# MAKING AI SAFETY A PRIORITY

**A collaboration between Northwestern Engineering and Underwriters Laboratories has spawned a new research hub that will focus on integrating safety into AI design.**


**Northwestern and Underwriters Laboratories (UL) Leadership**
*left to right* Northwestern Engineering Dean Julio M. Ottino; Milan Mrksich, Northwestern vice president for research; Terrence R. Brady, UL CEO, president, and trustee; Timothy J. Rivelli, UL senior vice president and chief legal officer; Samir Khuller, Peter and Adrienne Barris Chair of Computer Science; Kristian Hammond, CASMI director and Bill and Cathy Osborn Professor of Computer Science; Christopher J. Cramer, UL senior vice president and chief research officer

**From facial recognition to autonomous vehicles, the adoption of applications driven by artificial intelligence (AI) has exploded so quickly that it has outpaced efforts to understand how these machine-learning technologies affect human life.**

To help examine AI systems and evaluate their impact, Northwestern Engineering and Underwriters Laboratories Inc. have created a research hub that seeks to better incorporate safety and equity into the fast-growing technology.

The McCormick School of Engineering will host—and the two institutions will jointly lead—the research and operations of the new hub, the Center for Advancing Safety of Machine Intelligence (CASMI). The Digital Intelligence Safety Research Institute (DISRI) at Underwriters Laboratories will support the research collaboration, committing expertise and resources as well as $7 million to the research hub over the next three years.

## A DISTRIBUTED RESEARCH MODEL

The DISRI-CASMI partnership brings together and coordinates a wide-ranging research network focused on maximizing machine learning's benefits while recognizing and averting potential negative effects.

"Machine learning is among the most transformational forces in technology today, but we're only beginning as a society to genuinely understand and evaluate how it affects our lives," says Kristian Hammond, Bill and Cathy Osborn Professor of Computer Science at Northwestern Engineering and CASMI executive director. "Our partnership with Underwriters Laboratories will help us establish the clear understanding we need to develop these technologies safely and responsibly. Our goal is to go beyond platitudes and operationalize what it means for these technologies to be safe as they are used in the world."

The CASMI research hub extends a partnership that Northwestern Engineering and Underwriters Laboratories began in 2020 to map the extent of machine learning's current and potential impacts on human health and safety. Both organizations will build on that exploratory work as they refine a new framework to evaluate the impact of artificial intelligence and devise new ways to responsibly design and develop these technologies.

The "distributed research" model that CASMI will follow also calls for widely sharing ideas and research outcomes that address these issues. By developing connections and collaborations across multiple institutions and with researchers from different disciplines and backgrounds, the initiative will establish a research network capable of yielding results unlikely to be achieved by any one group in isolation.

## THE HUMAN IMPACT

"Artificial intelligence informed by machine learning is increasingly ubiquitous in our everyday lives," says Christopher J. Cramer, Underwriters Laboratories' chief research officer and acting DISRI executive director. "It's imperative we get it right. We must develop approaches and tests that will incorporate equity into machine learning and hold it to standards guided by both safety and ethical considerations. I'm terrifically excited about this partnership, which will foster research aimed at integrating safety into machine-learning and artificial-intelligence design, development, and testing processes."

By the end of its first year, the collaboration aims to have funded and started sharing the results from an initial set of mission-driven research projects. The partnership will continue to expand its research initiatives during the hub's second and third years, while also exploring opportunities to connect the research network with industry partners.

"Underwriters Laboratories has been a longtime leader in advancing the safety of technologies that impact our everyday lives," says Julio M. Ottino, dean of Northwestern Engineering. "We are delighted to partner with them to advance the safe and ethical use of machine learning and artificial intelligence as these technologies continue to impact our society."

Photography by Jason Brown