STEVENS
INSTITUTE OF TECHNOLOGY
1870

CHARLES V. SCHAEFER, JR. SCHOOL OF ENGINEERING AND SCIENCE OVERVIEW

Jean Zu
Lore E. Feiler Dean

November 2024

Stevens Institute of Technology

A premier, private research university with a mission to inspire, nurture and educate leaders in tomorrow's technology-centric environment.

About Stevens

- Established in 1870 by the Edwin A. Stevens family, America's first family of inventors
- Located in Hoboken, New Jersey, minutes from Manhattan
- Introduced the first mechanical engineering degree in the U.S.
- Technology is at the heart of everything we do
- Prepares leaders for our technology-driven world
- Advances science and technology research in areas of great societal need

Legacy of Innovation

The Stevens Family: The First Family of American Inventors

- Established first college of Mechanical Engineering in the U.S.
- Designed the steam ferry, T-rail and the first American-built steamboat locomotive
- Built and operated the first United States commercial railroad
- Instrumental in developing United States patent law
- Created the America’s Cup racing series and designed and sailed the yacht *America*, the first winner of the Cup

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Nobel Prize Winners

Leaders in Chemistry and Physics

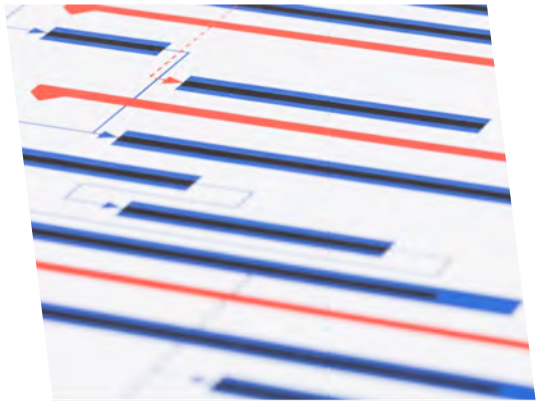
- **Frederick Reines ’39 M.S. ’41 Hon.D.Eng. ’84 -** Recipient of the Nobel Prize in Physics in 1995 for the discovery of the neutrino

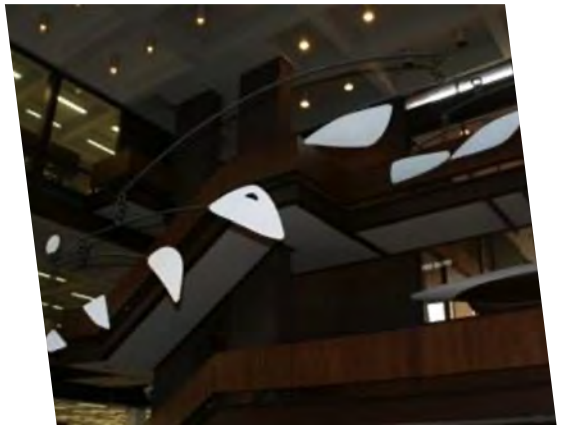
- **Irving Langmuir, Professor of Chemistry at Stevens Institute of Technology until 1906 -** Recipient of the Nobel Prize in Chemistry in 1932 for his work in surface chemistry

Pioneering Innovation

Stevens alumni have followed in the footsteps of the university's founding family to become modern-day game-changers.

- Created the field of scientific management
- Invented the Gantt Chart
- Co-founded GM and Texas Instruments
- Won a Nobel Prize for discovering the neutrino
- Created the art form known as the mobile
- Directed command, service and lunar module design for NASA's Apollo moon missions
- Invented the IMAP email protocol
- Invented bubble wrap





Driven by Real-World Experience

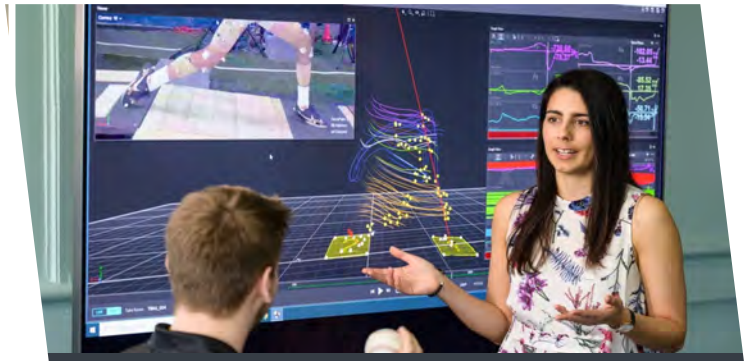
Cooperative education

Project-based learning

Faculty-mentored research

Case studies drawn from industry

Internships



Cross-disciplinary collaboration, reflective of real-world projects

National Rankings and Recognition

#76
College Ranking
2024-25 *U.S. News & World Report*'s ranking of National Universities

#71
Undergraduate Engineering Program
2024-25 *U.S. News & World Report*'s ranking of National Universities

#56
Best Undergraduate Teaching
2024-25 *U.S. News & World Report*'s ranking of National Universities

#33
Most Innovative Colleges
2024-25 *U.S. News & World Report*'s ranking of National Universities

#36
College Ranking
2024 Wall Street Journal College Pulse Ranking

#12
Career Placement
Best Value Colleges, 2024

Among America's Top Colleges
Forbes, 2024

#19
Return on Investment
2022 ranking among 4,500 colleges on ROI 40 years after enrolment

#18
Best Value College
College ROI Report

#14
For Return on Investment
20-year net return on investment, College ROI Report

#4
Top Earnings
Ranked among the 25 U.S. "colleges where students go on to earn the most money," 2018

Wall Street Journal Ranking

- The Wall Street Journal, September 6, 2023

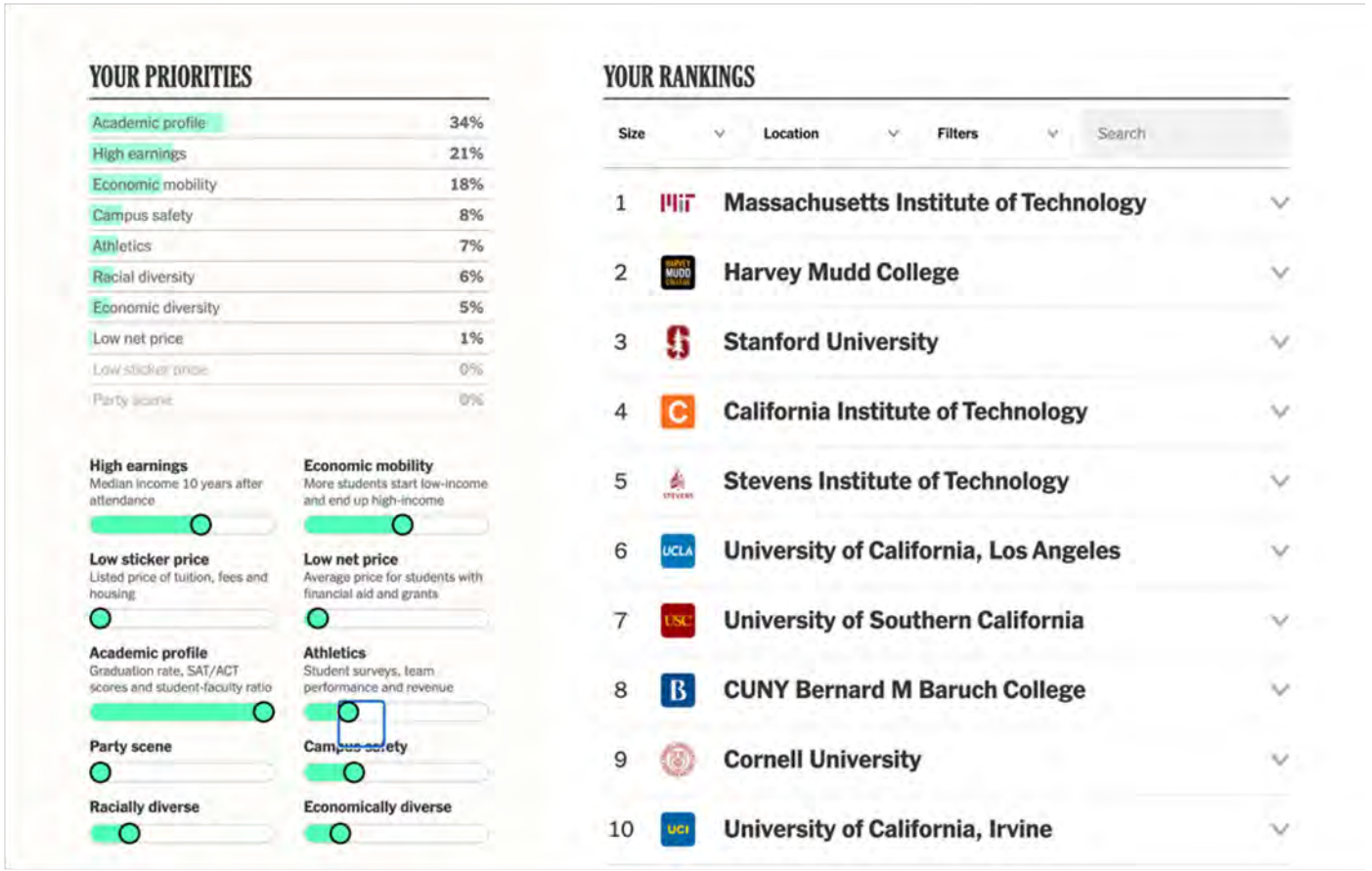
THE WALL STREET JOURNAL.

Latest World Business U.S. Politics Economy Tech Finance Opinion Arts & Culture Lifestyle Real Estate Personal Finance

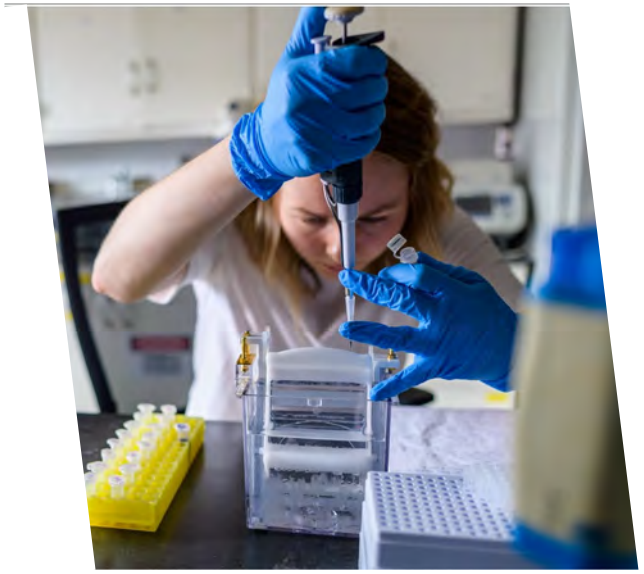
28	University of Michigan - Ann Arbor	Public	MI	81.6
29	Florida International University	Public	FL	81.3
30	Davidson College	Private	NC	81.2
31	Williams College	Private	MA	81.2
32	University of Notre Dame	Private	IN	81.1
33	University of La Verne	Private	CA	80.9
34	Rensselaer Polytechnic Institute	Private	NY	80.4
35	University of Illinois Urbana - Champaign	Public	IL	80.3
36	Stevens Institute of Technology	Private	NJ	80.1
37	The University of Chicago	Private	IL	80
38	Texas A & M University - College Station	Public	TX	79.9
39	Georgia Institute of Technology - Main Campus	Public	GA	79.7
40	Colgate University	Private	NY	79.6

New York Times Ranking

- New York Times (March 27, 2023) College Ranking [Build Your Own College Rankings]



Three Technology-Focused Schools



Charles V. Schaefer, Jr. School of Engineering and Science

Advancing scientific knowledge to create groundbreaking solutions to 21st century challenges

School of Business

Leading innovation in business management and finance, across industries and around the globe

School of Humanities, Arts and Social Sciences

Uniting humanities, arts, science and technology to inspire and inform change and innovation

School of Engineering and Science

SES Facts and Figures at a Glance

3,123
Undergraduate Students

2,343
Master's Students

456
Ph.D. Students

5,922
Total Students

234
Full-Time Faculty

872
Courses

$56.9M
Research funding

9
Research Centers

94%
First-Year Retention Rate

90%
Six-Year Graduation Rate

School of Engineering and Science

SES Facts and Figures at a Glance

74%
of UG Students are SES

67%
of Masters Students are SES

86%
of Ph.D. Students are SES

65%
of Stevens faculty are SES

72%
of Total Stevens Students are SES

98%
of Stevens Research Enterprise

10 Departments

- Department of Biomedical Engineering
- Department of Chemical Engineering and Materials Science
- Department of Chemistry and Chemical Biology
- Department of Civil, Environmental and Ocean Engineering
- Department of Computer Science
- Department of Electrical and Computer Engineering
- Department of Mathematical Sciences
- Department of Mechanical Engineering
- Department of Physics
- Department of Systems and Enterprises

National Centers of Excellence

Center for Advancement of Secure Systems and Information Assurance (CASSIA)

A National Center of Academic Excellence in Cyber Defense

Director: Susanne Wetzel

Systems Engineering Research Center (SERC)

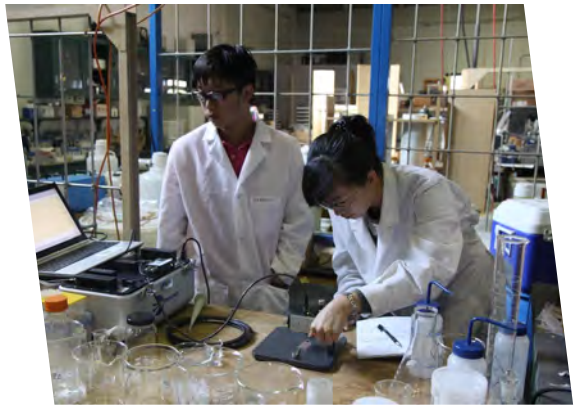
A University-Affiliated Research Center of the U.S. Department of Defense

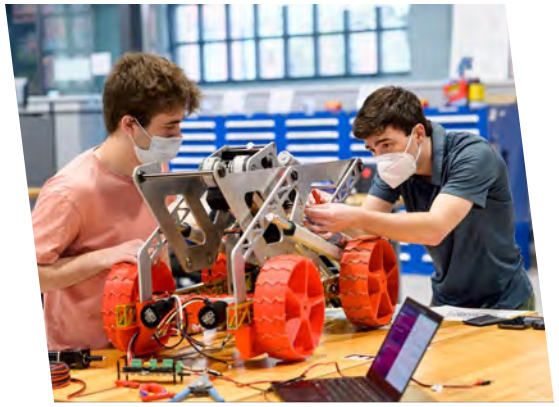
Director: Dinesh Verma

State-of-the-Art Facilities

SES is home to 6 cutting-edge shared facilities

- MakerCenter
- High Performance Computing Cluster
- Laboratory for Multiscale Imaging
- MicroDevice Laboratory
- Mass Spectrometry Laboratory
- Prototype Object Fabrication Laboratory





Corporate Partnerships

SES has established 170+ collaborations with external partners through sponsored research, capstone design projects, faculty consultations, hiring, and philanthropy. Our partners include:

- Merck
- Colgate-Palmolive
- Atlantic Shores Offshore Wind LLC
- L3Harries Technologies
- WSP
- NASA
- Samsung
- Verizon
- Amazon
- Port Authority
- Raytheon
- Con Edison
- Lenovo
- Stryker
- Kearfott
- Gibbs & Cox
- H2M Architects & Engineers
- ADP
- AstraZeneca
- BASF
- ExxonMobil
- Hugo Neu
- Go!Foton
- PSEG
- HDR
- Northrop Grumman
- Picatinny Arsenal
- AT&T
- MTF Biologics
- Langan Inc.
- Thornton Tomasetti
- General Dynamics Mission Systems
- Sono-Tek

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Undergraduate Studies

18 Undergraduate Programs

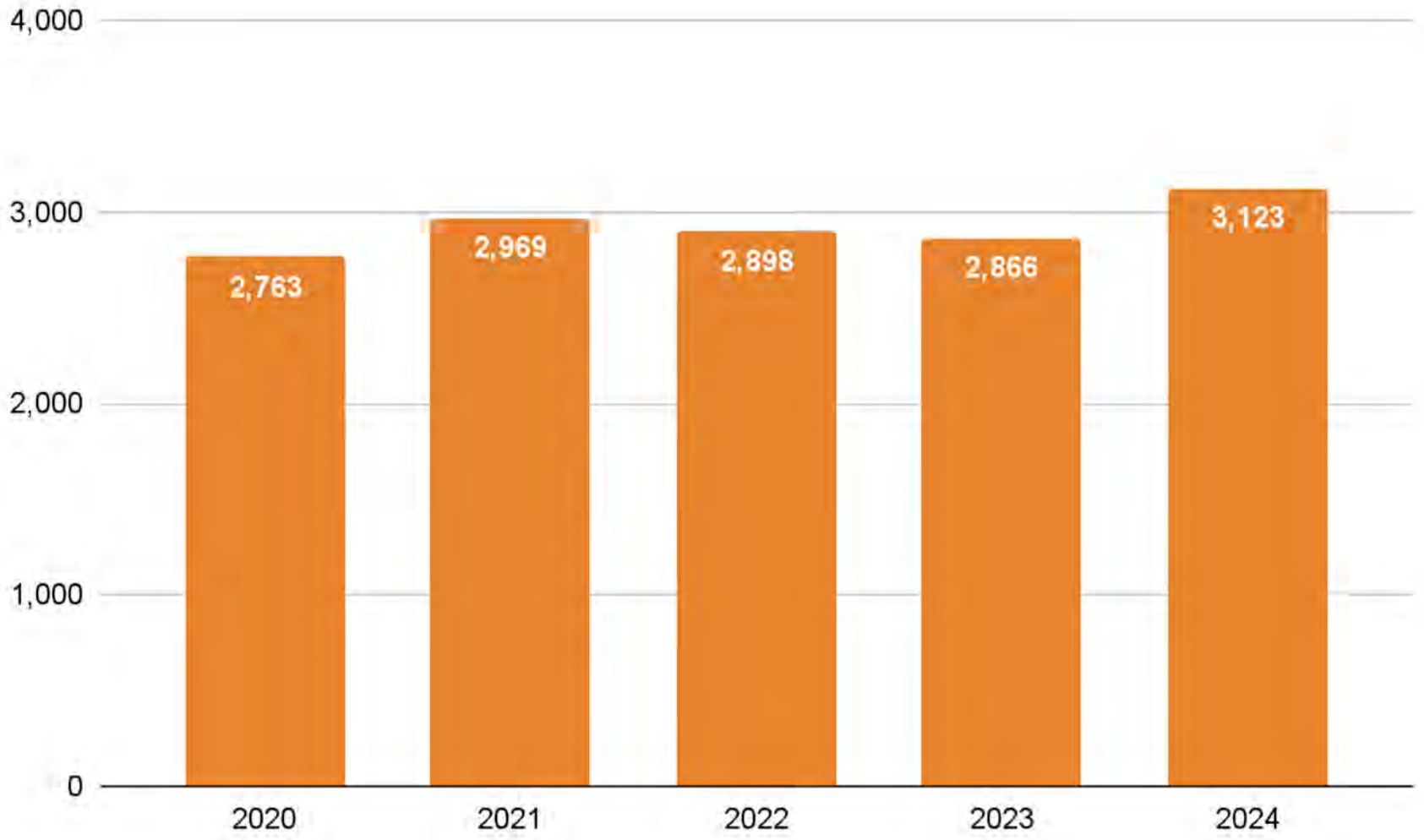
Engineering

- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- Industrial and Systems Engineering
- Mechanical Engineering
- Engineering – Naval Engineering
- Engineering – Optical Engineering
- Software Engineering

Science

- Biology
- Chemistry
- Chemical Biology
- Computer Science
- Cybersecurity
- Mathematics
- Physics

Undergraduate Enrollment



Curriculum Overview

	Stevens (ME)	Stevens (CE)	Stevens (CS)
Math	10.6%	10.7%	13.2%
Science	11.3%	9.3%	7.8%
Humanities	12.7%	12.9%	14.0%
Writing & Communication	4.2%	4.3%	4.7%
Innovation & Entrepreneurship	3.5%	3.6%	0.0%
Major/Disciplinary Courses	51.4%	52.9%	55.8%
General Electives	6.3%	6.4%	4.7%

Engineering Design Spine

Series of 12 undergraduate design courses that teaches students to synthesize, analyze, and optimize solutions for open-ended and societally impactful problems.

Year 1

- Engineering Design & Systems Thinking
- Automation with Sensors
- Entrepreneurial Thinking

Year 2

- Statics and Introduction to Engineering Mechanics
- Design of Dynamical Systems

Year 3

- Design with Materials
- Engineering Design
- Engineering Economics & Project Management

Year 4

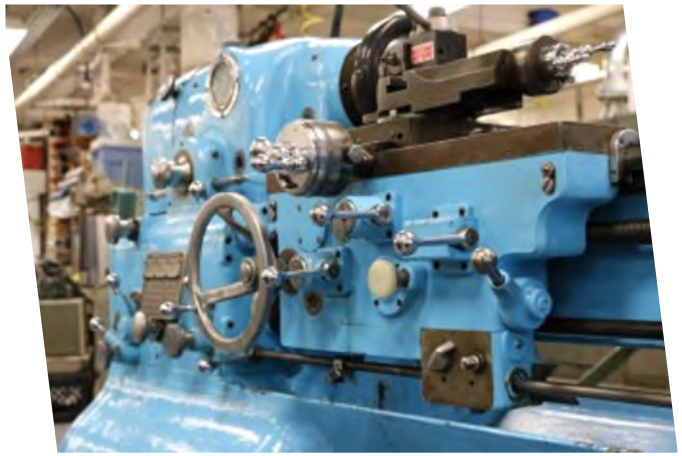
- Capstone Design
- Innovation: Proposition Value
- Innovation: Venture Planning & Pitch

MakerCenter

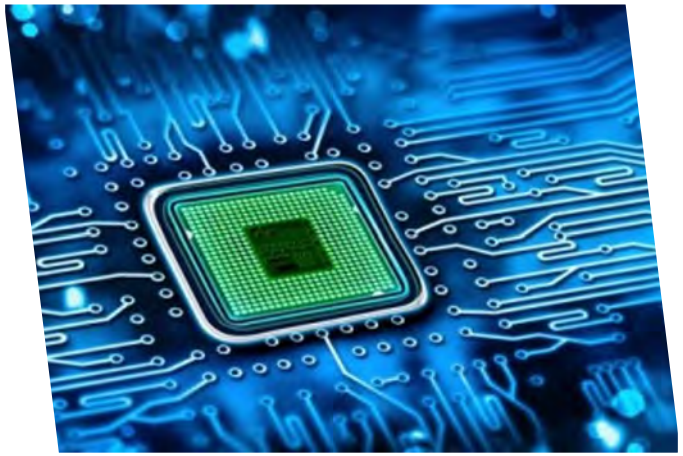
MakerSpace

ProOF Lab

Quantum Space



Machine Shop



Electronics Shop

Welding Shop

iSTEM@Stevens

An exclusive entrepreneurship training program that enables students to design and build technologies and businesses that will shape the future.

- Unique, four-year program
- Combination of classes and independent studies woven into the curriculum
- Companies worth over $36M

95.8%

Retention Rate

20

Portfolio Companies Produced

3

Average Incorporations Per Year

Co-op Programs

Combining classroom education with practical real-world work experience

Our 5-year competitive program allows students to:

- Alternate semesters of academic study with semesters of full-time paid professional work
- Gain valuable work experience in a job related to their degree before graduation
- Earn a full-time hourly salary during each work semester
- Establish and broaden a network of professional contacts in a career field and industry.

Summer Research

Hands-On Research Experience

- Each department provides undergraduate students with research opportunities
- The Stevens Institute for Artificial Intelligence AI Research Summer (AIRS) Fellowship Program
- NSF-funded Research Experiences for Undergraduates (REU) Site Program

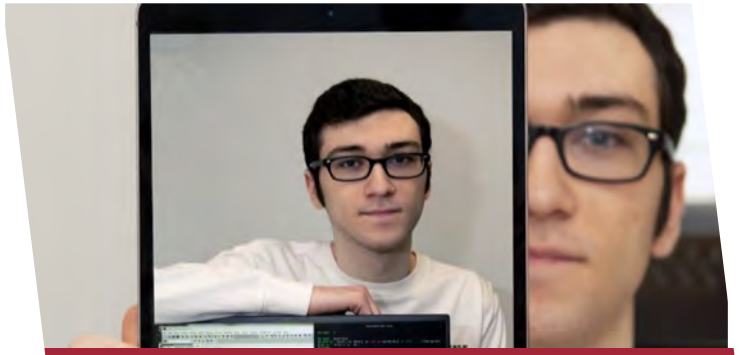
Student Achievements

$15K Venture Prize: DEBUT Challenge

2nd Place: NASA Moon to Mars Ice & Prospecting Challenge

1st Place: RESNA Student Design Challenge

1st Place: International Symposium on Ultra High-Performance Concrete

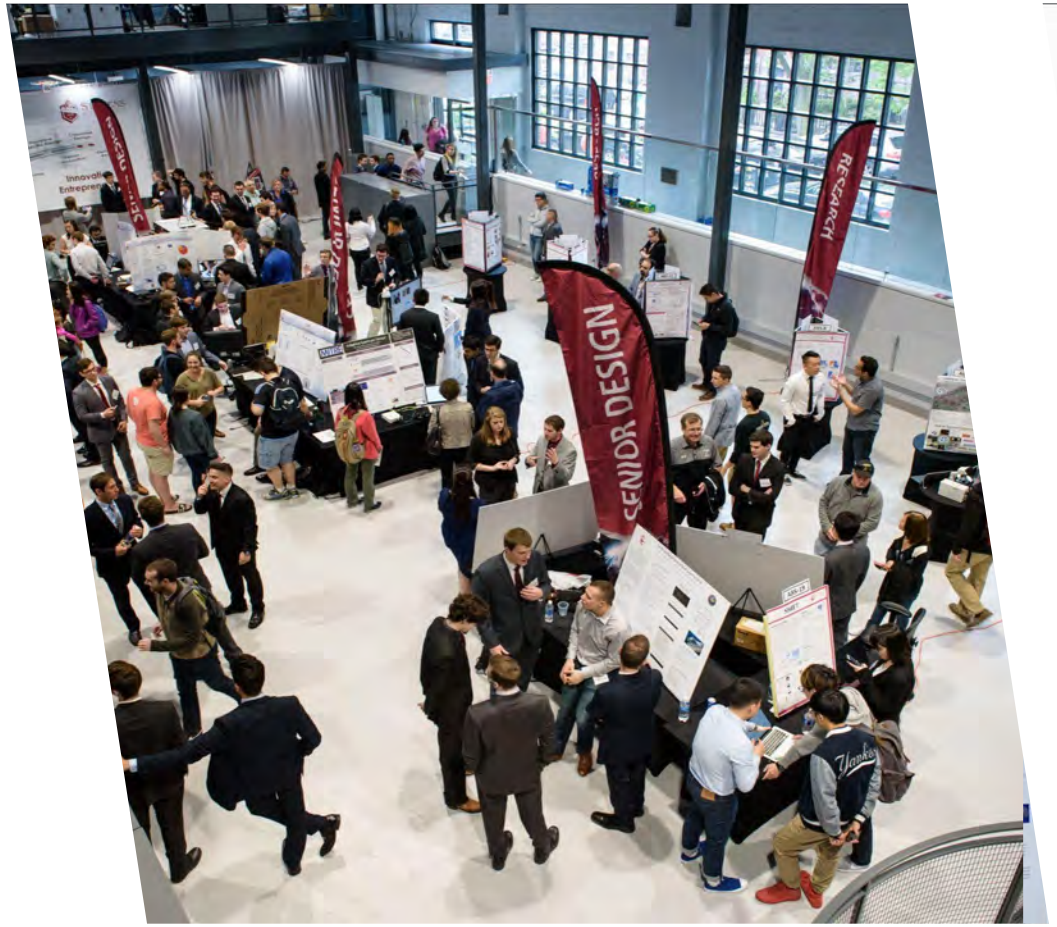


Stevens Senior wins Largest Coding Competition in History

1st Place: National Society of Black Engineerings Fall Conference

Innovation Expo

An annual showcase for student design, innovation and entrepreneurship.



Undergraduate Career Outcomes

Stellar student outcomes are a Stevens standard

$98,509

Average starting salary of SES graduates

97%

of students **secured their career outcomes** within six months of graduation

Data from the Career Outcomes Report for the Class of 2023

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Graduate Studies

USNWR Rankings of Graduate Programs

#11
Online Graduate Information Technology Programs
U.S. News & World Report, 2024-25

#83
Best Graduate Engineering Schools
U.S. News & World Report, 2024-25

#26
Online Graduate Engineering Programs
U.S. News & World Report, 2024-25

#1 in NJ
Online Graduate Engineering Programs
U.S. News & World Report, 2024-25

#77
Mechanical Engineering Graduate Programs
U.S. News & World Report, 2024-25

#82
Electrical Engineering Graduate Programs
U.S. News & World Report, 2024-25

#65
Computer Engineering Graduate Programs
U.S. News & World Report, 2024-25

#44
Systems Engineering Graduate Programs
U.S. News & World Report, 2024-25

#77
Best Graduate Computer Science Schools
U.S. News & World Report, 2024-25

#77
Civil Engineering Graduate Programs
U.S. News & World Report, 2024-25

#82
Materials Science Graduate Programs
U.S. News & World Report, 2024-25

#77
Environmental Engineering Graduate Programs
U.S. News & World Report, 2024-25

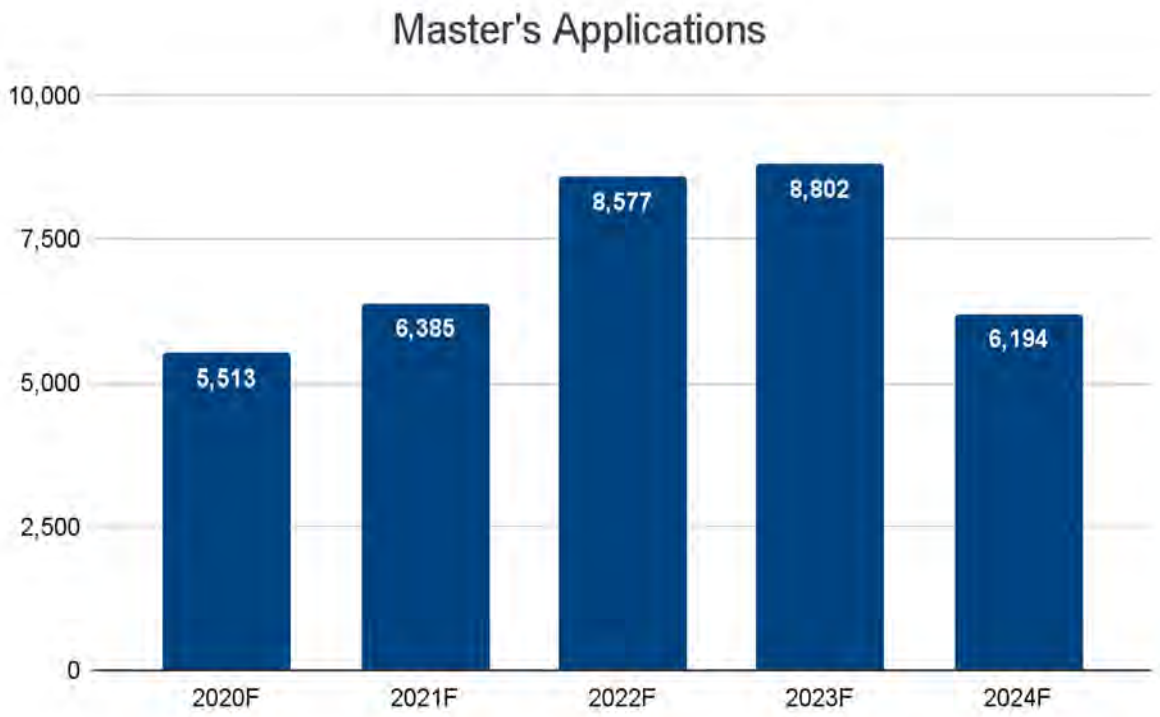
33 Master's Programs

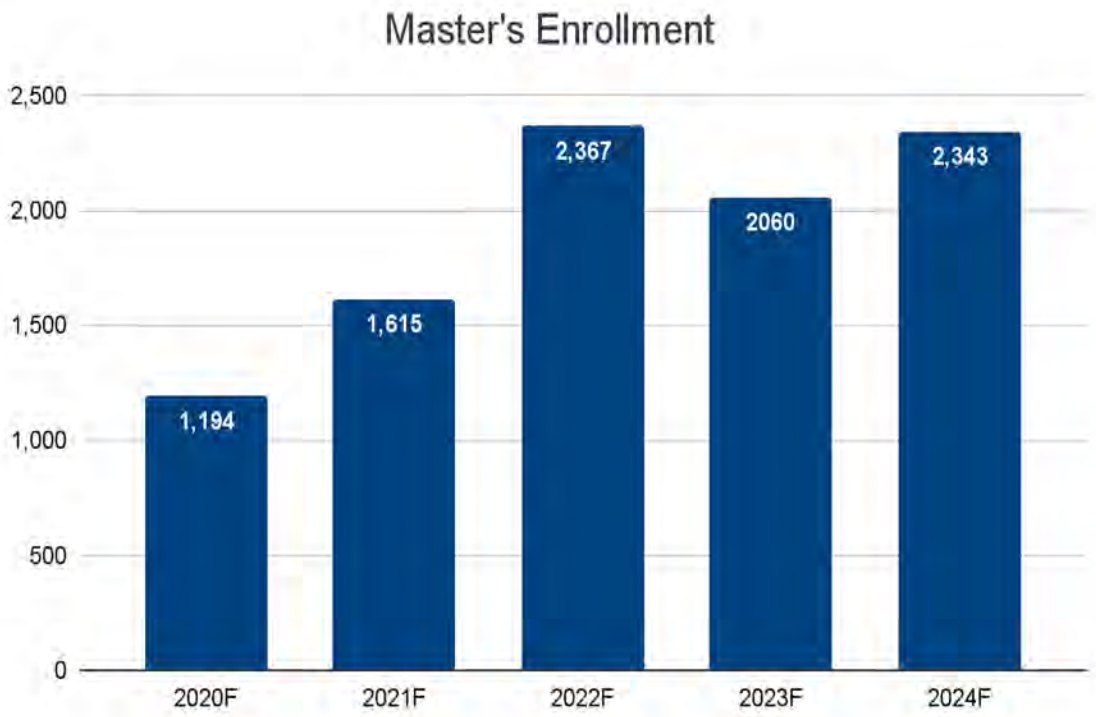
- Actuarial Mathematics & Quantitative Risk
- Applied Artificial Intelligence
- Applied Mathematics
- Biomedical Engineering
- Chemical Biology
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Engineering
- Computer Science
- Construction Engineering & Management
- Cybersecurity
- Data Science
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- Integrated Product Development
- Interdisciplinary
- Machine Learning
- Materials Science & Engineering
- Mathematics
- Mechanical Engineering
- Media Broadcast Engineering
- Ocean Engineering
- Pharmaceutical Manufacturing
- Physics
- Quantum Engineering
- Robotics
- Software Engineering
- Space Systems Engineering
- Sustainability Management
- Systems Analytics
- Systems Engineering

19 Ph.D. Programs

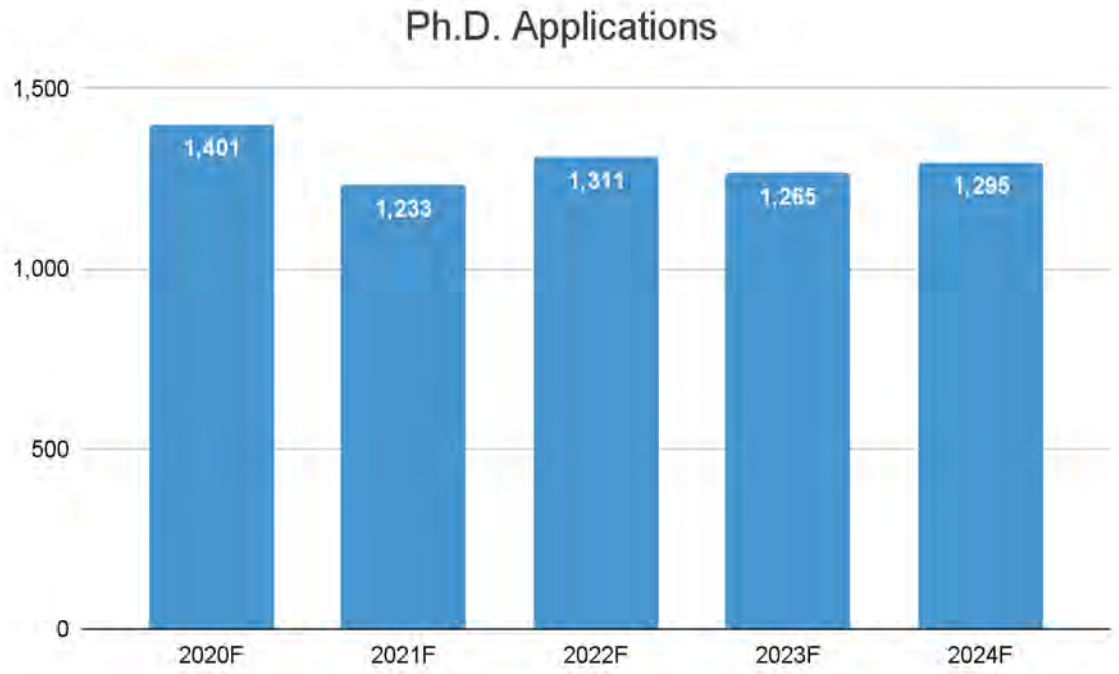
- Biomedical Engineering
- Chemical Biology
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Engineering
- Computer Science
- Data Science
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- Interdisciplinary
- Materials Science & Engineering
- Mathematics
- Mechanical Engineering
- Ocean Engineering
- Physics
- Systems Engineering
- Socio-Technical Engineering

Master's Applications & Enrollment



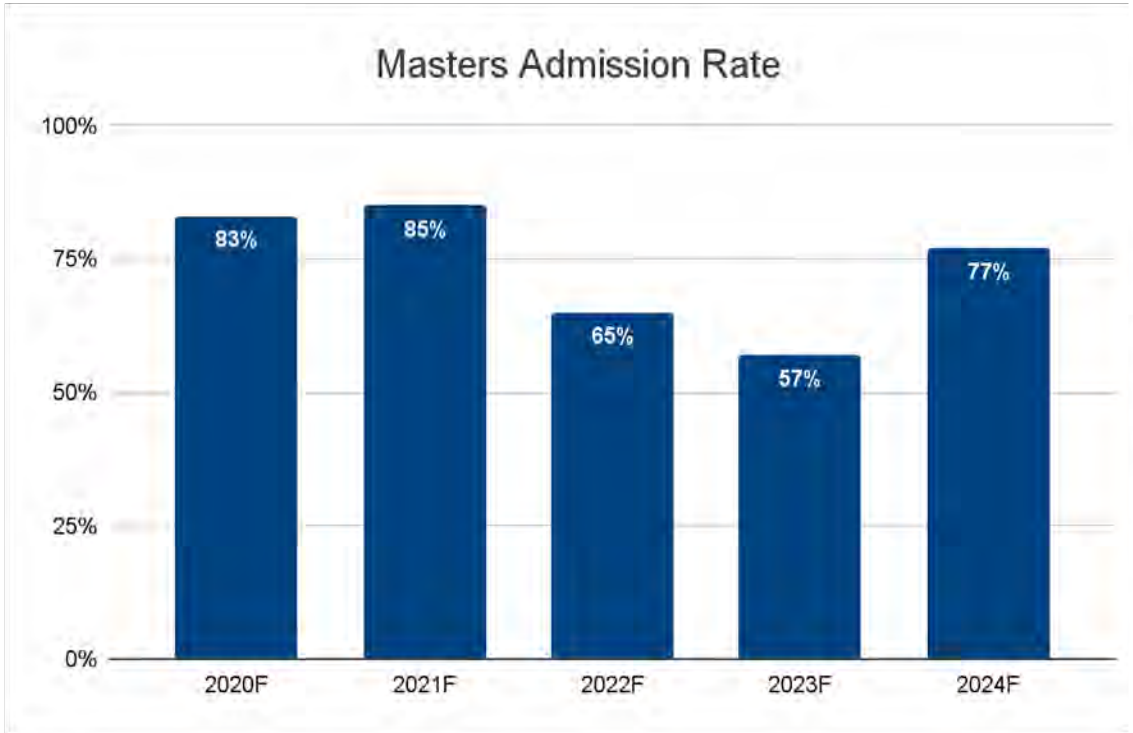


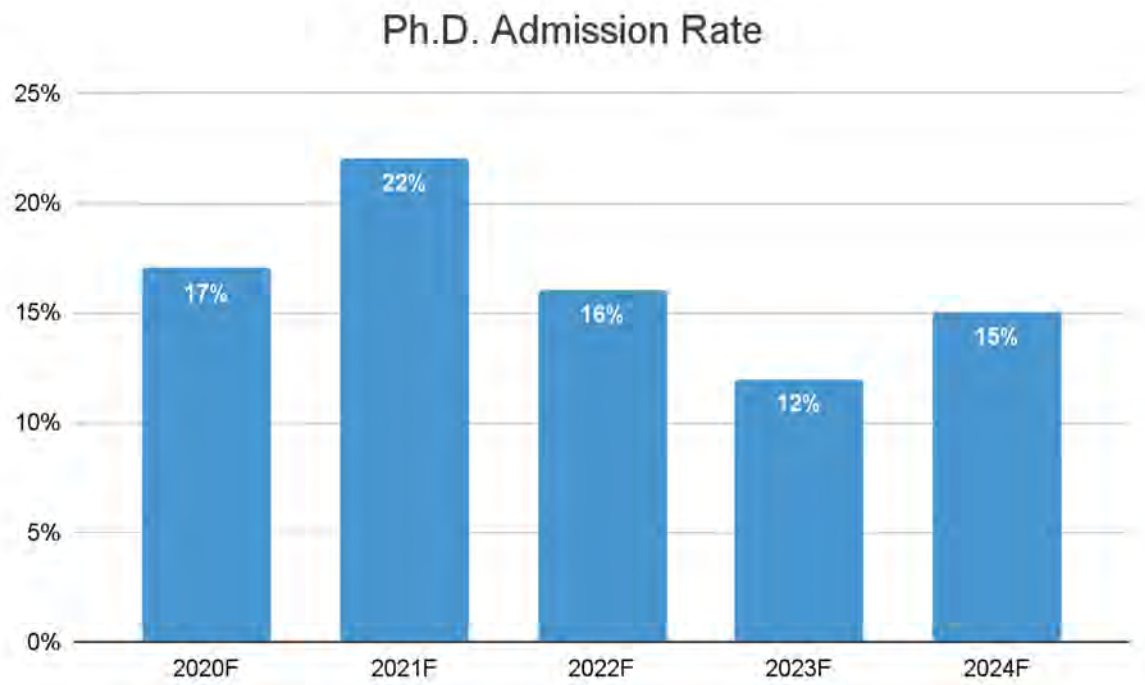
Ph.D. Applications and Enrollment



Graduate Student Admission Rate

Increasing selectivity





10 Inter-University Joint Programs

- Inter-University Engineering Doctoral Consortium, New York/New Jersey
  Stevens, NYU, NYUIT, Rutgers, CCNY, Columbia, Cornell, Princeton
- Ecole Centrale de Nantes, France - Dual-Degree Ph.D.
- Xidan University, China - M.Eng.
- Xi’an Jiaotong University, China - M.Eng.
- Hackensack Meridian School of Medicine, New Jersey, USA - M.S.
- Chongqing University of Posts and Telecommunications(CQUPT), China - M.Eng.
- Seton Hall University, New Jersey, USA - M.Eng., M.S.
- St. Peter’s University, New Jersey, USA - M.S.
- Montclair University, New Jersey, USA - M.S.
- University of Sharjah, United Arab Emirates - Ph.D.

Student Achievements

Department of Computer Science team NAM (Never Alone with Me) won **2nd Place in the fifth annual Amazon Alexa Prize SocialBot Grand Challenge**

Department of Computer Science WMT22 team won **three 1st place awards in the elite WMT22 machine translation competition**

Department of Chemistry and Chemical Biology Ph.D. student won **2nd Place in the Johnson & Johnson Engineering Showcase Poster and Elevator Pitch Competition**

Department of Civil, Environmental and Ocean Engineering Ph.D. student won **1st Place in the American Meteorological Society Joint Conference Student Competition**

Alexa Prize Team NAM

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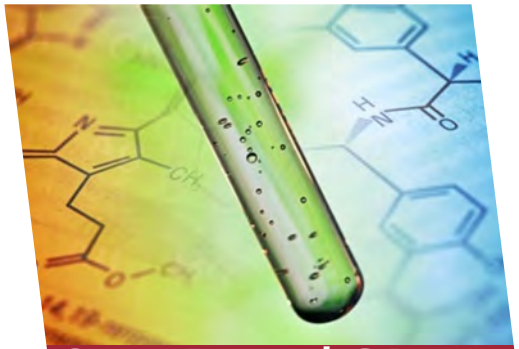
Research

Research Highlights

Stevens research tackles some of the most urgent challenges facing our world today

Artificial Intelligence

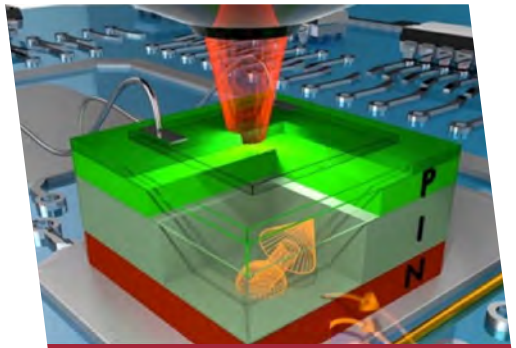
Neuromechanics



Cancer Research & Drug Discovery

Energy Innovation

Cyber-Physical Systems



Quantum Technologies

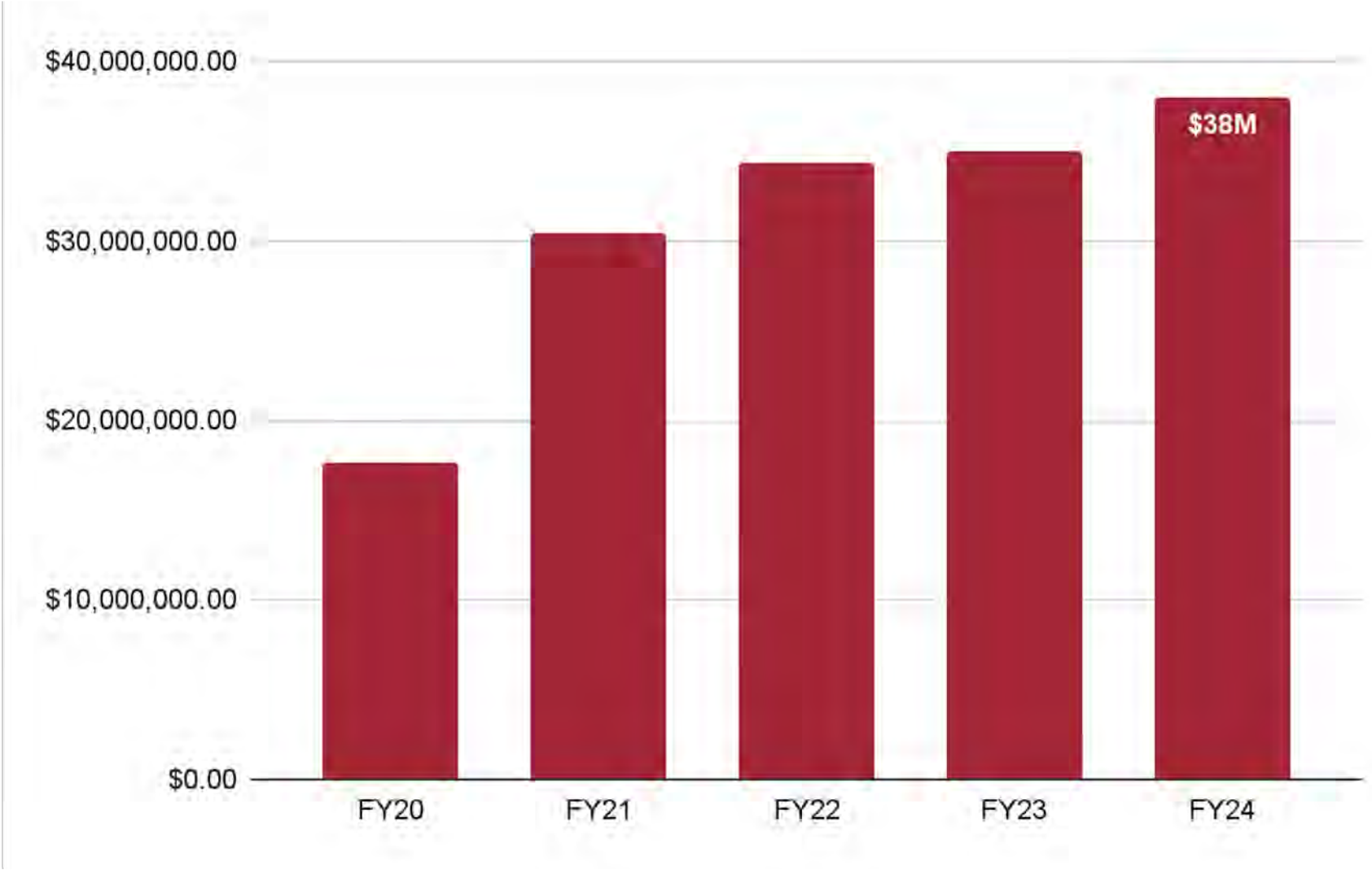
Robotics

Urban & Coastal Resiliency

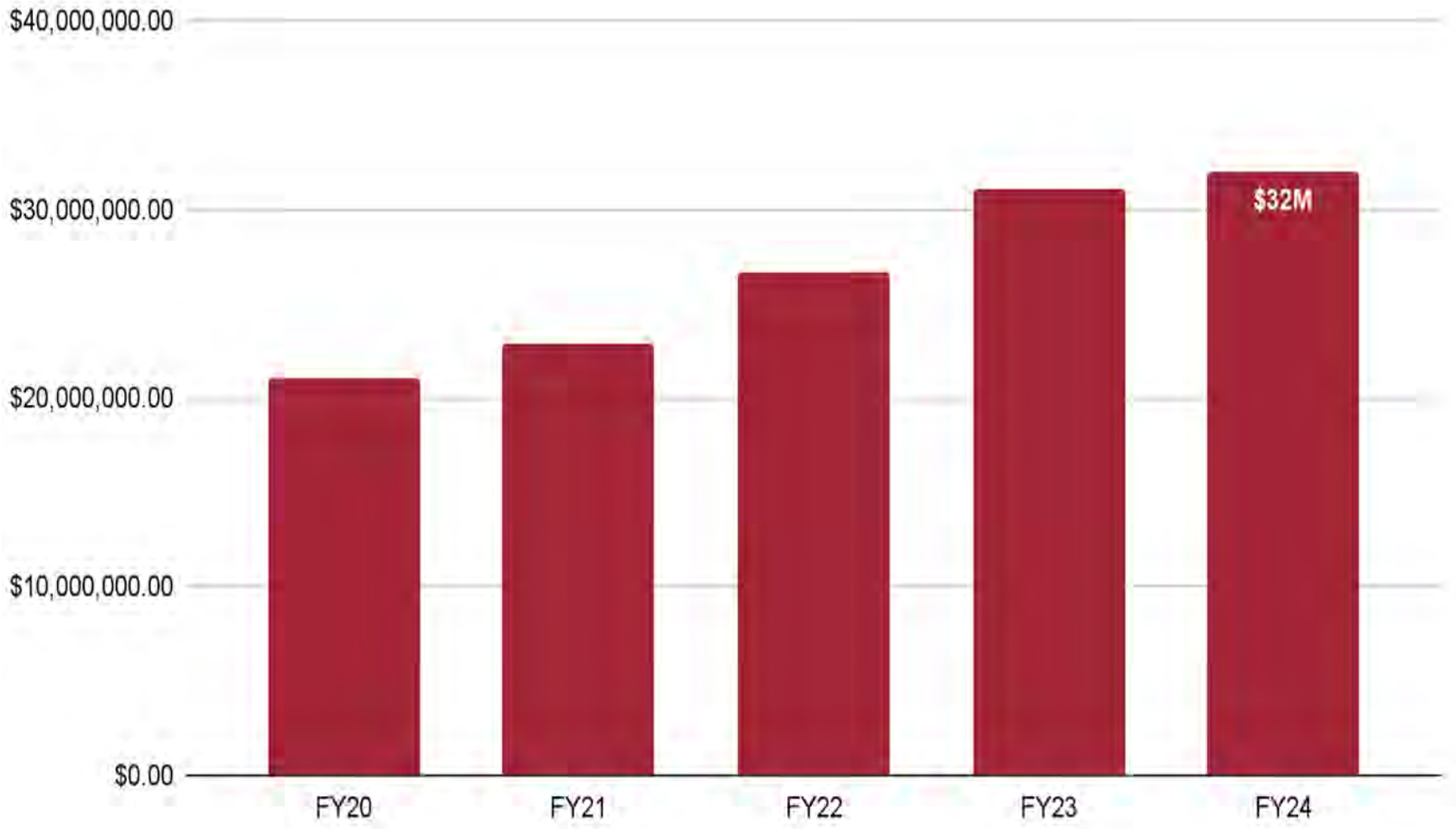
9 Research Centers

- Center for Environmental Systems
- Semcer Center for Healthcare Innovation
- Center for Innovative Computing and Networked Systems
- Center for Neuromechanics
- Center for Quantum Science and Engineering
- Davidson Laboratory
- Stevens Center for Sustainability
- Stevens Institute for Artificial Intelligence
- Systems Engineering Research Center

Research Funding Awards



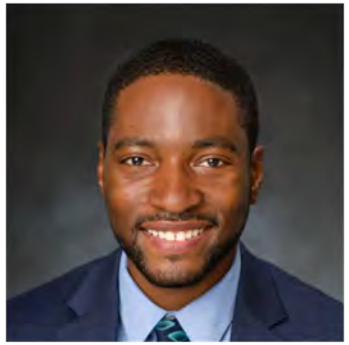
Research Expenditures



2024 Young Investigator Awardees

Shima Hajimirza (ME)
CAREER

Tian Han (CS)
CAREER



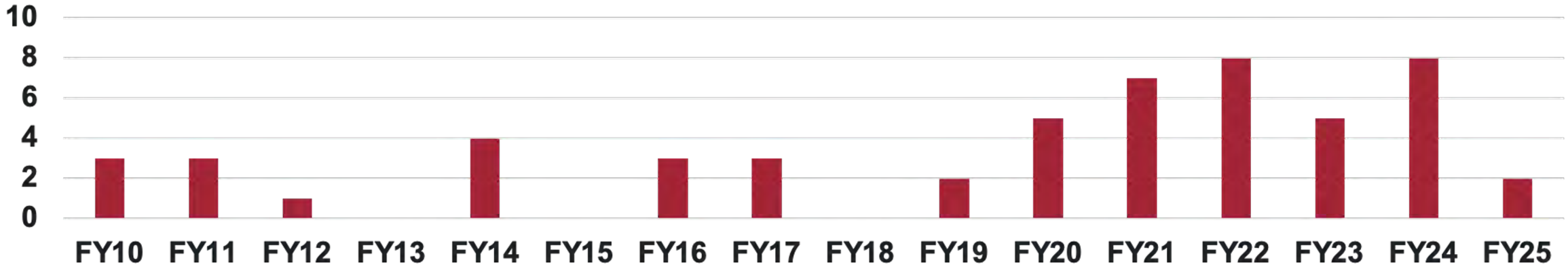
Philip Odonkor (SE)
CAREER

Adam Overvig (PHY)
AFOSR YIP

Christopher Sugino (ME)
CAREER

J. Weickenmeier (ME)
CAREER

YIA Awards at Stevens Since FY10



Research Centers

Center for Environmental Systems

- Environmental technology
- Contaminant fate and transport
- Remedial processes
- Environmental geotechnology
- Environmental monitoring, analysis, and modeling
- Water conservation

Center for Innovative Computing and Networked Systems

- Mobile and quantum computing
- High-performance computing
- Circuits and digital systems
- Power and energy systems
- Robotics and smart systems
- Signal processing and wireless communications
- Cybersecurity, cyber-physical systems, and IoT
- Open radio access networks
- 5G/6G and wireless networks
- Trustworthy AI and applications

Semcer Center for Healthcare Innovation

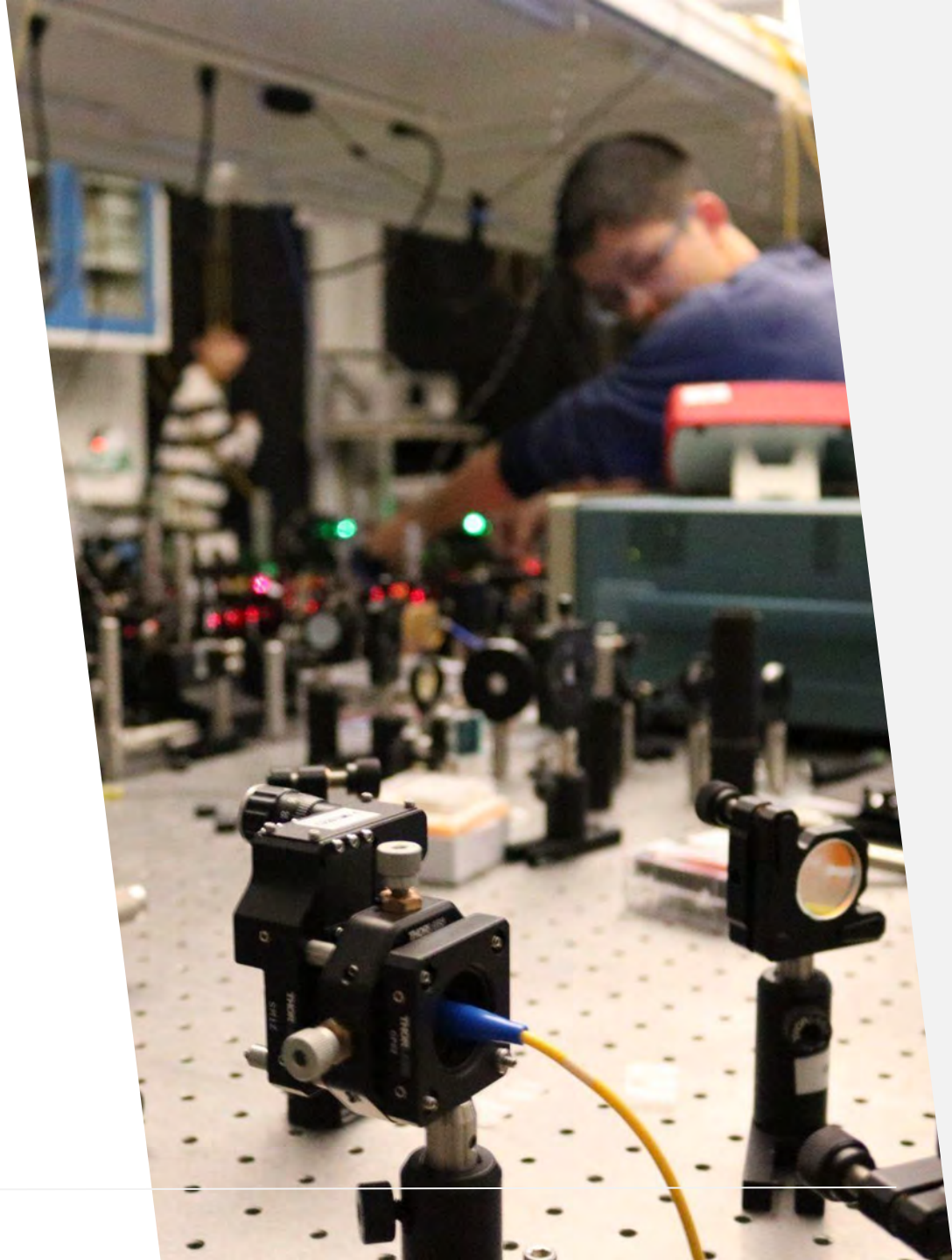
- Multifunctional multiscale biomaterials and biofabrication
- Molecular, cellular and tissue technologies
- Biomechanics and rehabilitation engineering
- Biomedical sensing and imaging
- Drug discovery, development and delivery (4D)

Center for Neuromechanics

- Interdisciplinary research
- Function, structure and health of the human brain
- Computational biomechanics
- Brain imaging
- Biomechatronics
- Biofabrication
- Bionics

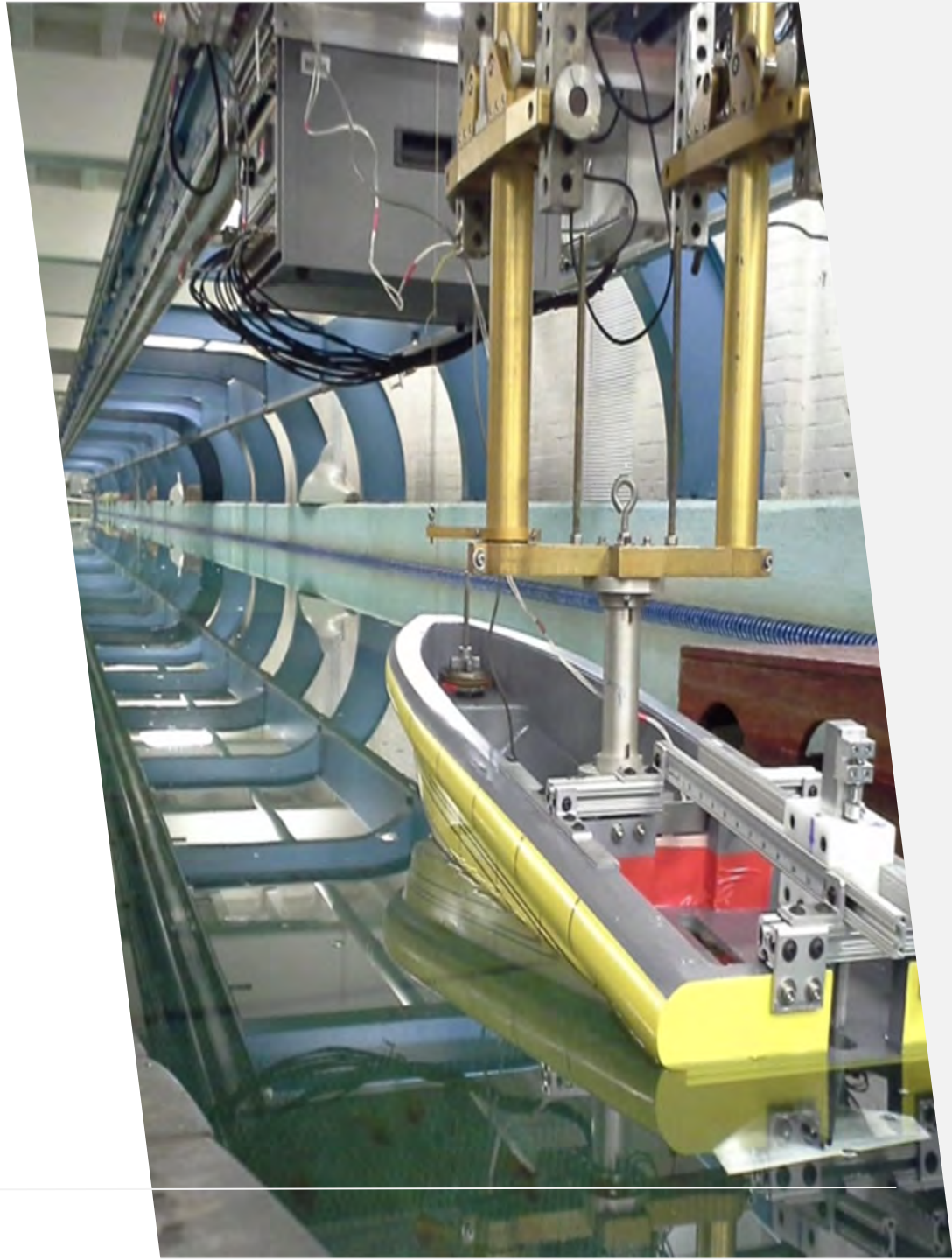
Center for Quantum Science and Engineering

- Quantum computing, control
- Quantum big data analytics
- Quantum materials
- Quantum sensing, imaging
- Quantum communications, cryptography
- Quantum education, industrial relations



Davidson Laboratory

- Climate change and coastal resilience
- Flooding and storm surge prediction
- Experimental and computational marine hydrodynamics
- Marine systems: ships, wave energy converters, and submersibles



Stevens Center for Sustainability

The Stevens Center for Sustainability aims to provide a collaborative, cross-disciplinary platform for researchers to solve critical problems faced by underserved communities.

Stevens Institute for Artificial Intelligence

- Interdisciplinary, tech-driven collaboration
- 100+ faculty, from every school
- Advance AI and machine learning
- Improve disciplines such as healthcare, business operations, industry, and education

Systems Engineering Research Center

- Enterprises and Systems of Systems
- Trusted Systems
- Systems Engineering and Systems Management Transformation
- Human Capital Development

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THANK **YOU**

Stevens Institute of Technology
1 Castle Point Terrace, Hoboken, NJ 07030