Innovating With Industry

HOW **STEVENS INSTITUTE OF TECHNOLOGY** IS REDEFINING INNOVATION — WITH THE HELP OF LEADING COMPANIES AND COLLABORATORS

Just across the Hudson River from Manhattan, Stevens Institute of Technology is a student-centric, premier research university

Just across the Hudson River from New York City in Hoboken, New Jersey, Stevens Institute of Technology has always innovated.

The university was actually founded by a family of Hoboken inventors — the Stevens family, including engineer Edwin A. Stevens, whose bequest founded Stevens in 1870 — and it later produced faculty and alumni who won multiple Nobel Prizes; invented bubble wrap and the IMAP email protocol; co-founded General Motors and Texas Instruments; and devised a new process for synthetic penicillin, among countless other novel technologies through the decades.

But now Stevens is taking innovation to a new level, hunting aggressively for new medicines, technologies, applications and software while leveraging its historical strength in the sciences to engineer a safer world — often in partnership with New Jersey's and the nation's industry leaders.

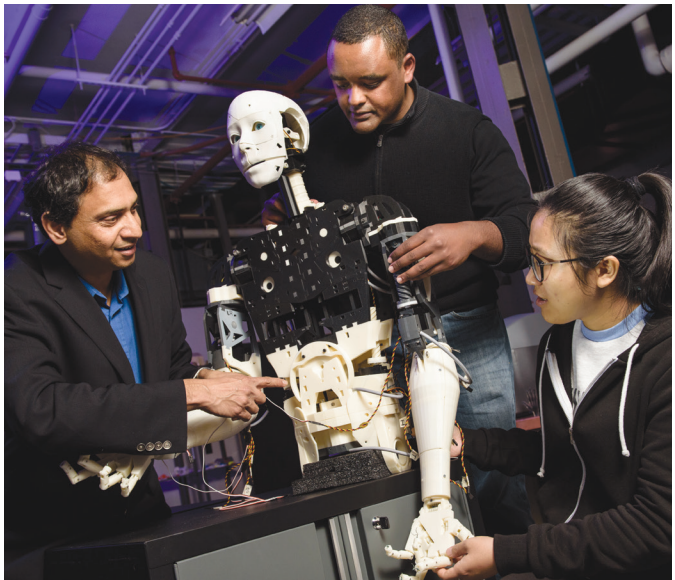
And those activities will prove critical as the state moves forward in a digital era, pursuing economic-development priorities including healthcare, the life sciences, finance, sustainable energy, transportation and entrepreneurship.

EXCITING NEW RESEARCH, CORPORATE PARTNERSHIPS

With New Jersey's economic policy increasingly focused on developing a tech-savvy workforce in areas such as medicine, pharmaceuticals and information technology, the university is well-positioned. Recent work at Stevens has run the gamut from the medical to the financial to sophisticated hardware and software.

In partnership with one of the state's top-rated hospitals, Hackensack University Medical Center, for example, Stevens researchers are testing several new medical innovations, including a novel means of testing multiple myeloma therapy and other cancer therapies; research to make implanted biomedical devices safer by engineering new nanomaterials and surfaces; and osteoporosis research aimed at helping aging patients better treat this debilitating disease in new ways.

Stevens students 3D-printed and assembled a robot to demonstrate scientific concepts to schoolchildren and other visitors to Jersey City's Liberty Science Center



One Stevens healthcare research project is exploring the creation of 3D-printed synthetic body parts such as this 'bionic' ear that may one day aid the hard of hearing

For an exhibit at Liberty Science Center, New Jersey's largest interactive museum, Stevens students 3D-printed a 100-part robot in the university's labs, assembled it piece by piece — then programmed it to take selfies, play games and otherwise interact with schoolchildren and other visitors to the museum, which has collaborated with Stevens to produce two consecutive springtime robotics exhibits.

To attack cancer and other diseases and join the hunt for the next wonder drugs, Stevens created a new drug-discovery laboratory and research team, leveraging its ties with regional pharmaceutical firms. The team employs both traditional lab techniques and computational chemistry — a sophisticated use of supercomputing power in the drug discovery and development process — that can save millions in costs and greatly shorten the time needed to uncover new medications and therapies.

Another healthcare technology in development at the university involves the 3D printing of organs such as a "bionic" ear that may one day aid the hard of hearing.

LEVERAGING TECH TO BUILD A SAFER WORLD

Stevens also collaborates with government agencies to help ensure a safer, more secure world.

One Stevens-patented acoustic detection, tracking and classification technology, for instance — originally designed to detect underwater divers and submersibles as well as surface threats — was then used to design and build a land-based system now being used to help assure U.S. border security. The system, known as Acoustic Aircraft Detection (AAD), can identify unknown planes, helicopters and other aircraft by the sounds of their engines.

In partnership with the government of South Africa and wireless experts from around the world, Stevens also created a new wireless-router technology ideal for emergency and law-enforcement communications. The system was tested by a Boston-area police department and is now also currently in testing overseas.

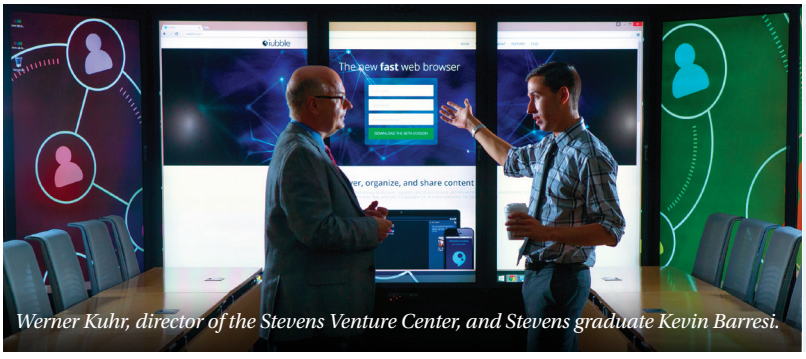
And a Stevens faculty-student research initiative resulted in a new technology that continually, unobtrusively monitors the health of aging bridges.

CORPORATE EDUCATION, ENHANCED ENTREPRENEURSHIP

Stevens has also committed to increased workforce and corporate education. Stevens works closely with firms such as Verizon, Pfizer, Accenture, Lockheed Martin, Zodiac and ExxonMobil, among other local and national corporate partners, to develop and deliver on-site, on-campus, hybrid and distance-learning coursework, certificate programs and graduate degree programs.

The new Stevens Venture Center will also create additional opportunities for producing and sharing new intellectual property, ideas, products, patents and startups.

Much of Stevens' innovation takes place in its laboratories, including the Hanlon Financial Systems Center (pictured), where students prepare for the technology-driven world of finance



Werner Kuhr, director of the Stevens Venture Center, and Stevens graduate Kevin Barresi.

INNOVATING ON THE FLY: STUDENT RESEARCH SPAWNS STARTUP

What began as a Stevens student-faculty project to design a new internet browser, iUbble, pivoted adroitly into a news-curating and social network-analysis tool for finance, Apollo. Manhattan venture capital firm FinTech Studios acquired the startup this spring; the student, Kevin Barresi (Class of 2015), is now CTO of FinTech.

For those interested in partnering with Stevens, contact **Mary Ann Piazza** (**mpiazza@stevens.edu**) at **201.216.3625** or visit **stevens.edu/research** to learn more.