



NYU

TANDON SCHOOL
OF ENGINEERING

PRESS OFFICE • 1 MetroTech Center, 19th Floor, Brooklyn, NY 11201

CONTACT • Karl Greenberg
646.997.3802 / mobile 646.519.1996
Karl.Greenberg@nyu.edu

Note: Images available at: <https://nyutandon.photoshelter.com/galleries/C0000d38y2d7dzak/G00003uqe7LuXLjM/Anna-Choromanska>

Immediate Release

NYU Tandon professor creating efficient deep learning models wins NSF award for promising young researchers

BROOKLYN, New York, Monday, March 15, 2021 – The National Science Foundation (NSF) selected an [NYU Tandon School of Engineering](#) professor who is developing new approaches to training deep learning (DL) artificial intelligence frameworks, to receive its most prestigious award for promising young academics.

[Anna Choromanska](#), an assistant professor in the Department of Electrical and Computer Engineering (ECE), received a 2021 NSF Faculty Early Career Development Award, more widely known as a CAREER Award, which supports early-career faculty who have the potential to serve as academic role models in research and education.

A five-year, \$532,892 [grant](#) will support a project that focuses on new, more efficient ways of training DL models, a process that typically consumes resources, time, and money, compromising the progress of public and private sectors that rely on DL, and limiting its deployment in new applications. Deep learning technology is used increasingly in physics, medicine, and chemistry, and for applications like image, speech, and video recognition; image segmentation; and natural language processing.

Choromanska's project aims to overcome this limitation by describing universal properties of DL systems that hold across a variety of DL models and data sets, thus making possible a new generation of DL training strategies that are efficient, accurate, and scalable. Additionally, the grant will fund graduate and undergraduate curriculum development, and summer research opportunities for high-school students via the NYU Applied Research Innovations in Science and Engineering program.

It will also support the continuation of the successful NYU Tandon ECE [Modern Artificial Intelligence](#) seminar series, which Choromanska launched in 2017. The series, which has included presentations by

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Nobel Prize winner Eric Kandel and Turing Prize winners Yann LeCun and Yashua Bengio, as well as such luminaries as Raia Hadsell of DeepMind, Jan Kautz of NVIDIA, and Anima Anandkumar of Caltech, is streamed worldwide to universities, high schools, and industry.

Choromanska said the research project will be essential for developing landscape-aware DL optimizers “that can be organized in ways that make them compatible with the architecture of the computer clusters that are typically used to train large-scale DL networks on massive data,” she said. “These new ‘parallel’ optimizers will be capable of processing extremely large data batches without consuming massive computational resources.”

“Anna Choromanska's work has profound implications for both research and society,” said NYU Tandon Dean Jelena Kovačević. “Artificial intelligence is well on its way to perfusing virtually every industrial process and business practice, but also so many activities, interfaces and consumer touchpoints of our daily lives. I am pleased that the NSF has chosen her to receive this much-deserved CAREER Award, signifying the impact of her work, even at this early stage. It’s especially gratifying to see her join the over 50% of our engineering junior faculty members who hold CAREER Awards or similar young-investigator honors.”

This award reflects the NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

About the New York University Tandon School of Engineering

The NYU Tandon School of Engineering dates to 1854, the founding date for both the New York University School of Civil Engineering and Architecture and the Brooklyn Collegiate and Polytechnic Institute. A January 2014 merger created a comprehensive school of education and research in engineering and applied sciences as part of a global university, with close connections to engineering programs at NYU Abu Dhabi and NYU Shanghai. NYU Tandon is rooted in a vibrant tradition of entrepreneurship, intellectual curiosity, and innovative solutions to humanity’s most pressing global challenges. Research at Tandon focuses on vital intersections between communications/IT, cybersecurity, and data science/AI/robotics systems and tools and critical areas of society that they influence, including emerging media, health, sustainability, and urban living. We believe diversity is integral to excellence, and are creating a vibrant, inclusive, and equitable environment for all of our students, faculty and staff. For more information, visit engineering.nyu.edu.

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