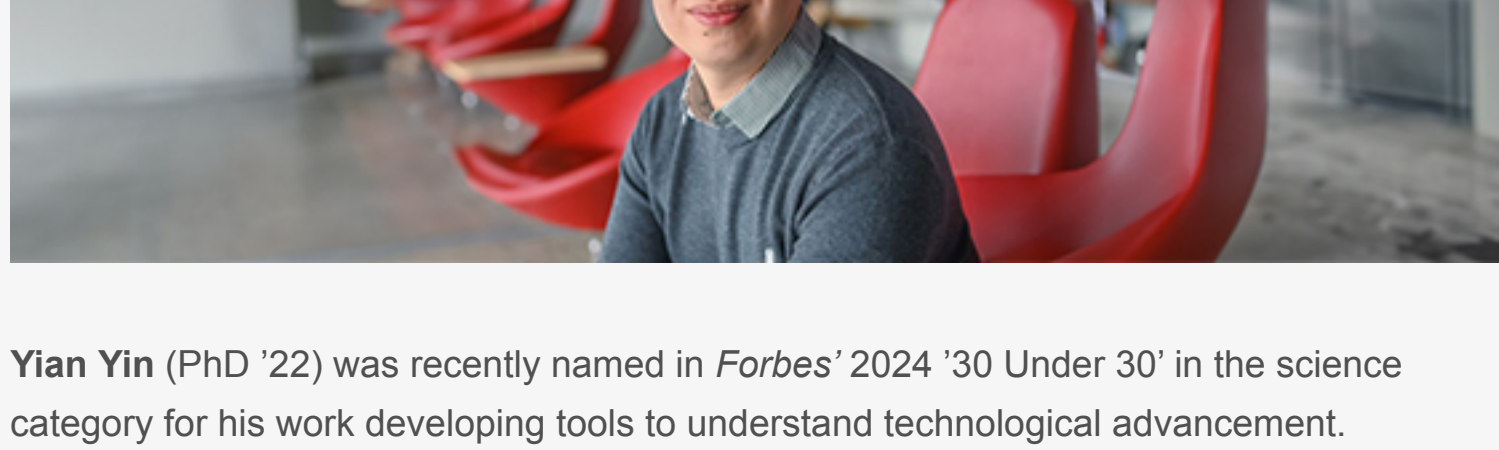
Activating the Potential of AI



Northwestern Engineering faculty such as Professors **Diego Klabjan** and **Sanjay Mehrotra** are at the forefront of artificial intelligence education and application. **VIDEO**

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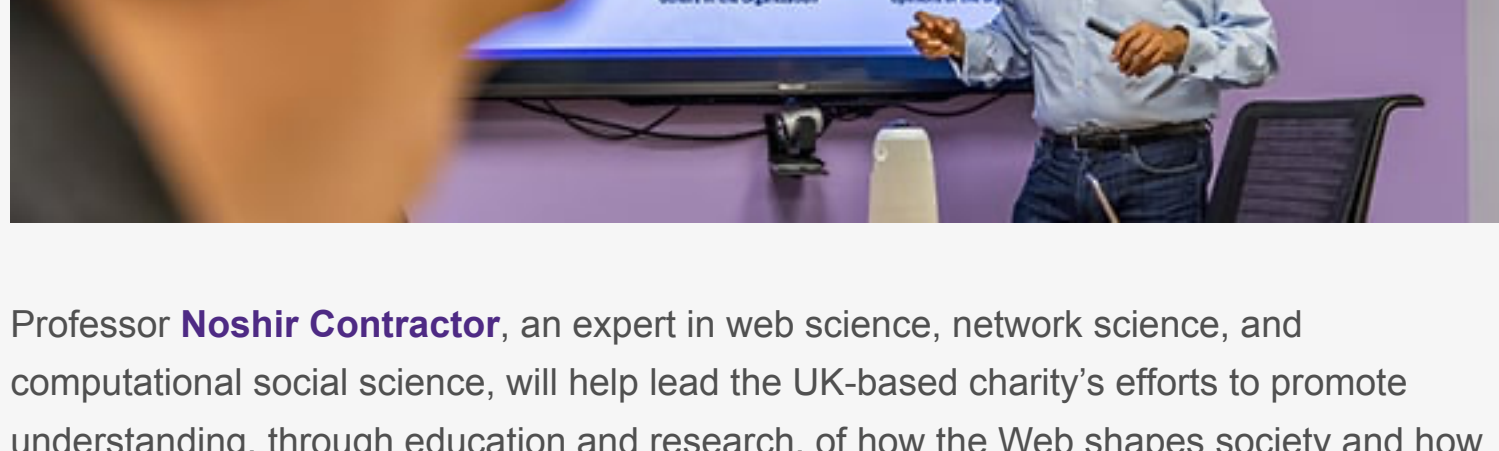
Yin Reflects on “Profoundly Influential” Time at Northwestern



Yian Yin (PhD '22) was recently named in *Forbes*' 2024 '30 Under 30' in the science category for his work developing tools to understand technological advancement.

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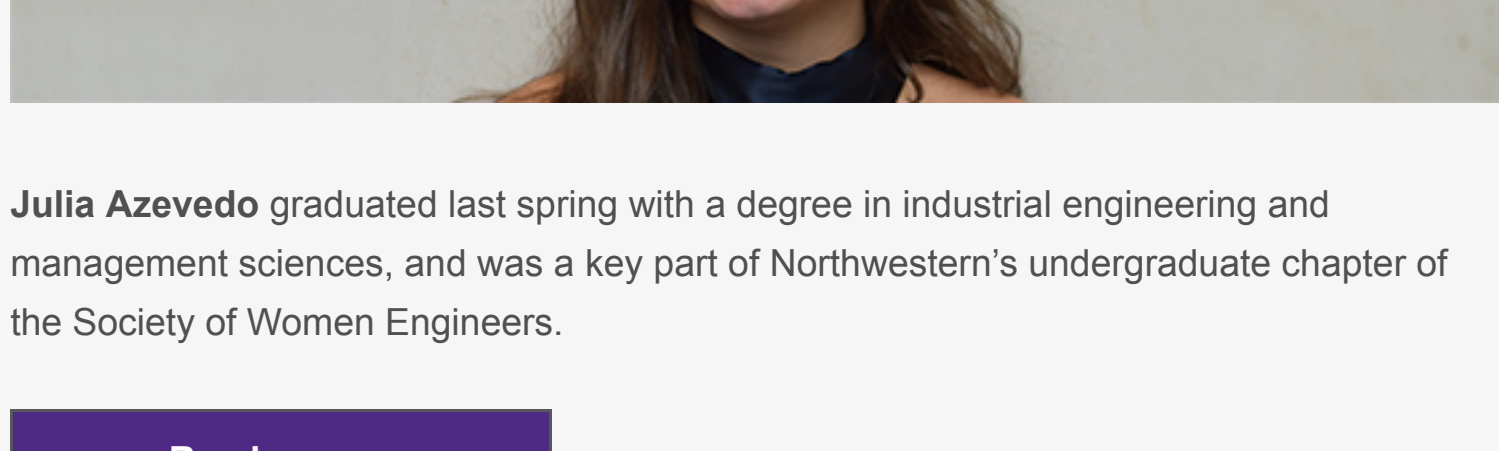
Contractor Named Executive Director of Web Science Trust



Professor **Noshir Contractor**, an expert in web science, network science, and computational social science, will help lead the UK-based charity's efforts to promote understanding, through education and research, of how the Web shapes society and how society, in turn, shapes the Web.

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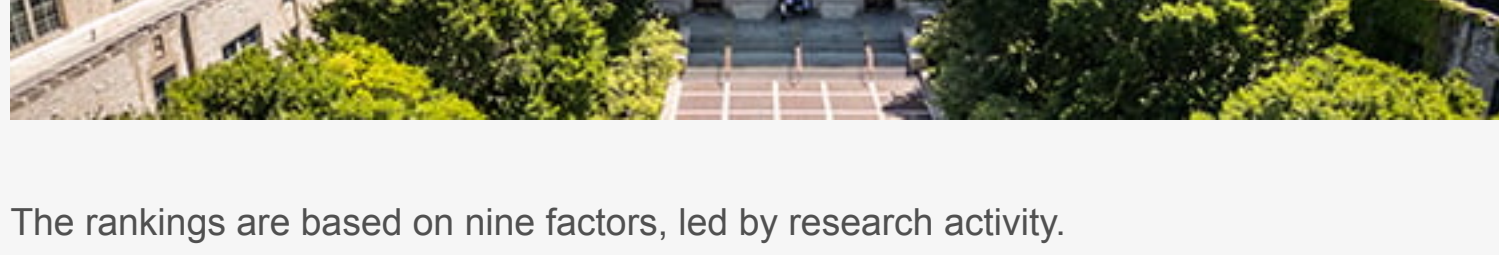
Grad Spotlight: How Azevedo and SWE Benefited From Each Other



Julia Azevedo graduated last spring with a degree in industrial engineering and management sciences, and was a key part of Northwestern's undergraduate chapter of the Society of Women Engineers.

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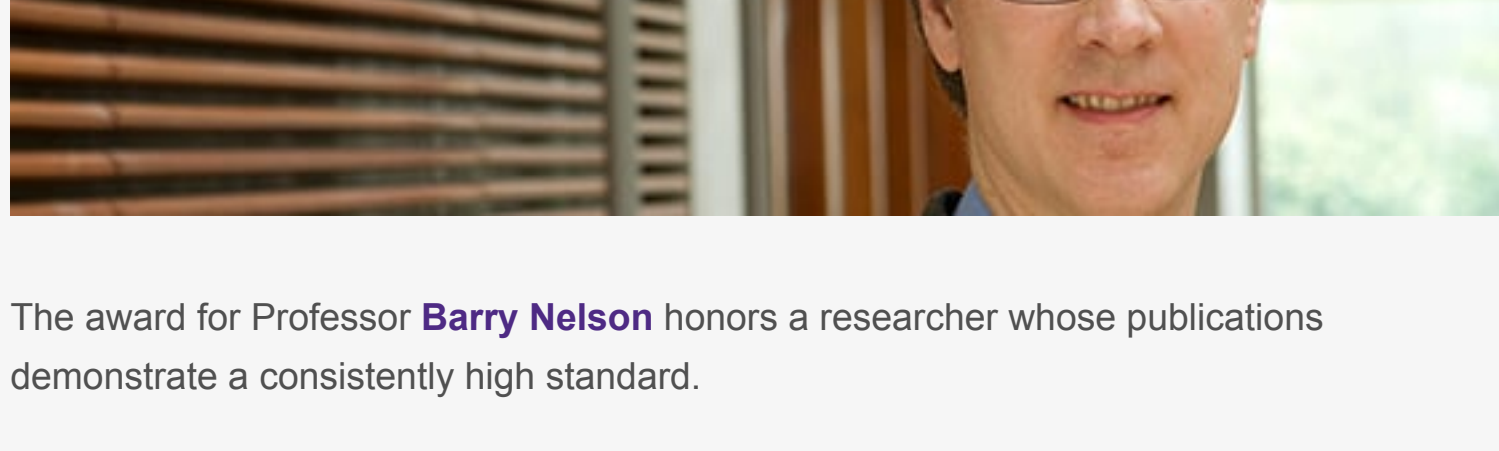
Northwestern IEMS Earns High Rankings from US News



The rankings are based on nine factors, led by research activity.

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Nelson Wins 2024 Saul Gass Expository Writing Award



The award for Professor **Barry Nelson** honors a researcher whose publications demonstrate a consistently high standard.

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FROM THE ASSISTANT CHAIR

Dear friends,

As industrial engineers, we are never content with the status quo; we always seek to optimize everything we do. The last academic year has offered us an opportunity to review several of our continuing programs to consider what is working well and what needs adjustment.

With the help of Jenna Kim ('24), Professor **Janice Mejia** conducted an assessment of our undergraduate curriculum. Their work combined quantitative data, generated through our department pretest requirement, with qualitative data obtained through interviews with undergraduate students and core course instructors. This work highlighted some advantages and drawbacks of our current assessment. More importantly, though, it highlighted methodological areas that should be strengthened to prepare our students well for modern careers. We will be looking into this more closely in the year to come.

We recently worked with Northwestern Engineering's Department of Computer Science to rebrand and expand our data science minor. Together we now offer the Minor in Machine Learning and Data Science, echoing the name of our professional master's degree. The new minor now offers a machine learning track that focuses more on statistics and computing methodology than on data pipeline development. Of course, students still have the option to pursue the original data engineering track.

Marita Labedz Poll, our senior academic adviser, continues to lead Mentoring Matters, our comprehensive mentoring program allowing students to benefit from alumni, peer, and faculty advice. This year, Marita is introducing coaching instruction for our peer mentors and offering them the opportunity to use those skills to coach classmates. Students will meet first with a trained peer mentor to identify their goals for mentoring and develop targeted questions in support of those goals. Students and peer mentors can then work together to identify the appropriate faculty and alumni mentor for addressing those questions through mentoring conversations.

Our curriculum will continue to improve as we leverage the energy and expertise of our new faculty. I look forward to seeing what comes next.



Jill Wilson
Assistant Chair of Industrial Engineering and
Management Sciences
McCormick School of Engineering



Christina Kosmowski, Zuo-Jun (Max) Shen Honored with IEMS Distinguished Alumni Award

Kosmowski (left, with Professor **William White**) and Shen (right, with Professor **Karen Smilowitz**) were recognized during an October 18 ceremony that included remarks from University President Michael Schill.

Awards, Honors, and News

Professor **Daniel Apley** received the IEMS Graduate Teaching Award.

Professor **Hani Mahmassani** was named a fellow of the Institute for Operations Research and the Management Sciences.

Professor **David Morton** gave a plenary titled "Markov Decision Processes and Multi-Stage Stochastic Programming: Modeling and Computation" at the 2024 International Symposium on Mathematical Programming in Montreal.

Professor **Jorge Nocedal** gave the John von Neumann Prize lecture titled "Exploring the Mysteries of Deep Neural Network Optimization" at the 2024 Society for Industrial and Applied Mathematics Annual Meeting in Spokane, Washington.

Shambhobi Bhattacharya, **Megan Chan**, and **Mark Noll** shared the IEMS PhD Student Leadership Award.

Two Client Project Challenge teams won the Thompson Prize:

- James Hardie team (**Marco Benavides**, **Philip Karpinski**, **Andre Plackis**, **Max Rothfeder**) for their project "Smart Fleet Decisions: Determining the Right Mix Between Dedicated and Commercial Trucks."
- NU Logistics team (**Alejandra Bustamante**, **Jessica Lanin**, **Tom Ratemo**, **Tyler Shannon**) for their project "Getting Your NU Deliveries: Helping Determine the Capacity NU Needs to Handle the Ever-Increasing Small Package Deliveries."

Cameron Curtis received the Arthur P. Hurter Award for Outstanding First-Year PhD student.

IEMS PhD alumni **Daniel Duque** (MS '17, PhD '20) and **Haoxiang Yang** (PhD '19) and adviser Professor David Morton's paper "Optimizing Diesel Fuel Supply Chain Operations to Mitigate Power Outages for Hurricane Relief" has been selected as Best Application Paper in the 2023 *Institute of Industrial and Systems Engineers Transactions* focus issue.

Then-undergraduate student **Jenna Kim** ('24) received the Arthur P. Hurter Award for Outstanding Industrial Engineering and Management Sciences Graduating Senior at the IEMS Senior Ceremony in June.

The 2024 Hurter Outstanding Teaching Assistant Award was shared this year by PhD students **Neelam Modi** and **Eugene Wickett**.

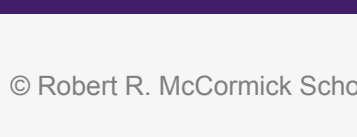
PhD candidate **Aysu Ozel** won the Women in OR/MS Colloquium Award at the 2024 INFORMS Annual Meeting.

Dima Drusvyatskiy, professor of mathematics at the University of Washington, joined IEMS as a visiting professor during the summer. He was hosted by the Center of Optimization and Statistical Learning.

Georgia Perakis, John C. Head III Dean (Interim) of the MIT Sloan School of Management, gave the 2024 Wasserstrom Lecture.

IEMS FACTS & FIGURES

7 Research areas from which students can choose	11 Federal agencies where faculty received grants	25 Collaborations with other Northwestern departments
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