


NJIT ADVANCES RESEARCH, COMMERCE AND SECURITY THROUGH GLOBAL PARTNERSHIPS



New Jersey Institute of Technology (NJIT)

has reached out to giants in the field of cryptography nearly 7,000 miles away to advance blockchain, an evolving digital security technology designed to enable enterprises both large and small to expand transactions across borders, supply chains and diverse stakeholder groups.



NJIT President Joel S. Bloom met with researchers at JD.com, China's largest retailer, to sign a partnership that will advance blockchain.

In a recently announced partnership, NJIT's Ying Wu College of Computing has joined forces with JD.com, China's largest retailer, and the Institute of Software at the Chinese Academy of Sciences (ISCAS) to pursue fundamental improvements in consensus protocols, privacy protections and security for the sort of decentralized operations blockchain was designed to facilitate.

"Working with international partners advances our mission to solve problems that affect people, businesses and infrastructure, both at home and across the globe," said NJIT President Joel Bloom, who completed a multileg trip to China, where he delivered a keynote address on future paths for applied research at the China Annual Conference for International Educational-Applied Science in Beijing.

"Our alliance with JD.com and ISCAS is a case in point — we expect it will accelerate our own fundamental research into this still-emerging technology so critical for privacy and security protections, while leading to a host of applications that will allow diverse businesses in many sectors to confidently

expand," Bloom added. Promising applications in the near-term, he noted, include supply-chain finance, logistics and international trade.

Blockchain technology, the major technical innovation behind Bitcoin, allows multiple partners engaged in enterprises over the internet to jointly maintain time-stamped, tamper-resistant digital ledgers. The technology is not yet mature enough to support large-scale operations, and its speedy evolution in that direction will be the focus of a joint lab led by Jian Pei, president of JD Big Data and Smart Supply Chain; NJIT's Qiang Tang, an assistant professor of computer science; and Zhenfeng Zhang, vice chief engineer at ISCAS.

"JD's enormous ecosystem will provide us many real-world problems that motivate better questions regarding blockchain research as we look to test and deploy this technology in large and complex industrial applications," Tang noted.

GLOBALIZING RESEARCH

Partnerships in China, which include a research center sparked by alumnus Jingong Pan, Ph.D. '08, between NJIT and the China National Building Materials

Company, one of the largest gypsum, cement and fiber glass producers in the world, as well as talks around scholarly exchanges with as many as five universities across the country, are just some of NJIT's recent initiatives designed to globalize its research, while the university remains firmly rooted in the state it serves.

In coordination with New Jersey Gov. Phil Murphy's economic development team, NJIT signed an agreement with the Digital Hub Cybersecurity center run by the Fraunhofer-Institute fur Sichere Informationstechnologie in Germany to embark on joint research projects and a variety of scholarly exchanges.

"Our new relationship with the Fraunhofer Institute enables opportunities for NJIT cybersecurity researchers to engage with German researchers who have a unique understanding and insights into industrial cybersecurity, thus allowing NJIT to improve its global reach," commented Kurt Rohloff, co-director of NJIT's Cybersecurity Research Center. "This relationship also will make it easier for German entrepreneurial researchers to make extended visits to NJIT and engage in technology transition to the U.S. market in partnership with our faculty."



LEFT: Brendan Dente '18 (at far right) with other Fulbright recipients at the U.S. Ambassador's residence in The Hague, Netherlands.

Over the past few years, NJIT has signed agreements with more than 30 universities around the world, from Israel, to Ireland, to Italy, in order to support student and faculty exchanges and joint research. These relationships are explicit priorities in *2020 Vision*, NJIT's strategic plan, which calls for "international collaborative research and exchange programs ... to promote innovative scholarship, global leadership and visibility."

"Diversity — of backgrounds, ideas, problem-solving abilities — is essential for higher education," Bloom noted. "There is still another form of diversity that also is critical, while it gets less attention, and that is the differing and sometimes unique ways that societies apply the same technology. I think it's important that our students and faculty experience this on the ground."

Insights from industrial powerhouses such as Germany and experts at apprenticeship programs in countries such as Ireland are helping to guide aspects of NJIT's new School of Applied Engineering and Technology, which was launched this fall. A growing number of NJIT students are pursuing international study, as well. For many, these stints are a first trip out of the country.

Recent graduate Brendan Dente '18, a chemical engineer, currently is earning a master's degree at one of Europe's major STEM hubs, the Technological University of Delft in the Netherlands, on a two-year Fulbright scholarship.

"Process control and molecular design are areas that excite me because of the possibilities to advance product efficacy, sustainability and performance. If products can be made more useful to consumers or more beneficial for the environment, then the windfall would go beyond profits for the company," he said. "They would start to have a physical impact on the people who use them and the environment around them."

In his Fulbright proposal, Dente also described the role of foreign travel in

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- NJIT President Joel S. Bloom

expanding possibilities — and people themselves. He said he wanted to take himself further out of his comfort zone by studying in a country whose first language is not English.

INTERNATIONALLY-BASED ALUMNI

Through graduate programs that attract foreign students, the number of internationally-based NJIT alumni also is booming. There are, for example, more than 1,000 NJIT graduates living in China, according to Kenneth Alexo, Jr., vice president for development and alumni relations, who met with more than 25 alumni in Beijing alone on a recent trip to

China with Bloom.

“They are proud of the university and keen to hear in person about its upward trajectory,” he noted.

GLOBAL RANKINGS

As NJIT’s presence abroad grows, so do its international rankings. NJIT was one of three New Jersey universities named to *U.S. News & World Report’s* 2018 Best Global Universities list, joining Princeton and Rutgers. On *The New York Times* Higher Education list, NJIT’s computer science program ranked in the top 250 universities worldwide.

“We continue to improve our performance in an increasingly competitive environment,

and we’re pleased to be recognized by prestigious global rankings for our research impact,” noted NJIT Provost Fadi Deek.

Bloom added, “As we tackle critical issues in sustainability, digital security and health care, we will continue to seize opportunities to work with partners around the globe — from Europe, to the Middle East, to Asia — who help us expand the power and scope of applied science and engineering.” ■

Author: Tracey L. Regan is an NJIT Magazine contributing writer.

BELOW: Blockchain technology is a focus of Assistant Professor of Computer Science Qiang Tang’s research.



PHOTO: OSCAR MASCANDARO