

**NYU****TANDON SCHOOL
OF ENGINEERING**

FROM A STRONG *Past* COMES A GLORIOUS *Future*

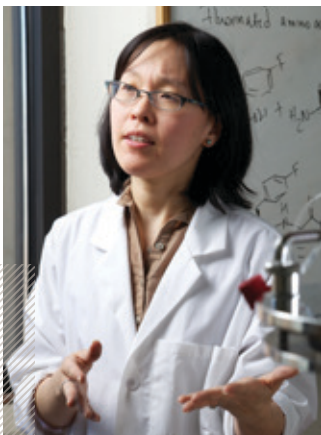
Founded in 1854 as the Brooklyn Collegiate and Polytechnic Institute — and often affectionately known as Brooklyn Poly — our school was, quite literally, the birthplace of the American Dream; it was our alum James Truslow Adams who coined that phrase in 1931. Then, as now, the dreams of our engineers and technologists revolve, in most cases, around making the planet a better place.

Thanks to a visionary and generous gift made in 2015, our school now bears a new name, Tandon, and a strengthened commitment to placing technology in service to society. Whether they are combatting pollution, developing new medical treatments, or making sure digital data remains private, Tandon researchers are ensuring that the world becomes cleaner, safer, better connected, and more sustainable.

We present in these pages a few highlights of our first year as the NYU Tandon School of Engineering.

SUCCESSFUL Faculty

Jin Montclare
Rising Star in STEM
(American Chemical Society)



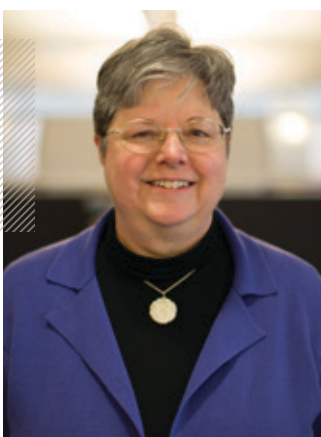
Siddharth Garg
"Brilliant Ten", Popular Science



Elza Erkip
Officer, IEEE Information Theory Society



Mary Cowman
President, International Society for Hyaluronan Sciences



At Tandon, we consistently recognize and honor outstanding members of our community. It's doubly gratifying when the outside world does so as well. While it would take several pages to list every accolade garnered by our faculty, even a representative sampling over just this one year is impressive. The faculty members shown here have been deemed among the brightest, most influential, and accomplished in the nation, and many of their Tandon colleagues have won similar laurels.

Tandon boasts multiple winners of the National Science Foundation Faculty Early Career Development (CAREER) Award (Porifi, Nov, Hartman, Lattanzi, Garg), given to those who exemplify the role of teacher-scholars through outstanding research and excellent education; the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (Ergan), given to rising research stars whose work has the potential to further national interests; the Baxter Young Investigator Award (W. Chen) for medical innovation; the Freudenstein / General Motors Young Investigator Award (J. Kim); and many more. Our faculty members are regularly included on Popular Science's "Brilliant 10" list (Porifi, Cappos, Garg), and many have taken on leadership roles in such groups as IEEE and the American Chemical Society. Many others have won multiple research awards from multiple sources (Memon, Silva, Wang, and more).

The accomplishments of all of our professors is a source of great pride for the Tandon community and a testament to their dedication to scholarship, service, and research.

Ted Rappaport
IEEE Edwin Howard Armstrong Award



Fletcher H. Griffis
Lifetime Achievement Award from the Society of American Military Engineers



Additional Honors Include:

Brendan Dolan-Gavitt
R&D Magazine 100 Awards

David Goodman
IEEE Communications Society 2015 Award for Advances in Communication

Ivan Selesnick
IEEE Fellow

Joseph Chow
Vice Chair of Urban Transportation SIG at INFORMS TSL Society

Katepalli Sreenivasan
Corporate Social Responsibility Award, New York City

Kurt Becker
Board of Directors of National Academy of Inventors; Chair of the Scientific Advisory Board of the German Center for Research and Innovation in New York.

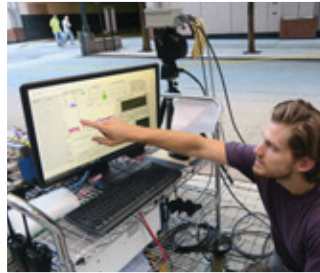
Ryan Hartman
ACS Catalysis and Reaction Engineering Programming Chair

Sundeep Rangan
IEEE Fellow

RECOGNIZED Research

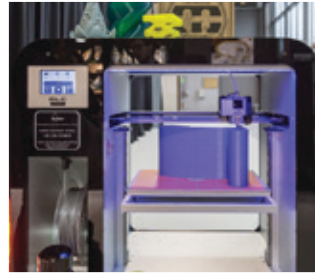
As our professors and students make research breakthroughs, win awards, and launch initiatives, each day seems to bring more exciting news to Tandon. Highlights of our banner year include:

Supported by the recommendations of Professor Ted Rappaport and drawing upon research done at our multidisciplinary center NYU WIRELESS, the FCC voted affirmatively on the historic Spectrum Frontier Proceeding (SFP), aimed at freeing up unprecedented amounts of bandwidth for the fifth generation (5G) of wireless communication.

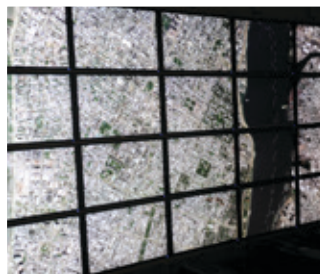


Cementing NYU Tandon's reputation as a world leader in the vital field of hardware security, researchers recently uncovered

grave risks in the fast-growing business of additive manufacturing, more commonly known as 3D printing, and proposed recommendations for remedying the problem.

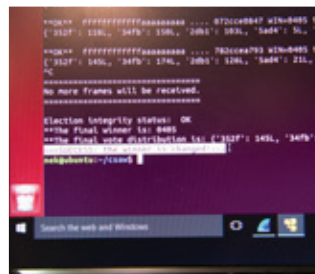


Professor of Computer Science and Engineering Claudio Silva garnered multiple National Science Foundation grants to further his research on cyber-physical systems to address urban noise, the visualization of earth and space data, optimizing virtual environments, and more.



CSAW, already the world's largest student-run cyber security event, recently expanded to NYU Abu Dhabi and the Indian Institute of Technology, Kanpur, enabling finalists from India, the

Middle East, North Africa, and the United States to compete simultaneously.



TERRIFIC NEW Faculty

Dean Katepalli Sreenivasan has long maintained that institutions are much more than bricks and mortar and that the people and ideas matter most. This year Tandon welcomed a diverse group of stellar faculty members who bring with them expertise and ideas in a wide variety of fields.

Rakesh Kumar Behera
Industry Assistant Professor
Department of Mechanical and
Aerospace Engineering

Alauddin Bhuiyan
Visiting Industry Assistant
Professor, Department of
Computer Science and
Engineering

Peter Carr
Department Chair
Department of Finance and
Risk Engineering

Anna Choromanska
Assistant Professor
Department of Electrical and
Computer Engineering

Michael Driscoll
Lecturer
Department of Technology
Management and Innovation

Yury Dvorkin
Assistant Professor
Department of Electrical and
Computer Engineering

Miguel Modestino
Assistant Professor
Department of Chemical and
Biomolecular Engineering

Pavlos Mourdoukoutas
Academic Program Director
and Industry Professor
Department of Technology
Management and Innovation

Seung-Hyun "Luke" Rhee
Assistant Professor
Department of Technology
Management and Innovation

Julia Robinson-Surry
Industry Assistant Professor
Department of Chemical and
Biomolecular Engineering

Tony Rothman
Lecturer
Department of Applied Physics

Ayaskanta Sahu
Assistant Professor
Department of Chemical and
Biomolecular Engineering

Gustavo Sandoval
Industry Professor
Department of Computer
Science and Engineering

Kate Sicchio
Visiting Assistant Professor
Department of Technology,
Culture, and Society

Andrea Silverman
Assistant Professor
Department of Civil and Urban
Engineering

Angelo Tafuni
Visiting Professor
Department of Mechanical and
Aerospace Engineering

Xin (Matt) Wang
Lecturer
Department of Chemical and
Biomolecular Engineering

Katherine Bennett
Visiting Assistant Professor
Department of Technology,
Culture, and Society

Joseph Chow
Assistant Professor
Department of Civil and Urban
Engineering

Brendan Dolan-Gavitt
Assistant Professor
Department of Computer
Science and Engineering

Guido Gerig
Department Chair
Department of Computer
Science and Engineering

Ari Ginsberg
Academic Program Director
Department of Technology
Management and Innovation

Ryan Hartman
Professor
Department of Chemical and
Biomolecular Engineering

Damon McCoy
Assistant Professor
Department of Computer
Science and Engineering

Andrew Papanicolaou
Assistant Professor
Department of Finance and
Risk Engineering

Itay Tal
Industry Assistant Professor
Department of Computer
Science and Engineering

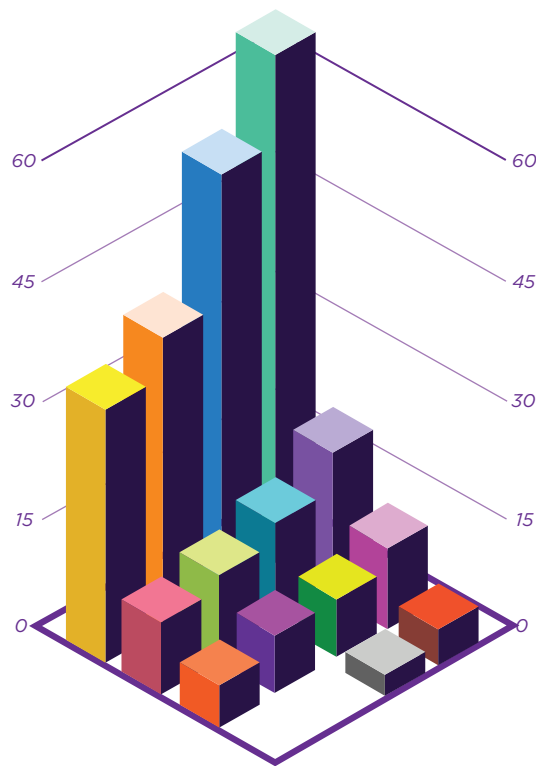
STRONG Connections

Collaborations Across NYU

At Tandon, we know that the best solutions to real-world problems come about when engineers join forces with those in other fields, and we regularly partner with fellow researchers from schools across the university on important, long-range projects.

Among our exciting collaborative efforts are:

- The establishment of the NYU Center for Cybersecurity (CCS), in collaboration with the NYU School of Law, an interdisciplinary research institute dedicated to training the current and future generations of cybersecurity professionals and to shaping the public discourse and policy, legal, and technological landscape on issues of cybersecurity.
- The launching of numerous initiatives with the School of Medicine, including research into the vast possibilities of lab-on-a-chip technology, the visualization of disease biomarkers, mechano-biological cues, musculoskeletal systems and medical imaging, and more.
- In collaboration with NYU Steinhardt and several other schools, we are offering a new cross-school minor in Disability Studies, allowing our students to place technology in service to society by designing new assistive technology and incorporating accessibility into products and services.



This diagram represents the total number of collaborations Tandon has with other Schools of NYU. This number includes all collaboration types: research centers, grants, publications, papers, patents, education initiatives, and events.

Key

In descending order of total collaborations

■	School of Medicine (Langone)	■	School of Law
■	Abu Dhabi	■	CUSP
■	Faculty of Arts and Science	■	Stern
■	Steinhardt	■	School of Nursing
■	Wagner	■	School of Dentistry
■	Tisch	■	Shanghai
■	GIPH	■	Leslie eLab

Corporate Collaborations

From NYU WIRELESS to CSAW to the Center for K-12 STEM Education, NYU Tandon initiatives enjoy strong corporate connections and support from such companies as:

- | | | | |
|--------------------|-------------------------------|------------------------|---------------------------------|
| • A&E Networks | • Citibank | • MLB Advanced Media | • Singtel |
| • Amazon | • ConEd | • National Grid | • Straightpath |
| • Associated Press | • Ericsson | • National Instruments | • Symantec |
| • AT&T | • ESPN | • NBC Universal | • Tenfore Holdings |
| • Audible | • Google | • News Corp. | • United Microelectronics Corp. |
| • BAE | • Hearst Corp. | • Nokia | • Verizon |
| • Bloomberg LP | • Huawei | • Northrup Grumman | • Viacom |
| • Boeing | • IBM | • Panasonic | • Vonage |
| • CableLabs | • Intel | • Publics Groupe | • Wells Fargo |
| • CableVision | • Interdigital Communications | • Qualcomm | • Xerox |
| • Charter Spectrum | • Keysight | • Reuters | • XO Communications (NextLink) |
| • Chase Manhattan | • L-3 Communications | • Rogers Communication | |
| • Cisco | • Microsoft | • Silicon Image | |

FRONTIER Research Labs

Walk down any hallway at Tandon, and the atmosphere of intellectual curiosity, academic focus, and goal-oriented drive is evident — nowhere more so than at some of our newest and most exciting labs and facilities. Among these are:



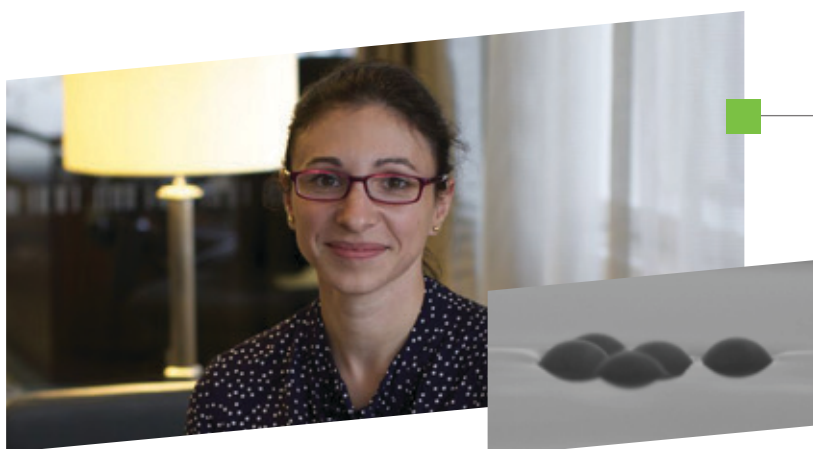
The gleaming bi-level, 10,000-square-foot **MakerSpace**, which is home to dozens of cutting-edge tools that will enable students from across the university to go from product idea to working prototype, including 3D printers, laser cutters, vacuum formers, soldering stations, a micro-computed tomography unit that can non-destructively image the internal structure of objects on an exceptionally fine scale, a plastic injection machine for mass manufacturing, an electro-dynamic shaker that tests a product or model under varying conditions, and more.



The Governance Lab, whose mission is to harness the increased availability and use of data; leverage the capacity, intelligence, and expertise of people in the problem-solving process; and deploy new advances in technology and science in order to transform institutions and address pressing public issues.



The **Flow Chemistry with Microsystems Laboratory**, overseen by Assistant Professor of Chemical and Biomolecular Engineering and NSF CAREER Award laureate Ryan Hartman, whose research employs continuous-flow micro-reactors, which streamline the chemical reaction and purification process and allow for the development of theoretical models that present enormous value in the pharmaceutical industry, energy sector, and elsewhere.



The Particles, Interface & Fluids (PIF) Lab, overseen by Assistant Professor of Mechanical and Aerospace Engineering Emilie Dressaire, whose aim is to understand and control systems in which particles, interfaces and fluids exhibit complex behaviors due to simple physical interactions between constituents – research with great practical application in the areas of water filtration, personal-care products, and hemodynamics.

RICH Entrepreneurial Landscape

As the innovation economy becomes increasingly important throughout the nation and around the world, Tandon and its thriving system of Technology Acceleration and Commercialization Hubs are helping to make Brooklyn an epicenter of entrepreneurship and enterprise.

Since the system's inception, startups have created more than 1,250 jobs, raised more than \$145 million in capital, and had a local economic impact of over \$352 million.

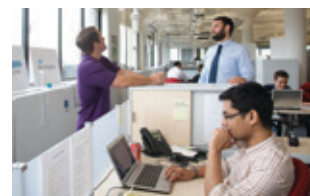
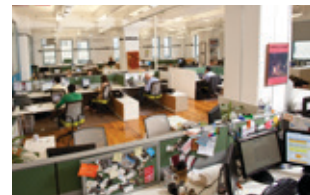
The Tandon Future Labs boast a survival rate of nearly 90 percent for the companies that graduate from its program – a sharp contrast to the typical failure rate of 80 to 90 percent for startup companies in general.

Collectively named one of the Top 10 Idea Labs in the U.S. by Worth magazine, the School of Engineering Future Labs are comprised of

- **The Data Future Lab**, which was launched in 2009 in partnership with the New York City Economic Development Corporation (NYCEDC). It was the first New York City-sponsored incubator and remains at the forefront of the city's rapidly growing technology and entrepreneurial ecosystem. Ideally situated to revitalize and diversify New York's economy, the Lab combines the creative ingenuity of dynamic entrepreneurs and the technical expertise of our school.
- The Data Future Lab has also launched a **pilot program specifically for our nation's military veterans**, supporting them with access to mentors and industry leaders, community events and other entrepreneurship-specific services, such as legal, technical, and design work. The new program recognizes that veterans are natural entrepreneurs, given their extensive experience in adapting, improvising, and overcoming adversity in a diverse range of settings, and that engaging in start-up activity in civilian life allows them to continue serving their country through innovation, entrepreneurship, and growing the economy.
- **The Urban Future Lab** is New York City's hub for smart cities, smart grid, and clean energy. The space hosts several programs focused on educational, policy and market solutions to the issues of sustainability, including ACRE, which supports early stage business ventures with innovative technologies and new business models for a greener, smarter and more connected world. In addition, UFL is home to PowerBridgeNY, a proof-of-concept center, and Clean Start, a clean-tech training program.
- **The Digital Future Lab**, located one block from Brooklyn Bridge Park, launched in partnership with the New York City

Economic Development Corporation and Two Trees Management in 2012. The DUMBO neighborhood is home to many prominent media technology and digital companies, and as a result, the Digital Future Lab spurs exciting startup activity in the area with a wide array of hardware and digital media tenants.

- **The AI NexusLab**, a partnership between the school and ff Venture Capital (ffVC) that merges ffVC's expertise in helping to build early-stage technology companies with lessons taken from the highly successful Tandon network of Future Labs. New York City's first program to launch and support artificial intelligence (AI) startups, it also marks the first time in the United States that a university and venture fund have cooperated to create an accelerator-type program in the burgeoning field of AI.



In addition to other benefits, companies in the incubator system gain access to NYU Tandon School of Engineering's Faculty Engineers in Residence, faculty members who bridge the gap between academia and entrepreneurship. The F-EIRs work with incubator companies to provide expertise to founders and their teams. In turn, F-EIRs are also encouraged and supported to commercialize their own inventions and intellectual property, placing their work in direct service to the public. In return, the startups provide fellowship opportunities that allow students hands-on entrepreneurial experience.

ACCULIS

Founded by four Tandon undergrad; won **2nd place** in this year's **InnoVention Competition**. They use **augmented reality and computer vision software** to make construction practices more efficient. Construction firms across the city have expressed interest.

Greenhouse
Collaborators

InnoVention Competition



Concrete Canoe
Competitors

Hyperloop Team



EXPANDING Student Opportunities

A rich history of socioeconomic diversity—demonstrated by 50% of students being Pell eligible, partnered with 40% of the student body made up of those who are first in their families to attend college—is now being buttressed by the largest one-year increase in female students. Diversity is not only a benefit to the students who are provided the opportunity to attend a top 20 graduating salary school that will set them on a path to the middle class and beyond. It is also a boon to everyone at Tandon. We are better for the various paths that our students walk prior to enrolling.

Class of 2020

- 37% female
- 68% increase in African American students
- 38% increase in Hispanic students
- 42% increase in students traditionally underrepresented in STEM

Student Body

Pell eligibility: 50%
First in family to attend college: 40%

BROOKLYN

Born a stone's throw away from the Brooklyn Bridge, whose cables were engineered by an alum, Tandon sits in the heart of the Brooklyn Tech Triangle and its rise as a hub of technological innovation fittingly matches the meteoric rise of Brooklyn as the borough with the fastest-growing sector of the New York State economy, the innovation sector.

Tandon is more than a place for students and faculty to come to school and undertake cutting-edge research. From its pioneering K12 STEM Center to its Future Labs employing the next great start-ups, to its strong partnerships with local community organizations, Tandon is working to expand the Tech Triangle into an Innovation Coastline.

