

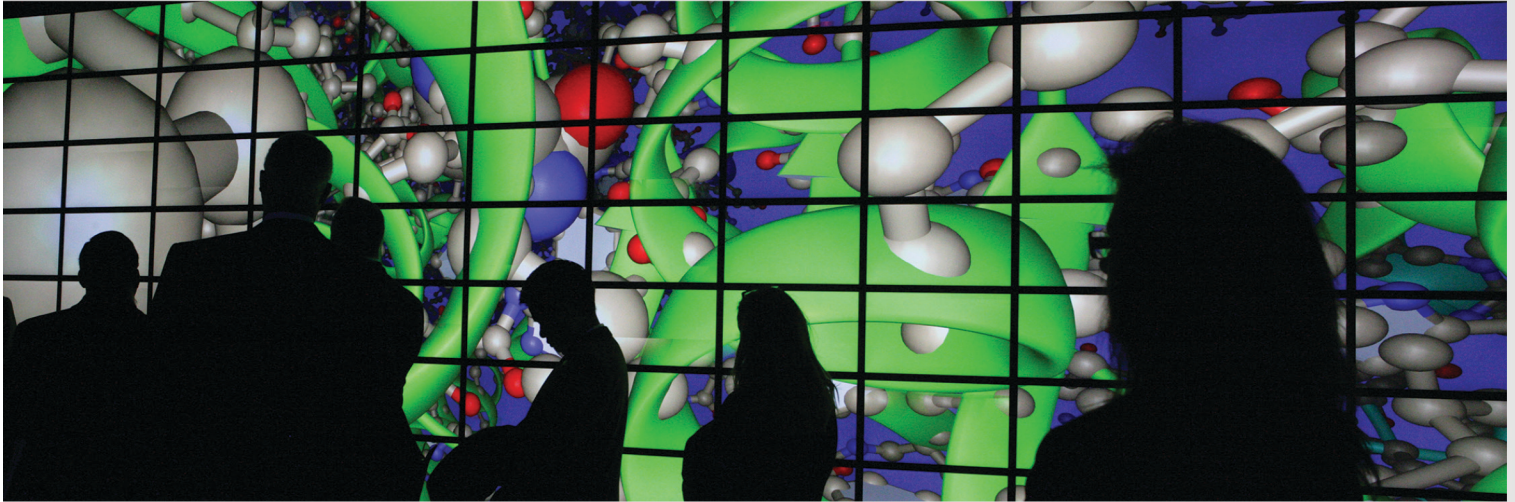
The College of Engineering
and Applied Sciences

**MAKING
SCIENCE
FICTION
COME
TO LIFE**



Stony Brook
University

INVENTING THE FUTURE OF ENGINEERING



The College of Engineering and Applied Sciences at Stony Brook University

In the era of exponential technological growth and limitless potential for innovation, engineers and applied scientists are poised to drive global economic development via futuristic research and technology transfer that bring science fiction to everyday life. The College of Engineering and Applied Sciences is at the forefront of inventing the future with cutting-edge research and educational paradigms that fuse science, technology and engineering with medicine, the arts, business and social sciences.

We are educating the next generation of global innovators and entrepreneurs to effect change in areas critical to improving the human condition and sustaining humanity. We are tackling the biggest challenges of our time by advancing cross-disciplinary research in engineering-driven medicine, artificial intelligence and cybersecurity, clean energy for a more sustainable future and much, much more.

Faculty and students reach across boundaries, break down barriers and are inspired to ask bold questions, pursue big ideas, explore and innovate. This is how we are making science fiction come to life every day.



Fotis Sotiropoulos

*Dean, College of Engineering and Applied Sciences
SUNY Distinguished Professor of Civil Engineering*

RESEARCH FOCUS: Simulation-based engineering science for fluid mechanics problems in renewable energy, environmental, biological and cardiovascular applications.

By the Numbers

TOP 25%

2018 *U.S. News & World Report* ranking of engineering graduate schools (out of all engineering graduate programs nationwide)

TOP-RATED ENGINEERING DEPARTMENTS BY THE NATIONAL RESEARCH COUNCIL (NRC) ASSESSMENT STUDY

- **Top 10** Applied Mathematics and Statistics
- **Top 20** Computer Science
- **Top 25** Materials Science and Chemical Engineering

ENROLLMENT 2017-2018

Undergraduate: **4,136** (60% growth over 5 years)

Graduate: **1,649** (20% growth over 5 years)

FRESHMAN CLASS PROFILE 2017-2018

Average High School GPA: **95.1** (2.3% increase over 5 years)

Average SAT Score, Math and Critical Reading: **1374**

Average Score of SAT/ACT Converted: **1408**

Research and Economic Development

More than \$35M in annual research expenditures (20% increase since 2015)

More than \$1.5 billion annually in regional economic impact

More than 20 centers and institutes, including:

- Advanced Energy Research and Technology Center (AERTC)
- Center for Biotechnology
- Center of Excellence for Wireless and Information Technology (CEWIT)
- National Security Institute (NSI)

Cross-cutting research initiatives in:

- Energy Systems for Sustainability
- Smart and Resilient Cities and Ecosystems
- Engineering-Driven Medicine
- Securing Cyber-Everything

FACULTY AND STAFF

Professors: **68**

Associate Professors: **39**

Assistant Professors: **60**

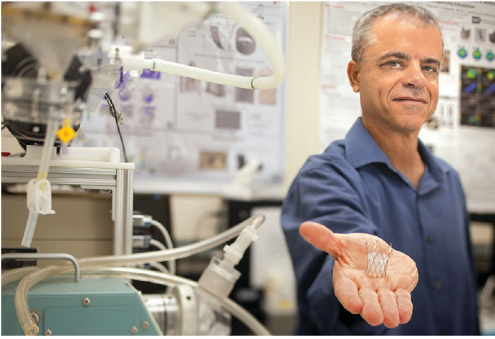
Lecturers and Instructors: **56**

Staff: **71**

FACULTY DISTINCTIONS

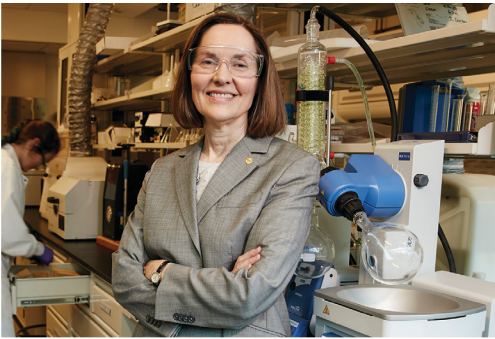
- **2** National Medal Laureates
- **3** National Academy of Engineering Members
- **1** National Inventors Hall of Fame Member
- **2** Presidential Early Career Awards for Scientists and Engineers (PECASE)
- **39** NSF Faculty Early CAREER Awards
- **33** Fellows of Prestigious Professional Societies

Big Questions, Bold Solutions



ENGINEERING-DRIVEN MEDICINE

Danny Bluestein, in the Department of Biomedical Engineering, combined in-silico computer simulations with benchtop lab testing to develop life-saving valve replacement devices and cardiovascular prostheses.



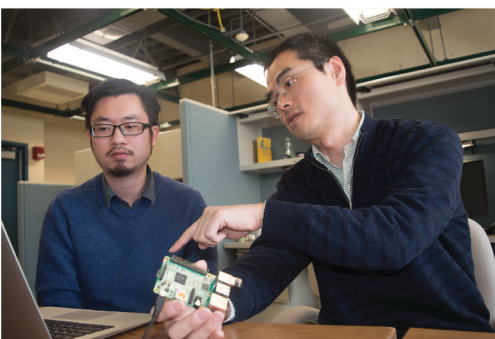
CREATING A SUSTAINABLE EARTH: BATTERIES INCLUDED

Esther Takeuchi, in the Department of Materials Science and Chemical Engineering, is advancing alternative battery systems that deliver higher energy, greater power and longer life with minimal environmental impact.



SECURING CYBER-EVERYTHING

Michalis Polychronakis and R. Sekar, in the Department of Computer Science, conduct research aimed at defending our cyberinfrastructure by developing technologies for secure and trustworthy software and computing platforms.



ARTIFICIAL INTELLIGENCE AND SMART ENVIRONMENTS

Fan Ye, in the Department of Electrical and Computer Engineering, is leading the effort on Embedded Intelligence everywhere in the context of smart infrastructure. He is developing the hardware and software for smart environments to operate with flexible and fine grained access control.



CLEAN WATER TECHNOLOGY

Co-directed by Harold Walker, Chair of the Department of Civil Engineering, the Center for Clean Water Technology is marshaling the best science and engineering to develop and commercialize water quality restoration and protection technologies with reduced infrastructure footprints.

BEYOND THE CLASSROOM

DEPARTMENTS

Applied Mathematics and Statistics

Biomedical Engineering

Biomedical Informatics

Civil Engineering

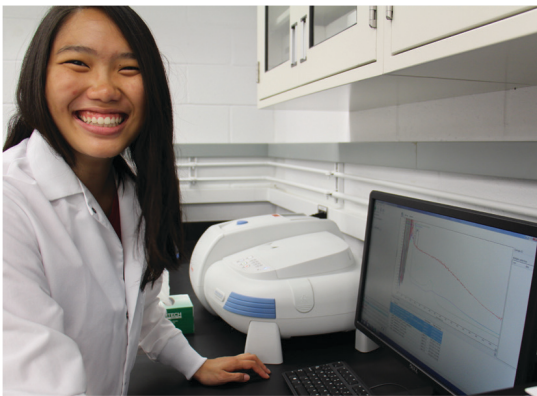
Computer Science

Electrical and Computer Engineering

Materials Science and
Chemical Engineering

Mechanical Engineering

Technology and Society



WOMEN IN SCIENCE AND ENGINEERING HONORS

The WISE Honors program expands STEM opportunities for undergraduate female students by facilitating individual, institutional and social change. The core curriculum emphasizes academic excellence in STEM, while providing opportunities for service and leadership.



GLOBAL ENGINEERING FIELD SCHOOL IN KENYA

At the Turkana Basin Institute, students make a direct impact on local communities by addressing sustainable engineering systems, energy generation from wind and sun, refrigeration, hydroponic gardening, construction, and water conservation and purification.



OUTREACH FOR STEM

In alignment with the NRC's objective that all Americans should be able to apply the concepts of STEM to engineering processes and problems, we work with school districts to engage students, teachers, guidance counselors and faculty in the passion, challenge and opportunity of engineering.

FACULTY HIGHLIGHTS: 2016-2017

HONORS AND AWARDS

DARPA Young Faculty Award

Shu Jia, Biomedical Engineering

Department of Energy Early Career Award

Jason Trelewicz, Materials Science and
Chemical Engineering

NSF Faculty Early CAREER Award

Fan Ye, Electrical and Computer Engineering

Biomedical Engineering Society Fellow

Danny Bluestein, Biomedical Engineering

Hunter Rouse Hydraulic Engineering Award

American Society of Civil Engineers

Fotis Sotiropoulos, Civil Engineering

Google Research Awards

Francesco Orabona, Computer Science

Fan Ye, Electrical and Computer Engineering

Xiaojun Bi, Computer Science

SUNY Distinguished Professors

Petar Djurić, Electrical and Computer Engineering

Fotis Sotiropoulos, Civil Engineering

SUNY Chancellor's Award for Excellence

Mónica Bugallo, Electrical and Computer Engineering

Wendy Tang, Electrical and Computer Engineering

STONY BROOK UNIVERSITY

Stony Brook is ranked
among the **top 100**
universities in the nation
and the **top 50 public**
universities by *U.S.*
News & World Report.

Home to more than
25,700 students, the
University offers more
than **200 undergraduate**
programs and **140**
graduate programs,
and is a powerful
incubator of teaching
and research innovation.



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stonybrook.edu/ceas