



STEVENS
INSTITUTE *of* TECHNOLOGY

Schaefer School of
Engineering & Science

ANNUAL REPORT 2019-2020



INTRODUCTION

MESSAGE FROM THE DEAN

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2019-2020

I am pleased to present the Charles V. Schaefer, Jr. School of Engineering and Science Annual Report, highlighting our achievements and initiatives over the 2019–2020 academic year.

Our 2019–2020 Annual Report features our great accomplishments for AY 19–20, including a record-breaking Ph.D. recruitment with a 76% increase in new enrollments from the previous year. We launched our new data science master's program that has received tremendous interest among potential students in its first few months of availability. The undergraduate engineering and computer science curriculums have been streamlined to allow for an even more flexible curriculum, and a student advisory council has been established across every department.

Our research enterprise continues to grow, thanks in part to the introduction of new grant proposal resources and the ambition of our talented researchers, earning \$30,432,998 in awards for the 2019–2020 academic year. Our school also welcomed 14 new faculty members who bring with them exciting new research and an enthusiasm for Stevens' spirit of interdisciplinary collaboration, and four of our current faculty were honored with Young Investigator Awards from the National Science Foundation and the Office of Naval Research.

While the COVID-19 pandemic caused us to greatly adapt the way we think about and deliver our educational experience to our students, I'm proud of the way our faculty and staff have responded—from hosting workshops to improve online teaching to applying their research to problems presented by the coronavirus. The pandemic also prompted us to launch a Virtual Research Forum to share our exciting research breakthroughs online with the Stevens community and our peers.

As I reflect on the major advancements made by our school in 2019–2020 toward our strategic plan goals as well as the opportunities for improvement that are still available, I feel a renewed commitment to strengthening our output in key areas, including student centrality, exciting new initiatives for research and innovation, and a focus on increasing collaboration across multiple fields at the school level to provide greater career development opportunities for our students.

I am confident that we will establish new thresholds for excellence in many areas as we continue to work toward our vision for our future. Together, we will build a world-class school of engineering and science with even more prominence on the global stage.



Jean Zu, Dean

Schaefer School of Engineering and Science



STUDENTS

Gender Diversity AY 19-20

28% of undergraduate students are female (2019)

3-year trend: Holding steady at 28%
2018: 28%
2017: 29%

23% of master's students are female (2019)

3-year trend: Holding steady at 23%
2018: 22%
2017: 23%

29% of Ph.D. students are female (2019)

2018: 27%
2017: 31%
33% of the incoming class of Ph.D. students in Fall 2019 were female, **a new record.**

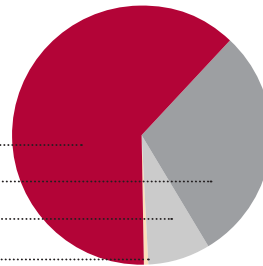


Underrepresented Minorities AY 19-20

- 14.5% of undergraduate students are underrepresented minorities
- Data not tracked at the graduate level

Enrollment at a Glance AY 19-20

Total Students: **4,261**
Total Undergraduate Enrollment: **2,663**
Total Master's Enrollment: **1,249**
Total Ph.D. Enrollment: **328**
Total Graduate Certificate Enrollment: **21**



Undergraduate Enrollment by Department Fall 2019

	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	UND*	SES (Total)	YOY Growth
2019	239	96	220	243	611	388	579	38	61	188	2663	4.5%
2018	227	79	233	249	503	402	599	38	52	166	2548	7.5%
2017	222	87	231	242	420	378	579	27	37	147	2370	

*undecided

Master's Enrollment by Department Fall 2019

	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	OTHER	SES (Total)	YOY Growth
2019	41	33	44	219	451	249	112	44	21	2	1216	-0.3%
2018	40	25	56	250	434	245	127	18	22	3	1220	-11.1%
2017	41	30	73	248	502	281	165	22	10	1	1373	

Ph.D. Enrollment by Department Fall 2019

	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	OTHER	SES (Total)	YOY Growth
2019	17	29	35	44	49	46	57	18	39	4	333	16.8%
2018	16	28	33	36	30	37	47	19	34	5	285	1.8%
2017	16	29	37	43	22	32	50	18	28	5	280	

Undergraduate Student Career Outcomes by Major

AY 18-19. Data for AY 19-20 not yet available.

MAJOR	EMPLOYMENT RATE 6 MO. POST GRAD	AVERAGE SALARY
Biology	100%	Insufficient Data
Biomedical Engineering	97%	\$75,600
Chemical Biology	100%	Insufficient Data
Chemical Engineering	87%	\$75,900
Chemistry	100%	Insufficient Data
Civil Engineering	100%	\$68,700
Computer Engineering	98%	\$83,500
Computer Science	96%	\$90,200
Cybersecurity	100%	Insufficient Data
Electrical Engineering	98%	\$77,000
Engineering Physics / Physics	100%	Insufficient Data
Environmental Engineering	100%	\$58,000
Mechanical Engineering	96%	\$69,100
Naval Engineering	100%	Insufficient Data
Pure & Applied Mathematics	100%	Insufficient Data

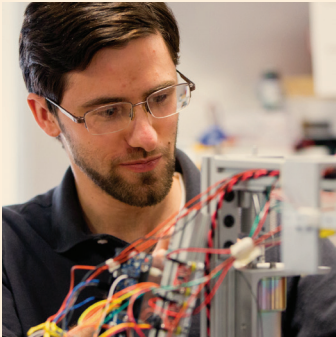
Master's Student Career Outcomes by Major

AY 18-19. Data for AY 19-20 not yet available.

MAJOR	EMPLOYMENT RATE 3 MO. POST GRAD	AVERAGE SALARY
Applied Artificial Intelligence	100%	\$85,000
Biomedical Engineering	50%	\$65,000
Chemical Engineering	100%	Insufficient Data
Civil Engineering	80%	\$76,250
Computer Engineering	63%	\$105,000
Computer Science	82%	\$90,625
Construction Engineering & Mgmt	100%	\$72,000
Construction Management	67%	\$70,000
Cybersecurity	67%	\$97,500
Electrical Engineering	70%	\$85,625
Environmental Engineering	57%	\$65,000
Materials Science	50%	Insufficient Data
Mechanical Engineering	84%	\$76,250
Ocean Engineering	100%	\$65,000
Pharmaceutical Manufacturing	100%	\$63,333
Physics	100%	\$70,000
Sustainability Management	100%	\$65,000



STUDENT ACCOMPLISHMENT HIGHLIGHTS



The National Society of Black Engineers (NBSE) Stevens Chapter won first place in the Academic Technical Bowl at the NSBE Fall Regional Conference for Region One. The participating students were Antony Cruz (ECE), Ha-mil Hatty (ECE), Jerome Massicot (CEMS), and Joshua Hector (SSE).

The Institute of Electrical & Electronics Engineers Student Branch received an Exemplary Student Branch Award.



A Stevens team from the mechanical engineering department consisting of Emma Kilcoyne, Dan Di Boniventura, Kristopher Knight, Brendan Shepherd, Pablo del Puerto, Margaret Guilfoyle, Keith Gallimore, Madeleine Daniell, and Andrew Amerman was selected as one of ten finalists to participate in the 2020 NASA Moon to Mars Ice & Prospecting Challenge. They received a \$10,000 sponsorship to build their prototype, ERIC (Extraterrestrial Robot Ice Collector), and to attend the competition in the fall. The team won second place in 2019.

CEOE master's student Kevin Raleigh won the "Best Graduate Student Poster" award for his poster "Hydrodynamic Waystations for Autonomous Drone Charging" at the 10th Annual Maritime Risk Symposium.

CEOE Ph.D. student Mariana Pires won the top scholarship award at the Construction Management Association of America New York/New Jersey awards luncheon. The amount of the scholarship was \$10,000.

CEOE Ph.D. student Xin Su was awarded second place at the 2019 MODFLOW Conference for her project "Groundwater Flooding at Coastal Urban Areas."

CEOE student Xiao Tan won the 2019 New Jersey Department of Transportation Best Poster Award.

CEOE student Christine Cardascia received the American Concrete Institute Award.

CCB student Zamin Akmal received an Undergraduate Research Symposium Award of \$1,000 from the Independent College Fund of New Jersey for his project "An Instrumented Data Glove for Quantifying Movement Disorders."

CCB student Joanna Kopko received an Undergraduate Research Symposium Award of \$1,000 from the Independent College Fund of New Jersey for her project "Identifying New Targets in Colon Cancer by Gene Expression Following ERK Kinase Inhibition."

CCB student Skylar Migliaccio received the Johnson & Johnson Pre-Professional Scholarship Award of \$5,000.

STUDENTS

CEMS student Jessica Persaud won first place in the Northern and Central Jersey Chapter of the Air & Waste Management Association (AWMA) Student Poster Competition for her project “Understanding the Role Water in Perovskite Solution Stability for Emerging Light Harvesting Applications.”

CS student Gabrielle McCormack was selected for a full scholarship of \$22,000 to the Applied Cybersecurity certificate program accredited by the Middle States Commission on Higher Education and operated by the SANS Technology Institute. Gabrielle was one of 100 students selected out of over 13,000 Cyber FastTrack students who came from 1,290 colleges.

ECE student Max Milone received a scholarship of \$2,000 from the IEEE PES Scholarship Plus initiative. He also received an additional \$5,000 for being named the John W. Estey Outstanding Scholar, the top PES scholar for IEEE Region One (Northeast USA).

ECE student Ryan Delipsingh was awarded the 2020 Lee Parker Memorial Award by the AIChE North Jersey Section.

ECE student Caden Miller was awarded the 2020 John Anderson Memorial Award by the AIChE North Jersey Section.

ECE student Michael Haeusgen was awarded the 2020 Herb Fried Award by the AIChE North Jersey Section.

ECE student Ranjeet George was awarded the 2020 Walter Schnyder Memorial Award by the AIChE North Jersey Section.

ECE Ph.D. student Milad Mirzaee received an MTT-S Graduate Fellowship for Medical Applications for 2020 Award of \$6,000 from the IEEE Microwave Theory and Techniques Society.

MS student Ben Mirtchouk placed in the top 20% in the William Lowell Putnam Competition. The Stevens Putnam team, which included Ben Mirtchouk, Eshan Tivakaran, and Jack Hymowitz, also placed in the top 20%.

PHY student Lukasz Komza, and CS students Ben Mirtchouk and Rocco Polimeni competed at the International Collegiate Programming Contest Greater NY Regional, placing as the top freshman team, and top ten overall.

Student Advisory Council

The establishment of the first Student Advisory Council provides a mechanism to communicate with students on a regular basis, receiving feedback to improve academic programs, and enhance their educational experience.



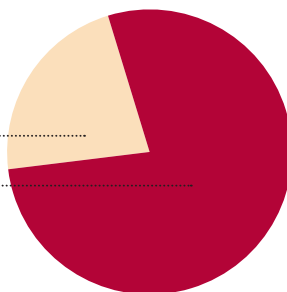
FACULTY

The American Society for Engineering Education recognized Stevens Institute of Technology in 2019 with a Bronze Award in its inaugural Diversity Recognition Program.

27% of new hires are female

Current Faculty Makeup

- 22% Female
- 78% Male



24% of current faculty are from underrepresented groups



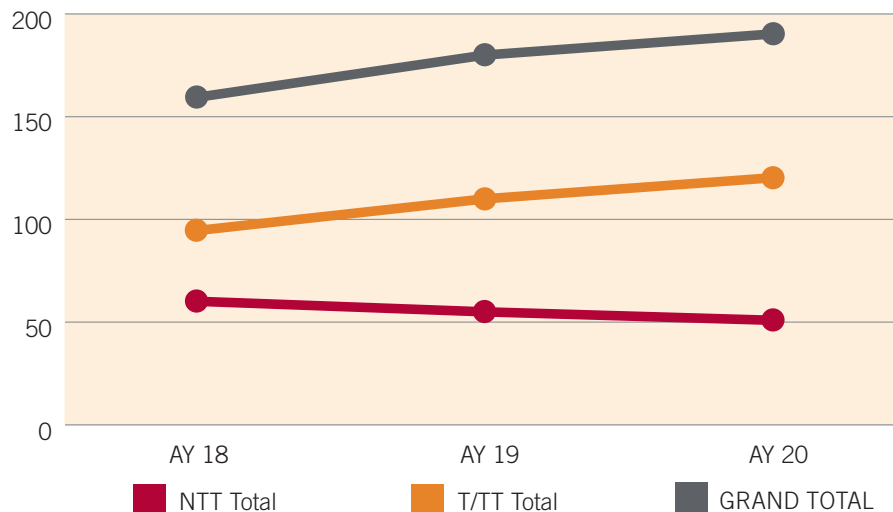
Number of Tenured & Tenure-Track Faculty by Department AY 19-20

Department	Faculty
Biomedical Engineering	9
Chemical Engineering & Materials Science	12
Chemistry and Chemical Biology	7
Civil, Environmental, & Ocean Engineering	17
Computer Science	21
Electrical & Computer Engineering	16
Mathematical Sciences	8
Mechanical Engineering	22
Physics	11
Grand Total	123

Faculty Growth

	T	TT	NTT	Lecturer	TOTAL
AY 18	68	28	64	6	166
AY 19	71	44	56	10	181
AY 20	76	50	53	16	195

Faculty Growth



14 NEW HIRES

AY 19-20

As part of a multi-year faculty and research expansion, the Schaefer School hired the following new faculty members:

Zhuo Feng, Associate Professor, Electrical & Computer Engineering

Ph.D.: Texas A&M University

Specialization: Integrated Circuit Design and CAD, High-Performance Spectral Graph Algorithms, Hardware Acceleration of Compute-Intensive Graph and Numerical Algorithms

Tian Han, Assistant Professor, Computer Science

Ph.D.: University of California, Los Angeles

Specialization: Statistical Machine Learning focused on Computer Vision Applications

Mohammad Ilbeigi, Assistant Professor, Civil, Environmental, & Ocean Engineering

Ph.D.: Georgia Institute of Technology

Specialization: Advanced Statistical and Computational Analysis focused on Uncertainties in Infrastructure Systems

Hamidreza Jafarnejad Sani, Assistant Professor, Mechanical Engineering

Ph.D.: University of Illinois at Urbana-Champaign

Specialization: Secure and Resilient Control of Cyber-Physical Systems

Hang Liu, Assistant Professor, Electrical & Computer Engineering

Ph.D.: The George Washington University

Specialization: Hardware-Software Co-Optimized Data Analytics

continued



14 NEW HIRES *continued*



Kaijian Liu, Assistant Professor, Civil, Environmental, & Ocean Engineering

Ph.D.: University of Illinois at Urbana-Champaign

Specialization: Informatics and Analytics for the Development and Management of Smart, Sustainable, and Resilient Built Environment

Xueqing (Susan) Liu, Assistant Professor, Computer Science

Ph.D.: University of Illinois at Urbana-Champaign

Specialization: Software Engineering, Security and Privacy, Data Mining

Xiao-Feng Qian, Assistant Professor, Physics

Ph.D.: University of Rochester

Specialization: Quantum Information, Quantum and Coherence Optics, Foundational Physics, Open System Dynamics, Condensed Matter

Chunlei Qu, Assistant Professor, Physics

Ph.D.: University of Texas at Dallas

Specialization: Atomic, Molecular, and Optical Physics, Condensed Matter Physics

Rita Sousa, Assistant Professor, Civil, Environmental, & Ocean Engineering

Ph.D.: Massachusetts Institute of Technology

Specialization: Geotechnical Engineering and Geomechanics of the Subsurface

Long Wang, Assistant Professor, Mechanical Engineering

Ph.D.: Vanderbilt University

Specialization: Modeling, Sensing, and Control of Robots

Shang Wang, Assistant Professor, Biomedical Engineering

Ph.D.: University of Houston

Recent Affiliation: Baylor College of Medicine, TX

Specialization: Optics, Engineering, Biomedicine

Jia Xu, Assistant Professor, Computer Science

Ph.D.: RWTH-Aachen University, Germany

Specialization: Machine Learning and Statistical Natural Language Processing

Xiangwu (David) Zeng, Professor and Vice Provost for Academic Innovation and Faculty Affairs, Civil, Environmental, & Ocean Engineering

Ph.D.: Cambridge University

Specialization: Centrifuge Modeling of Geotechnical Problems, Soil Mechanics for Lunar and Mars Exploration, Vibration and Noise Attenuation of Railway Foundations for High-Speed Trains, Mechanical Properties of Granular Materials Under Microgravity

FACULTY

Department Chair Appointments

Adeniyi Lawal, Professor, Chemical Engineering & Materials Science

Woo Lee, Professor, Chemistry & Chemical Biology

Ting Yu, Professor, Physics (reappointed)

Stevens Employee Recognition Awards

CEMS Professor and SES Associate Dean for Research Henry Du received a 2019-20 Stevens Employee Recognition Award for “Strengthened Reputation, Increased Prestige.”

ECE Teaching Associate Professor Dov Kruger received a 2019-20 Stevens Employee Recognition Award for “Technology at Our Core.”

ME Assistant Professor Brendan Englot received a 2019-20 Stevens Employee Recognition Award for “Strengthened Reputation, Increased Prestige.”

ME Assistant Professor Nick Parziale received a 2019-20 Stevens Employee Recognition Award for “Excellence in All We Do.”

Young Investigator Awards

2020 National Science Foundation CAREER Award Winners

Antonia Zaferiou, Department of Biomedical Engineering

Damiano Zanutto, Department of Mechanical Engineering

2020 Office of Naval Research Young Investigator Award Winners

Brendan Englot, Department of Mechanical Engineering

Nick Parziale, Department of Mechanical Engineering

External Honors & Awards

Giuseppe Ateniese (CS), Jean-Claude Laprie Award

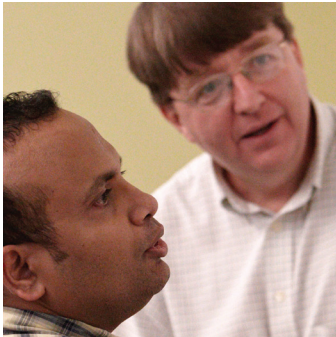
Ron Besser (CEMS), Appointed Fellow of the American Institute of Chemical Engineers

Ellyn Lester (CEOE), Carol A. Kueker Construction Education Visionary Award

Weina Meng (CEOE), American Society of Civil Engineers, New Jersey Educator of the Year

Dibyendu Sarkar (CEOE), Appointed Fellow of Soil Science Society of America, and the Advisory Council of the Association for Advancement of Sustainability in Higher Education





K.P. (Suba) Subbalakshmi (ECE), Invited to serve on the National Academies' Intelligence Science and Technology Experts Group

E.H. Yang (ME), Invited to serve on the NAI Fellows Advisory Committee

Yi Bao (CEOE), Structural and Bridge Engineering International Research Fellowship 2019 Award from AP&P Alessio Pipinato & Partners Architectural Engineering S.r.l., Italy

Stefan Strauf's (PHY) figure from his Nature Nanotechnology paper and his associated Stevens press release was selected by the NNI Supplement to the ***President's 2020 budget to be submitted to Congress***, showcasing Stevens' Center for Quantum Science and Engineering.

Igor Pikovski's (PHY) paper "Bell's Theorem for Temporal Order" is one of the **Top 50 publications in *Nature Communications* of 2019.**

Best Paper Awards

CS Associate Professor Samantha Kleinberg received the Homer R. Warner Award from the American Medical Informatics Association (AMIA) for "Best Paper" at the 2019 AMIA Annual Symposium.

ECE Research Professor and Director of the Maritime Security Center Hady Salloum and his team of Stevens researchers received the "Best Paper Award" at the last IEEE Homeland Security Symposium for their paper "Land/Maritime Borders & Critical Infrastructure Protection."

ECE Associate Professor Shucheng Yu received the prestigious Test of Time Paper Award from the 2020 IEEE Conference on Computer Communications for his paper "Achieving Secure, Scalable, and Fine-grained Data Access Control in Cloud Computing."

ME Teaching Assistant Professors Alexander De Rosa and Maxine Fontaine received the national award of "2018 Best Zone Paper" across the whole of ASEE for their paper titled "Implementation and First-Year Results of an Engineering Spatial Skills Enhancement Program."

ME Professor and Associate Dean for Undergraduate Studies Kishore Pochiraju (ME) and Director Sandra Clavijo won first place Best Paper/Teaching for their paper, "An Analysis of Freshman Teamwork Experiences in Required Design and Entrepreneurial Thinking Project-Based Learning Courses," at the 2019 ASEE Annual Conference.

Faculty Advisory Council Established

The SES Faculty Advisory Council (FAC) serves to foster close communication and consultation between the SES Dean and faculty in all departments to discuss school-wide matters and to recommend innovative initiatives in a professional and collaborative manner.

UNDERGRADUATE EDUCATION

Total Undergraduate Applications: 8,840

Number of Degree Programs Offered AY 19-20

Total Bachelor's Degree Programs: **16**

9 Engineering Programs

5 Math & Science Programs

2 Computer Science Programs



Number of Degree Programs Offered by Department

Department	Program
Biomedical Engineering	1 (B.Eng.)
Chemical Engineering and Materials Science	1 (B.Eng.)
Chemistry and Chemical Biology	3 (B.S.)
Civil, Environmental, & Ocean Engineering	3 (B.Eng.)
Computer Science	2 (B.S.)
Electrical & Computer Engineering	2 (B.Eng.)
Mathematical Sciences	1 (B.S.)
Mechanical Engineering	1 (B.Eng.)
Physics	2 (B.S.)



Total Number of Undergraduate Degrees Awarded by Department AY 19-20

Department	Degrees Awarded
Biomedical Engineering	37
Chemical Engineering and Materials Science	56
Chemistry and Chemical Biology	11
Civil, Environmental, & Ocean Engineering	54
Computer Science	79
Electrical & Computer Engineering	109
Engineering and Science (Other)	3
Mathematical Sciences	5
Mechanical Engineering	177
Physics	5
Total Degrees Awarded	536

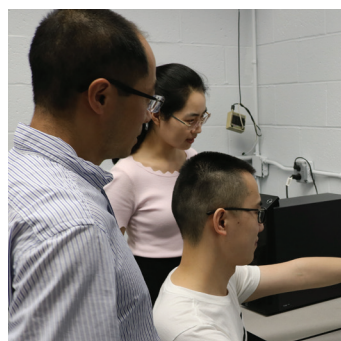
Total Number of Undergraduate Degrees Awarded by Department Over Three Years

	B.Eng.	B.S.	B.Eng.	B.Eng.	B.S.	B.Eng.	B.Eng.	B.Eng.	B.S.	B.S.			
AY	BME	CCB	CEMS	CEOE	CS	ECE	E*	ME	MS	PHY	TOTAL	BS	BE
2016-17	44	16	46	54	45	94	15	175	4	7	500	87	413
2017-18	61	26	61	56	87	77	9	157	2	6	542	130	412
2018-19	41	13	59	55	88	115	3	183	5	6	568	115	453

E* Computational Science Interdisciplinary program now retired

AY includes both Fall and Spring graduations, e.g. 2018-19 A/Y = Fall 18 + Spring 19.

Other Trends



	First Time Full Time Freshmen Retention	Courses	Credits
2017	94%	203	62,896
2018	95%	210	63,362
2019	95%	209	67,423



UNDERGRADUATE

New Program

Engineering Bachelor's Degree with a concentration in Optical Engineering

New Curriculum Design

The computer science curriculum was revised to allow for more flexibility within the programs.

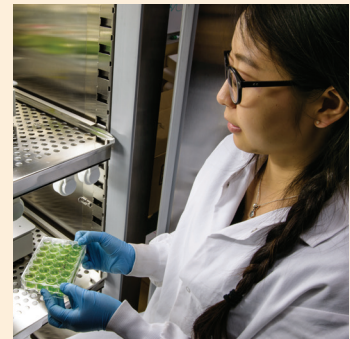
The SES curriculum revision task force completed and published their recommendations, which include revision of the structure of the engineering curriculum and the reduction of the number of credits. This creates a streamlined structure of six blocks of course work every semester and opens up more possibilities for minors and educational opportunities outside of their major.

New Advising Structure

- New three-tiered advising model that includes departmental academic advisors with high availability to students
- Students have an advising team consisting of a faculty advisor from their department, departmental academic advisor, and institutional advising support from Office of Undergraduate Admissions

New Lab Spaces

- Design Labs were reconfigured with new laboratory experiences and for teams of three students to work efficiently in the lab
- ProOF Laboratory moved to new space in Gateway Academic Center
- Acquisition of equipment for experiential learning in CEMS department including a distillation column and a reactor
- Machining and electronics technical services were consolidated in the new Machine and Electronics Shop



GRADUATE EDUCATION

Graduate Rankings

#80 engineering school, USNR 2020

#7 in the nation for best Online Graduate Information Technology Programs, USNWR 2020

#21 in nation for Best Online Graduate Engineering Programs, USNWR 2020

#1 in New Jersey for Best Online Graduate Engineering Programs, USNWR 2020



New Programs

- Actuarial Mathematics and Quantitative Risk Master's Degree
- Robotics Master's Degree
- Dual Degree MBA for:
 - Pharmaceutical Manufacturing
 - Mechanical Engineering
- Dual Degree Programs with International University Partner Xidian University



Number of Degree Programs Offered by Department AY 19-20

Degree	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	DEAN	SES (Total)
Ph.D.	1	2	2	4	3	2	1	1	1	2	19
Engineer	1	0	1	1	1	2	1	0	0	0	7
Master	1	4	3	6	3	7	6	4	2	2	38
Certificate	2	7	11	25	7	15	16	2	5	0	90
TOTAL	5	13	17	36	14	26	24	7	8	4	154

Number of Degrees Awarded AY 19-20

Degree	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	DEAN	SES (Total)
Ph.D.	6	5	7	3	3	7	7	4	2	2	46
Engineer	0	0	0	0	0	0	0	0	0	0	0
Master of Engineering	15	0	16	98	0	73	61	0	3	0	266
Master of Science	9	11	10	25	238	57	7	8	10	0	375
Certificate	0	1	0	22	9	19	25	1	1	0	78
TOTAL	30	17	33	148	250	156	100	13	16	2	765

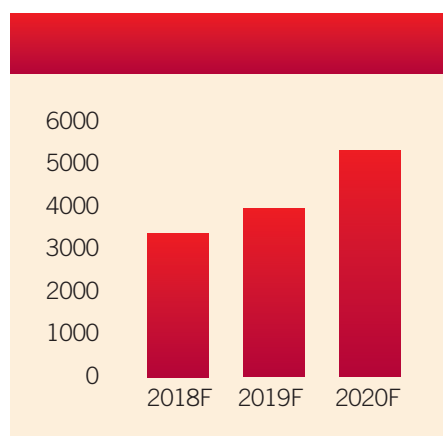
Graduate Student Profile

	AY18	AY19	AY20
Full-Time	79%	81%	80%
Ph.D.	18%	20%	20%
Domestic	34%	32%	32%
Female new Ph.D.	29%	26%	35%
Female new Master	21%	22%	23%

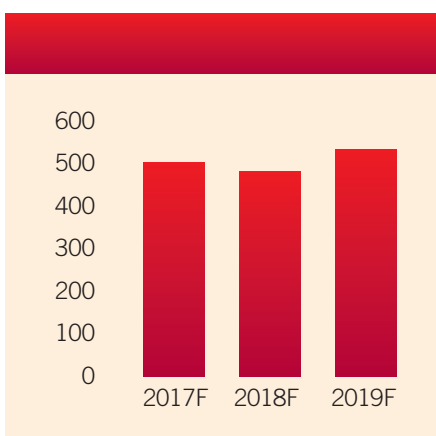
Applications AY 19-20

- Total Master's Applicants: 5,291 (up 23% from previous year)
- Total Ph.D. Applicants: 1,377 (up 23% from previous year)

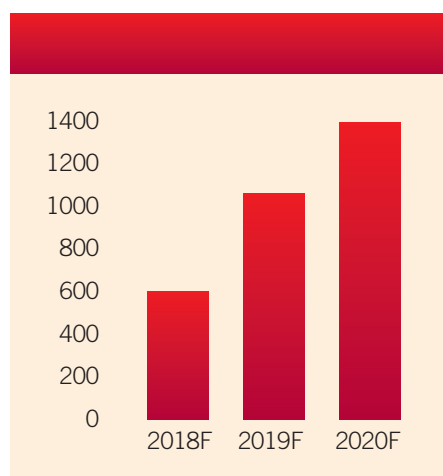
Master's Applications



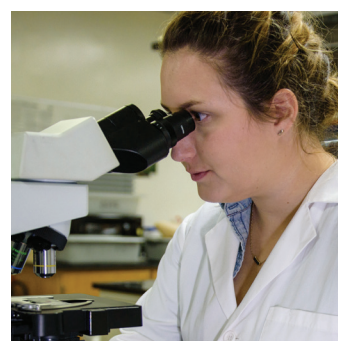
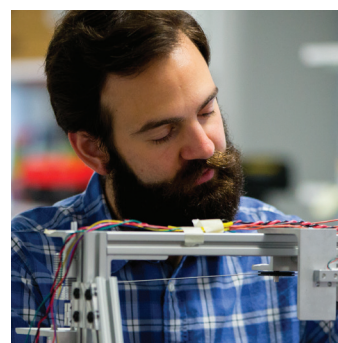
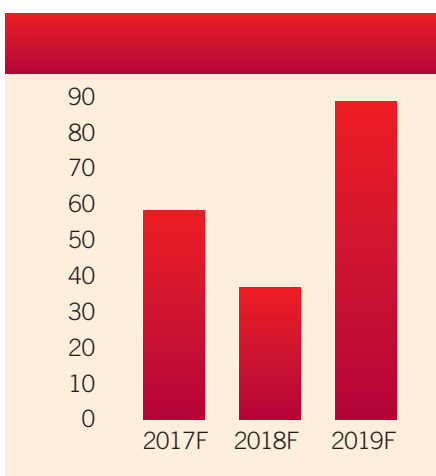
New Master's Enrolled



Ph.D. Applications

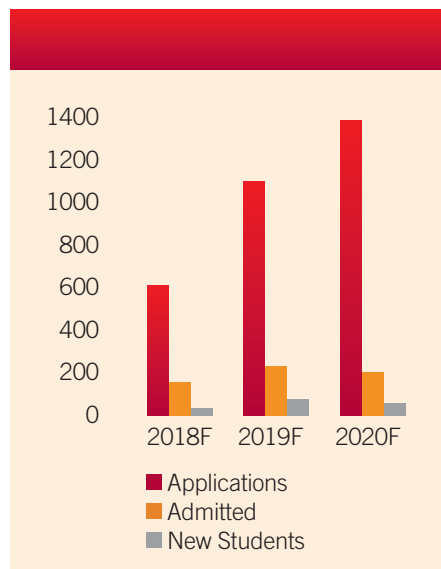


New Ph.D. Enrolled

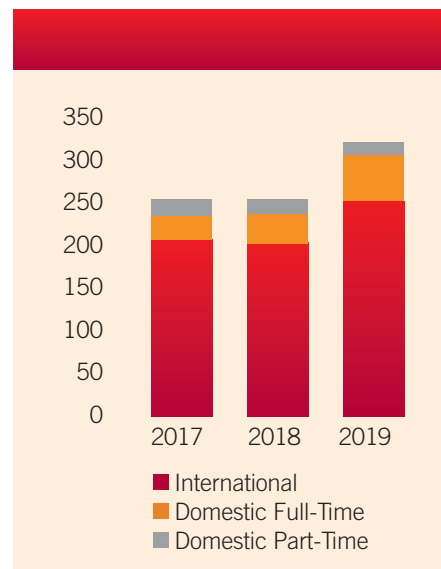


GRADUATE

Ph.D. Admission



Ph.D. Enrollment

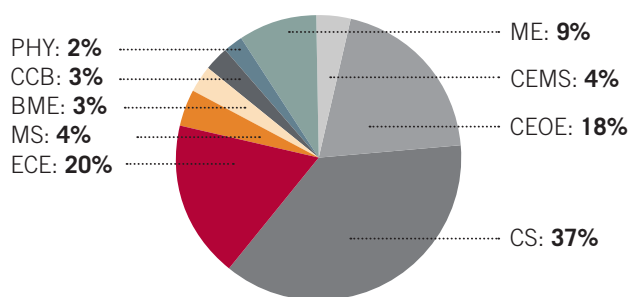


Total Graduate Applications by Department Fall 2019

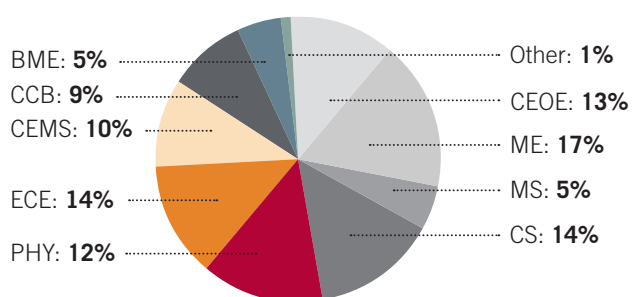
	BME	CCB	CEMS	CEOE	CS	ECE	ME	MS	PHY	Other	SES (Total)	YOY Growth
2017	229	183	470	753	1691	1175	648	166	113	8	5446	
2018	234	169	355	709	1803	1099	573	142	130	13	5227	-4.0%
2019	274	251	417	785	2783	1257	661	166	143	13	6750	29.1%

Graduate Student Distribution Across Departments

Master's Enrollment



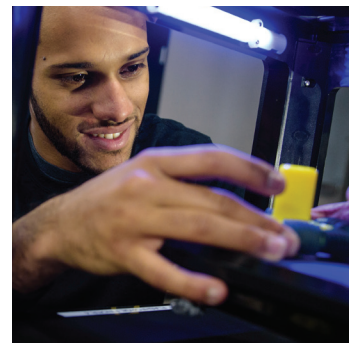
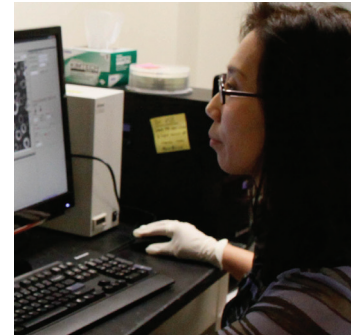
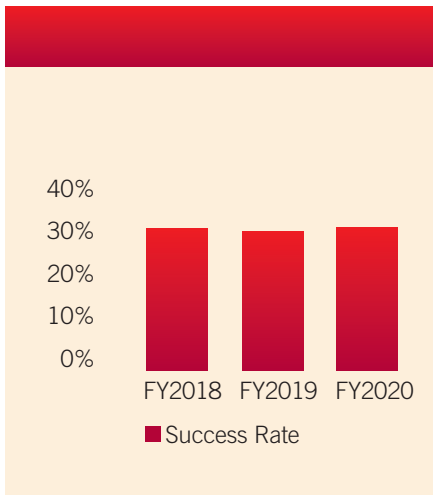
Ph.D. Enrollment



RESEARCH

HIGHLIGHTS

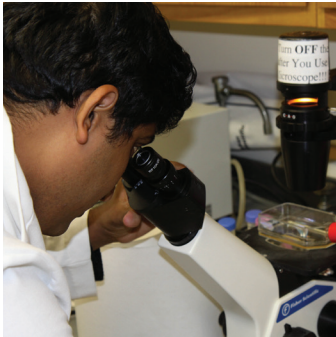
Research Proposal Activities



Top Ten PIs by Research Expenditures FY 19-20

PI	DEPARTMENT	TOTAL
Salloum, Hady	ECE	\$3,407,173.66
Christodoulatos, Christos	CEOE	\$2,392,854.86
Huang, Yuping	PHY	\$1,684,451.41
Portokalidis, Georgios	CS	\$858,111.13
Parziale, Nicholas	ME	\$816,825.77
Koskinen, Eric	CS	\$798,161.28
Miller, Jon	CEOE	\$720,002.61
Libera, Matthew	CEMS	\$698,423.68
Wetzel, Susanne	CS	\$620,551.26
Kleinberg, Samantha	CS	\$618,275.53
Grand Total		\$12,614,831.19

RESEARCH

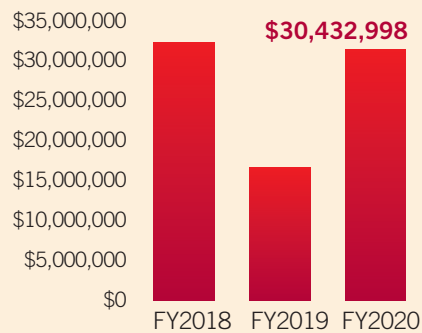


Top Ten PIs by Research Dollars Awarded FY 19-20

PI Name	DEPARTMENT	# AWARDS	TOTAL
Hajj, Muhammad	CEOE	4	\$6,984,151.00
Christodoulatos, Christos	CEOE	1	\$3,037,500.00
Kleinberg, Samantha	CS	3	\$2,281,553.00
Huang, Yuping	PHY	3	\$1,721,509.83
Parziale, Nicholas	ME	3	\$1,525,432.95
Wu, Lei	ECE	3	\$1,470,000.00
Li, Hongbin	ECE	2	\$1,050,000.00
Zanotto, Damiano	ME	3	\$807,471.00
Wang, Shang	BME	2	\$725,387.00
Feng, Zhuo	ECE	2	\$681,823.00
Grand Total		26	\$20,284,827.78

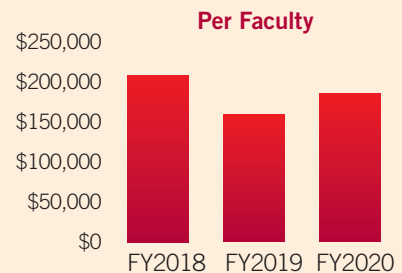
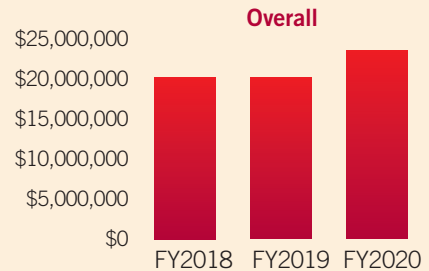
Total Research Funding for FY 19-20

Research Awards



2020 Goal
Base: \$30.5M
Stretch: \$33M

Research Expenditures



Total Patents Granted by Department

DEPARTMENT	PATENTS
Biomedical Engineering	3
Chemical Engineering & Materials Science	3
Chemistry & Chemical Biology	1
Civil, Environmental, & Ocean Engineering	0
Computer Science	7
Electrical & Computer Engineering	2
Mathematical Sciences	0
Mechanical Engineering	4
Physics	0
Grand Total	20

Number of Refereed Journal Articles and Conference Papers Published

DEPARTMENT	JOURNAL ARTICLES	CONFERENCE PAPERS
Biomedical Engineering	20	17
Chemical Engineering & Materials Science	32	13
Chemistry & Chemical Biology	25	0
Civil, Environmental, & Ocean Engineering	102	35
Computer Science	8	38
Electrical & Computer Engineering	58	36
Mathematical Sciences	28	1
Mechanical Engineering	60	51
Physics	28	8
Grand Total	361	199

Center for Neuromechanics:

The Department of Mechanical Engineering launched the Center for Neuromechanics, a first-of-its-kind facility in the U.S., to apply the fundamental principles of mechanics and engineering to understanding the function, structure, and health of the brain, spinal cord, and peripheral nervous system. Stevens assistant mechanical engineering professor Mehmet Kurt founded and serves as director of the center.



FACILITIES

AT STEVENS

New Buildings

The Gateway Academic Center, a \$68M, 89,500 square-foot, state-of-the-art teaching and research facility, opened in December of 2019 and marks the completion of Stevens' newest buildings. It houses the Department of Computer Science and Stevens' new Semcer Center for Healthcare Innovation.

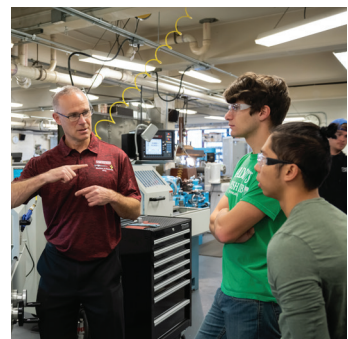
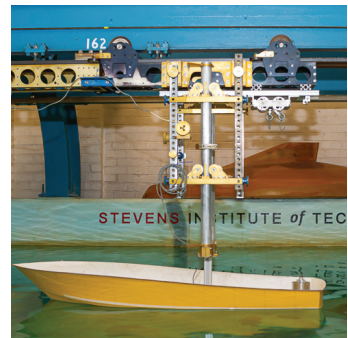
Recently Renovated Spaces

The Schaefer School has invested in upgrading and equipping the research laboratories for new hires with state-of-the-art technology.

New Buildings

The Schaefer School currently hosts seven shared facilities that are available for use by members of the Stevens community. Some facilities are open to outside investigators who wish to conduct research with state-of-the-art instrumentation.

- SES Machine & Electronic Shop
- High Performance Computing Cluster
- Laboratory for Multiscale Imaging
- Microdevice Laboratory
- Mass Spectrometry Laboratory
- Prototype Object Fabrication Laboratory
- Shared Equipment



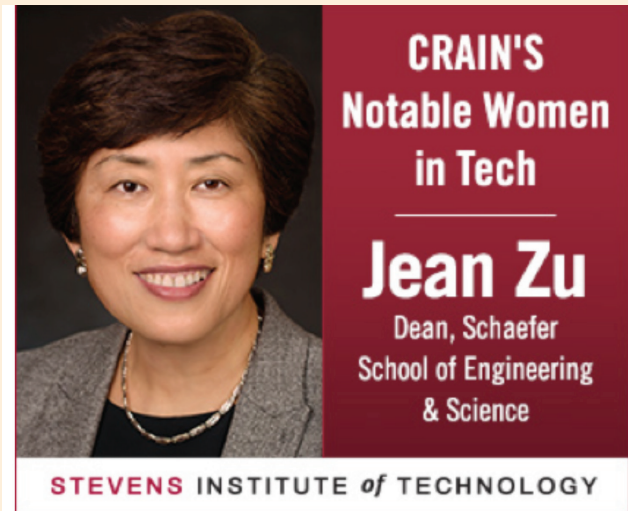
COMMUNICATIONS

HIGHLIGHTS

Advertising Success

ASEE Top 25 Most-Click Ads of 2019

#12



#25



Media Coverage AY 19-20

Reader's Digest featured a smart baby monitor and an app that plans date night being developed by Stevens Undergraduate Electrical and Computer Engineering iSTEM students in their article titled "11 products that will become smart in 2020."

Forbes ran an article titled "Building a house to survive a future storm," highlighting the sustainable and resilient features of the SU+RE House.

Reuters spoke with Philip Orton for their article titled "On vulnerable NYC island, climate—and Trump—make for difficult conversation."

VentureBeat covered Xinchao Wang's research in their article titled "Researchers develop AI that reads lips from video footage."

In an article titled "Machine learning vs. machine learning," **Communications of the ACM** interviewed Giuseppe Ateniese.

continued

MEDIA

In their article titled “Nike’s Vaporfly shoes changed running, and the track and field world is still sifting through the fallout,” **The Washington Post** interviewed Damiano Zanutto.

Healio interviewed Samantha Kleinberg in an article titled “Meal detection algorithm could be next step for artificial pancreas.”

AI Med wrote about Samantha Kleinberg’s work in their article titled “More information doesn’t necessarily help people make better decisions.” ScienceBlog.com, Ladders and ScienceDaily picked up the news.

Photonics Media ran Stevens’ news release describing Yuping Huang’s research in their article titled “Researchers develop method to dramatically reduce imaging noise.” ScienceDaily and several trade publications wrote about the work.

Scientific American featured an interview between Stevens’ John Horgan and Chris Search titled “What’s wrong with physics.”

NJBIZ wrote an article titled, “Stevens Institute of Technology opens \$68M Gateway Academic Center.” **Jersey Journal**, **Patch**, and **New Jersey Business Magazine** covered the news.

Asbury Park Press reached out to Jon Miller for their article titled “How many people can fit on a beach with social distancing? These experts did the math.”

NJTV Learning Live spoke with Jon Miller for their segment titled “Erosion Avengers.”

Tech Explore ran Stevens’ release on Brendan Englot’s Young Investigator Award from the Office of Naval Research titled “Robots to use new AI tool to evaluate all possibilities before making decisions.”

Inverse featured Samantha Kleinberg’s research in their article titled “Improving your decision-making skills comes down to these five factors.”

All About Circuits covered EH Yang’s work in an article titled “Atomically thin magnets for next generation spin and quantum electronics.” **Space Daily**, **Science Daily**, and **Innovations Report** also ran the release.

Newsweek interviewed Dominic Dell Antonia ’21 for an article titled “New Jersey college student crafts face shields between classes to help nursing homes, hospitals fight coronavirus.”

COVID-19

RESPONSE

- In response to restrictions meant to curb the spread of the global pandemic, Stevens seamlessly shifted to online learning environments for the remainder of the spring semester.
- To better equip Stevens faculty for a hybrid online/on-campus learning environment, Stevens mechanical engineering teaching professor Alex De Rosa spearheaded the Online Teaching Strategies Workshop Series.
- In response to at-home learning due to COVID-19, chemical engineering & materials science professor Stephanie Lee organized and launched a live webinar series to engage K-12 students in STEM topics called “Ask a Stevens Prof.”
- In response to social distancing measures requiring remote learning, the Schaefer School launched a weekly Virtual Research Forum to share our exciting research breakthroughs in six pillar areas and foster cross-disciplinary collaboration. Each weekly forum featured five highly accomplished faculty speakers from multiple departments.

COVID-19-Related Research Projects

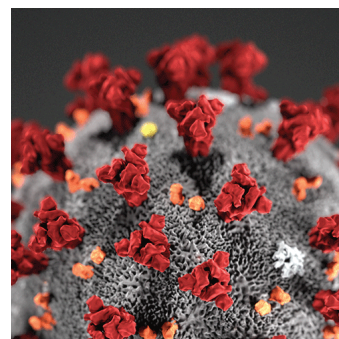
Biomedical engineering researcher Carrie Perlman, with support from the National Institutes of Health, leads two projects that could assist in the fight against acute respiratory distress syndrome caused by COVID-19 or other medical conditions: a lower-cost ventilator system that would allow more ventilators, constructed quickly and portably, and a red dye that appears to protect lung tissues from over-stretching and breaking during ventilator treatment.

Biomedical engineering researcher Jinho Kim is researching the use of site-specific cell replacement to repair damaged lung tissues, which may aid in COVID-19 recovery.

Chemical engineering and materials science researcher Dilhan Kalyon is developing a new nanotech and production process for more effective masks and respirators using a novel mesh-like material and system which could improve face protection and prevent transmission of COVID-19 as well as other infections.

Civil, environmental, and ocean engineering researcher Jon Miller and his team provided calculations to local media about how many people could safely fit on the Asbury Park beach while still adhering to social-distancing guidelines.

Civil, environmental, and ocean engineering researcher Phil Orton used the exponential growth models of COVID-19 cases to demonstrate how early measures are necessary to prevent climate change.



Students

Biomedical engineering undergraduates Salvatore DiMaggio, Nicole Badalyan, and Nicole Mottole, along with Biology undergraduates Kyriakos Chatzis and Michelle Gnidash volunteered with the Hoboken Volunteer Ambulance Corp during the pandemic.

Chemical engineering senior Dominic Dell Antonia used eleven 3D printers, situated in his grandmother's basement, to create and deliver more than 4,000 face masks to at least 12 hospitals and health care facilities across New York and New Jersey.

Computer engineering senior David Lehman helped process COVID-19 lab tests in his home state of California.



The Charles V. Schaefer, Jr. School of Engineering & Science (SES) is dedicated to preparing the next generation of technology leaders by offering a multi-disciplinary, design-based education. With nine departments and an intensive curriculum for undergraduates, master's, and doctoral candidates, SES is dedicated to supporting hands-on learning, research, and technology transfer that provides each student with invaluable, experiential knowledge. SES is globally recognized for its world-class faculty and leading-edge research facilities.





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