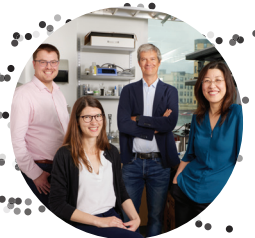
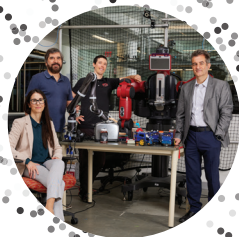


Engineered for Impact

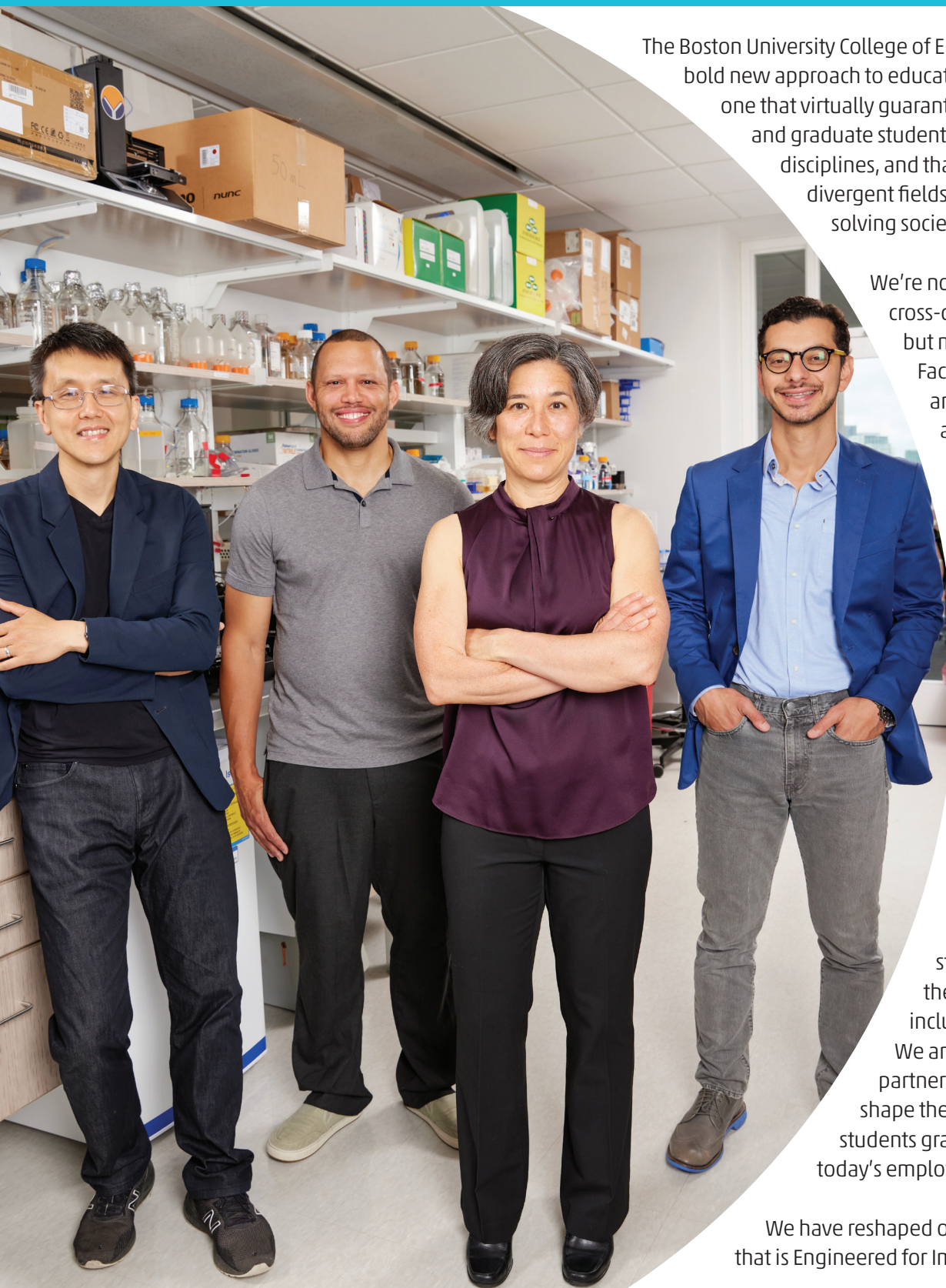


2021-2022

Academic Year Summary

BOSTON
UNIVERSITY

Because Great Minds Do **Not** Think Alike



The Boston University College of Engineering implemented a bold new approach to education and research in 2021-22, one that virtually guarantees every undergraduate and graduate student will be exposed to multiple disciplines, and that expertise from widely divergent fields can be brought to bear on solving society's most pressing challenges.

We're not just lowering barriers to cross-disciplinary collaboration, but making it part of our DNA. Faculty from all departments are working with each other and with experts in medicine, business, the sciences and other fields, each bringing a unique perspective to solving grand challenges critical to our future. It's not just interdisciplinary. It's experts who ideate together and approach these challenges in holistic and creative ways that are more likely to produce robust, impactful solutions.

We are recruiting faculty and graduate students based on their interest in such research. We are exposing all students to disciplines outside their specialized area of study, including AI and machine learning. We are engaging with industry partners to build makerspaces and shape the curriculum so the skills our students graduate with are the skills today's employers need.

We have reshaped our College and made it one that is Engineered for Impact.

Six Research Themes

Research, education, and faculty and student recruitment are centered on six cross-cutting areas where the Boston University College of Engineering has existing strength and potential to make significant impact.

- Energy, Sustainability & Climate
- Intelligent, Autonomous & Secure Systems
- Materials by Design
- Neuroengineering & Neuroscience
- Photonics & Optical Systems
- Synthetic Biology, Tissue Engineering & Mechanobiology



A Living Mini Heart Chamber

The NSF ERC CELL-MET created a miniature living heart chamber replica, an important step toward creating personalized tissue to repair damage from heart attacks. Also, CELL-MET's student summer outreach programs have made major strides in actively broadening the pipeline of research engineers.

Cross-Disciplinary Capstone Course

More seniors than ever before opted to assemble teams that united students from the different engineering departments. Said one senior, "I gained more than just new skills, I was exposed to a new way of thinking and problem solving."

New Robotics Lab

Construction began on a \$9 million space for masters' students to create innovative robotics and autonomous systems, and learn the skills to be leaders in the robotics industry. The space will include a build area, a space for experimenting with flying robots, a mini-city for ground machines, an AI area, and a space for soft robotics. The lab will enhance student experiences in the Robotics & Autonomous Systems Master's Degree program, and complements the existing research-oriented Robotics Laboratory.



Startup Success

Satellite Bio is a tissue therapeutics start-up that received \$110 million in funding last year. Co-founded by Christopher Chen (BME, MSE), the company programs cells and aggregates them into novel, implantable therapies to repair diseased tissue or organs.



Alum Heads to Space Station

Alum Robert Hines (ENG '97) piloted NASA's SpaceX Crew Dragon spacecraft to the International Space Station, where the crew of four is studying microgravity.



Satellite Images Earth's magnetic field

A satellite built by Brian Walsh's team (ME, ECE) will orbit Earth for the next five years. It uses an x-ray telescope to capture the widest-ever images of Earth's and the sun's magnetic fields colliding.

Data Science Center

Construction neared completion on a 19-story Computing & Data Sciences Center, which will be focused on data science, machine learning and AI. It's faculty are largely composed of Engineering researchers.



\$114 Million

in Research Expenditures.

Source: US News & World Report

Strong Research Funding

Ground-breaking early discoveries, consumer-ready transitions and programs aimed to advance equity in STEM.

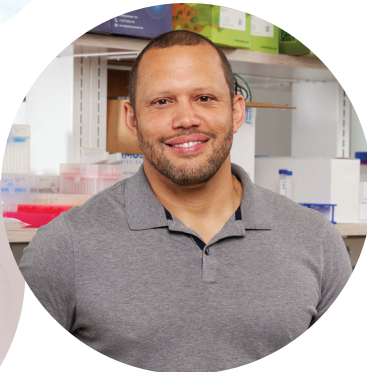
- **\$4,900,000** from the Department of Energy was awarded to the Fraunhofer USA Center for Manufacturing Innovation, overseen by Professor **Andre Sharon** (MSE, ME), to test a new super-insulated wall retrofitting process in affordable housing sites.
- **\$4,800,000** from Intelligence Advanced Research Projects Activity grant to advance **Ajay Joshi's** (ECE) Electro-Photonic Computing system for autonomous vehicles.
- **\$2,300,000** from the Department of Defense to **Douglas Densmore** (ECE, BME) to run programs introducing underserved high school students to careers in biotechnology and research.
- **\$2,000,000** from the National Institutes of Health to **Lei Tien** (ECE, BME) and **David Boas** (BME, ECE) for advancing a wearable miniaturized neural imaging device.
- **\$1,750,000** from the National Institute of Biomedical Imaging and Bioengineering to support **Ji-Xin Cheng** (ECE, BME, MSE) and **Lie Tien** (ECE, BME) in establishing a high-speed, high-content and high-sensitivity mapping of cell metabolism.
- **\$1,200,000** from the National Cancer Institute for **Ji-Xin Cheng** (ECE, BME, MSE) to develop a new microscope that generates higher-resolution, high-content images of live cancer cells at significantly increased speed.
- **\$1,000,000** from Air Force Office of Scientific Research to **Alexander Sergienko** (ECE) and **Abdoulaye Ndao** (ECE, MSE) to develop novel sensors for microelectronics.
- The Scialog Collaborative Innovation Award went to **Alexander Green** (BME) to advance the development of a new type of sensor capable of detecting heretofore hidden signals within a cell.
- NIH R25 grant to **Joyce Wong** (BME, MSE) to introduce students to the challenges around kidney medicine and expand the prospects of finding technological solutions.
- An AMETEK Foundation grant supported the College of Engineering in hosting a summer program for underserved teenagers that introduced topics like biotechnology and cybersecurity.



Andre Sharon



Ajay Joshi



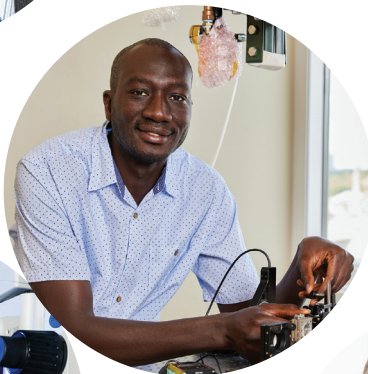
Douglas Densmore



Lei Tien



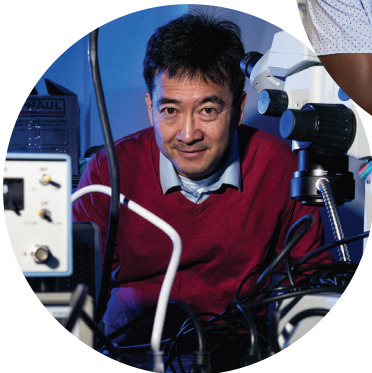
David Boas



Abdoulaye Ndao



Joyce Wong



Ji-Xin Cheng



Alexander Sergienko

35

Rank among all US graduate engineering programs.

Source: US News & World Report

Faculty Honors

- **Ahmad “Mo” Khalil** (BME) received the Schmidt Science Polymaths Award for fueling the possibility of engineering of new multicellular systems.
- **Xin Zhang** (ME, ECE, BME, MSE) was named Guggenheim Fellow, and honored by the Boston Patent Law Association for inventing a device that buffers sound.
- American Institute for Medical and Biological Engineering elected three Fellows: **James Galagan** (BME), **Xue Han** (BME) and **Dimitrije Stamenovic** (BME, MSE).
- The American Association for the Advancement of Science elected **Mark Grinstaff** (BME, MSE, Chem, MED) as Fellow.
- Material Research Society elected **Theodore Moustakas** (ECE, MSE) as Fellow.
- The National Academy of Inventors elected **Greg Blonder** (ME) as Fellow.
- Paul G. Allen Family Foundation named **Wilson Wong** (BME) and **Christopher Chen** (BME, MSE) Allen Distinguished Investigators.
- The McKnight Endowment Fund for Neuroscience has selected **Laura Lewis** (BME) to receive the McKnight Scholar Award.
- **Emma Lejeune** (ME) has earned the American Heart Association Career Development Award.
- The Okawa Foundation for Information and Telecommunications awarded the Okawa Prize to **Robert Gray** (ECE).



Ahmad “Mo” Khalil



Xin Zhang



James Galagan



Xue Han



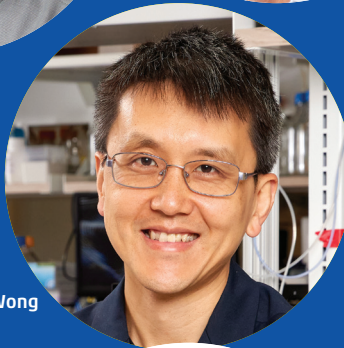
Dimitrije Stamenovic



Mark Grinstaff



Theodore Moustakas



Wilson Wong



Christopher Chen



Greg Blonder



Laura Lewis



Emma Lejeune



Robert Gray

15

Rank in research expenditures
per faculty member among
top-50 ranked engineering
graduate programs.

Source: US News & World Report



Boston University College of Engineering

44 Cummington Mall
Boston, MA 02215

bu.edu/eng

ENG At A Glance

Academic Summary

Degrees Granted: **447** Bachelor's, **282** Master's Degrees, **79** Doctoral Degrees

People Summary

Students: **1,746** Undergraduates, **435** Master's Students, **530** Doctoral Students

Faculty: **126** Tenure/Tenure Track, **19** Non-Tenure Track, **18** Research

Alumni Network: **20,948** living alumni

Academic Degrees

Biomedical Engineering
Computer Engineering
Electrical & Computer Engineering
Electrical Engineering
Manufacturing Engineering
Materials Science & Engineering
Mechanical Engineering
Product Design & Manufacture
Robotics & Autonomous Systems
Systems Engineering

Interdisciplinary Centers

Bioengineering Technology & Entrepreneurship Center
Biological Design Center
Biomolecular Engineering Research Center
Center for Autonomous & Robotics Systems
Center for Computational Science
Center for Information & Systems Engineering
Center for Semiconductor Materials & Devices Modeling
Center for Multiscale & Translational Mechanobiology
Center for Space Physics
Center for Forced Displacement
Fraunhofer Center for Manufacturing Innovation
Hearing Research Center
Institute for Global Sustainability
Institute for Health System Innovation & Policy
Nanotechnology Innovation Center
National Emerging Infectious Diseases Laboratories
Neurophotonics Center
NSF Engineering Research Center in Cellular Metamaterials
Photonics Center
Precision Diagnostics Center
Rafik B. Hariri Institute for Computing & Computational Science

ENGINEERED FOR IMPACT.

An equal opportunity, affirmative action institution.