



(From left): Edward J. Bischof, Sr., senior vice president for finance and chief financial officer; Fadi P. Deek '85, '86, '97, provost and senior executive vice president, NJIT; Craig Gotsman, dean of Ying Wu College of Computing, NJIT; Joel S. Bloom, president, NJIT; Jordan Hu '89, founder/chief executive officer, RiskVal Financial Solutions, LLC and member of the NJIT Board of Trustees; and Andrew P. Christ P.E. '94, '01, senior vice president for real estate development and capital operations, NJIT.

NJIT@JERSEY CITY OFFICIALLY LAUNCHED WITH EXPECTATION OF RAPID GROWTH

NJIT welcomed 35 data science students to its newly opened NJIT@JerseyCity location in the fall semester, with a goal of doubling that number in the spring and reaching 500 students in three years, Ying Wu College of Computing Dean Craig Gotsman said at the ribbon-cutting ceremony held December 5 at the new location.

Gotsman said the current students are primarily working professionals in the finance and tech industries from companies located in Jersey City and New York City. Hudson County quickly became a technology hub following the Sept. 11 attacks and was bolstered again after

Hurricane Sandy.

Currently NJIT@JerseyCity offers a master's degree in data science as well as graduate certificates in big data and data mining, with plans to add a graduate certificate in data visualization in spring 2020. Non-credit data science accelerator programs also are expected to be offered in the spring. All current students are studying part time, but Gotsman envisions the location will soon have options for full-time students.

Future plans also include graduate programs in cybersecurity.

NJIT@JerseyCity is located at 101 Hudson Street, just steps from the

Exchange Place PATH station. Gotsman said 80,000 commuters use the PATH daily, so there is plenty of potential for growth.

"I can almost promise that this site will bloom, it will flourish and it will grow exponentially," he said. "We're absolutely at the right place at the right time."

"You can't talk about computer science today and not realize how rapidly it is moving," President Joel S. Bloom added. "Campuses are going to continue to change and decentralize."

Board of Trustees member Jordan Hu '89 said the rapid changes echo what he witnessed as a computing professional working on Wall Street in the 1990s. At that time, merely knowing how to spell Unix would guarantee you a job, he joked, but today the key skill is understanding data science. Hu is the Founder and CEO of RiskVal Financial Solutions, LLC in New York City.

For more information on all NJIT@JerseyCity programs, please visit jerseycity.njit.edu. ■

NJIT-STRYKER ALUMNI CLUB HELPS HIGH SCHOOLS KICK OFF NEW SEASON OF FIRST ROBOTICS

The NJIT-Stryker Alumni Club helped local high schools kick off the new season of First Robotics on Jan. 4, 2020. First Robotics is a national organization that creates the requirements for robotic designs by high school teams that build a robot and compete against other regional high schools in a

challenge competition event. Stryker, a Fortune 500 medical devices and orthopaedic implants firm located in Mahwah, N.J., is now a Mid-Atlantic First Robotics regional sponsor. Stryker is funding and mentoring two New Jersey high school teams: International High



NJIT Opens State-of-the-Art Nanoelectronics Fabrication Facility

It was with great fanfare that NJIT opened its newest research facility, the Microfabrication Innovation Center (MIC), where technologists will be able to create their own nano- and microelectronic sensors and microfluidic devices on campus.

"Faculty and students will be able to test, validate and translate innovative medical device and biosensor technologies to improve diagnosis and treatment of critical diseases and advance detection and remediation of pollutants," Atam Dhawan, senior vice provost for research, said at the ribbon-cutting in December.

In a tour of the facility, housed in the former Microelectronics Research Center, visitors walked through the series of rooms where researchers will print their designs on silicon or plates of glass, fabricate and test them. Because the parts they are making are micro- and nanoscale, the rooms will be free of potentially contaminating particles larger than a

micron. The highest-level cleanroom will be limited to 100 1-micron particles in a cubic meter of air.

Other devices that will take shape in the facility include powerful diagnostic sensor systems, including electrochemical DNA sensors, that are miniaturized down to the size of a single molecule and a device that uses on-chip electrochemical mass spectrometry to elucidate protein structures and determine protein quantities.

The ability to create their technologies on campus will spur researchers to pursue more ambitious projects, Lisa Axe, chair of the Department of Chemical and

Materials Engineering, remarked at the opening. Using outside R&D facilities for fabrication "hides work from other labs and colleagues" and prompts inventors to settle for "less risky designs" that do not need continuous monitoring.

Provost Fadi Deek noted, "This facility will also serve a critical educational purpose: It represents an investment in our future that will provide U.S. industries with a highly trained science and engineering workforce essential for remaining competitive in the area of medical devices, an important sector of our economy." ■



School in Paterson and Science Park High School in Newark. The NJIT-Stryker Alumni Club will be leading the effort.

"As alumni and as business professionals in the state of New Jersey, we want to give back," said Robert Cohen '83, '84, '87, vice president of Global Research and Development and chief technology officer for the Stryker Joint Replacement Division and Chair-Elect of the NJIT Board of Trustees. "We have a passion for mentoring students that have a STEM focus to their education. First Robotics high school

teams design and make robots where they put their knowledge to the test. Many of these students will contribute to future innovations and we are proud to be part of their journey."

"We at Stryker are excited about the opportunity to get involved with this program and to share our industry knowledge and experience with these students," said Ken Trimmer '92, '99, senior director of Engineering Standards at Stryker. "This is a great opportunity to give back to a community with the NJIT-Stryker Alumni Club taking the

lead." He added, "The First Robotics program has an aggressive schedule where students need to design and build a functioning robot in a relatively short period of time and be prepared to compete in a regional challenge event. The Stryker mentors are looking forward to working closely with the students on project management, design and fabrication. This is a very rewarding effort. The Club looks forward to an ongoing relationship with Science Park High School and working with these amazing students." ■



NJIT'S CHRYSTOFF CAMACHO WINS AN EDISON PATENT AWARD FOR AN AERIAL REFORESTATION DEVICE

Chrystoff Camacho '17, an inventor and budding entrepreneur who developed an aerial reforestation device while he was an engineering technology student at NJIT, received a Thomas Alva Edison Patent Award from the Research & Development Council of New Jersey for his drone-deployed seed capsule.

Camacho's device, a biodegradable packet containing seeds and mineral-rich soil, is loaded into what looks like a tiny missile that is dropped from the air. With its cone tip, it is designed to perforate the ground to implant the capsule, but to also allow water to permeate in dry regions where the land is baked hard.

He says a trip to his native Guyana in his teens opened his eyes to the growing problem of landscape decimation caused by logging. That got him thinking — and researching rates of tree loss around the world.

"My first idea was about developing some way to make the land in need of rehabilitation more productive. Land stripped of trees becomes dry and flat and can't hold water, so I was thinking about making conical imprints that would create mini-basins for trees or crops that would be planted by hand," Camacho recounts. "But that got me thinking about ways to do this by air, using velocity to make the imprint, because doing it by hand is so time-consuming. And then I had the idea of including the seeds and soil."

In his patent application, Camacho argued that the current state of the art in aerial reforestation is "limited by lack of sufficient ground penetration

and difficulties with dispersal of larger seeds." His invention went on to win funding from NJIT, the National Science Foundation I-Corps program and private angel investors, as well as awards in technology contests.

With \$3,000 from the I-Corps program, Camacho and his team improved the prototype and sought out advice and customers through regional business accelerators. They caught the attention of tech entrepreneurs, prompting a \$30,000 infusion from an angel investor to develop a drone platform and business structure. This process led to the formation of an environmental technology firm, ParaTrees.

Like many startups, it also evolved into new ideas and markets. Most recently, the company is providing monitoring and evaluation services to forest managers, using a range of technologies such as unmanned aerial systems, IoT sensors and AI to assess forest conditions and recommend remediation.

Camacho said he was thrilled to "just be in the room with so many great, veteran inventors" at the Research & Development Council's 40th annual Thomas Alva Edison Patent Awards at Liberty Science Center. Among the 15 patent awardees were major corporations such as Celgene, Ethicon, Nokia Bell Labs and Siemens Corporate Technology.

"As a student at NJIT and young entrepreneur, I worked closely with university professors and advisers to push the envelope surrounding the startup community on campus," he said. "NJIT has always been a catalyst for innovation, and it's amazing to see the support that is being focused on student entrepreneurship with funding and training opportunities through campus programs like the Undergraduate Research and Innovation program, I-Corps and VentureLink, NJIT's business incubator." ■