

CEOE IN A YEAR

ANNUAL REPORT 2024



STEVENS
INSTITUTE OF TECHNOLOGY
1870

Department of Civil,
Environmental, and
Ocean Engineering



DEPARTMENT STATISTICS

\$10M

Research Expenditures

265

Undergraduate Students

180

Masters Students

4.9

Ph.D. Students per
T/TT Faculty

108

Published Journal
Articles/yr

ABOUT CIVIL, ENVIRONMENTAL AND OCEAN ENGINEERING

The Department of Civil, Environmental and Ocean Engineering at Stevens (CEOE) is a unique department that covers disciplines usually organized in two or more separate departments. We take advantage of this distinctiveness to benefit our students greatly. Our community of expert faculty and researchers train our students to address the complex cross-disciplinary challenges faced in the design, construction and monitoring of urban/interconnected infrastructure systems, sustainable environmental systems, resilient coastal communities, and marine systems.

Through rigorous and flexible curricula, advanced research programs, and extra-curricular activities, we aspire to give our students the knowledge required to face future challenges in these areas. The combined expertise of our faculty and breadth of research programs provides our students with unique opportunities to acquire knowledge across the three disciplines and build capability to address complex cross-disciplinary problems.

Our mission:

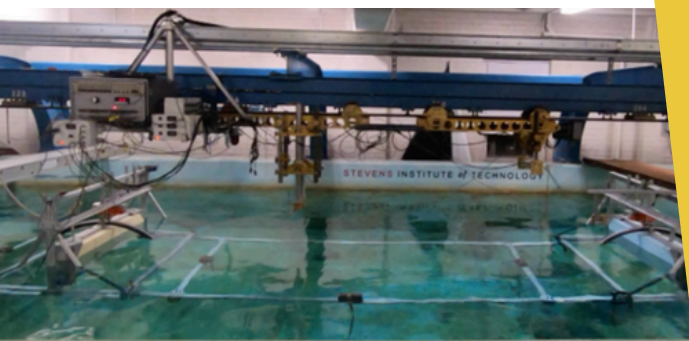
- Provide students with vibrant and diverse degree programs built upon rigorous course offerings, hands-on experience, and opportunities for professional development.
- Instill creativity and innovation in the drive of our graduates to solve real-world problems.
- Perform discovery research to address future challenges.
- Set our graduates on the path to become leaders in their fields.

AY 2024-2025

15 T/TT FACULTY

4 TEACHING FACULTY

7 RESEARCH FACULTY



BEYOND SUCCESS, CONTINUED GROWTH

Muhammad Hajj, Chair and George Meade Bond Professor

Over the past few years, we have demonstrated remarkable resilience and an unwavering commitment to excellence. The numbers in this report reflect our continued success, a testament to the tremendous efforts of our faculty, staff, students, and alumni.

To start, I extend my sincere congratulations to Professors Yi Bao, Weina Meng, and Marouane Temimi on being granted tenure in recognition of their outstanding achievements. Congratulations also to Dr. Jia Mi on his appointment as Assistant Professor, Dr. Ronghuan Xu on her appointment as Teaching Assistant Professor, Dr. Santhi Billapati on her appointment as Senior Lecturer and Drs. Mahmoud Ayyad and Matthew Janssen on their appointments as Research Assistant Professors in CEOE. Additionally, I applaud our undergraduate students who have collectively secured more than \$395K in external scholarships - a remarkable achievement.

Looking ahead, our recent success in developing two new centers promises long-term growth and impact:

Dr. Dibs Sarkar is leading the newly established [Stevens Center for Sustainability](#). This center serves as a collaborative, cross-disciplinary platform addressing critical global challenges, particularly within underserved communities disproportionately affected by pollution and climate change. The center also aims to prepare the next generation of sustainability leaders.

Drs. Muhammad Hajj, Raju Datla, Jia Mi, Yi Bao, Weina Meng, Mahmoud Ayyad, and Gizem Acar (Mechanical Engineering) have secured NSF funding for the establishment of the new [Go-Blue I/UCRC](#). In collaboration with the University of Michigan (Ann Arbor) and Texas A&M (Corpus Christi), this center focuses on advancing marine energy technologies to support both traditional and emerging blue economy industry sectors through industry-supervised research.

Dr. Sarath Jagupilla and Ms. Elizabeth O'Connell have solidified our strong relationships with industry partners. The recent kick-off meeting for senior design projects was a resounding success, marked by unparalleled student enthusiasm, faculty engagement, and industry participation.

There are many equally inspiring stories in this report. I invite you to explore them and share your feedback. Please stay connected with us through [LinkedIn](#) and [Instagram](#) for updates on our activities and initiatives, and feel free to reach out if you'd like to learn more about CEOE.

Finally, I want to thank and congratulate all members of the CEOE family for their invaluable contributions to our success and growth. On behalf of the department, I also extend our deepest gratitude to our alumni and industry partners for their continued support. Together, we are shaping a brighter, more sustainable future for our students.

EXCELLENCE

FACULTY

Marouane Temimi was recognized with the 2023 Cooperative Institute of Research Operations in Hydrology Award for Excellence in water prediction research and operations.

Jon Miller received The Robert G. Dean Coastal Academic Award. The award is given in recognition of an academic who has made significant contributions furthering the community's understanding of coastal science or engineering and in fostering young coastal scientists or engineers.

Muhammad Hajj received the 2024 Award for Research Excellence from Stevens Institute of Technology.

Yi Bao, Weina Meng and Marouane Temimi were awarded tenure, effective September 1, 2024.

ALUMNI

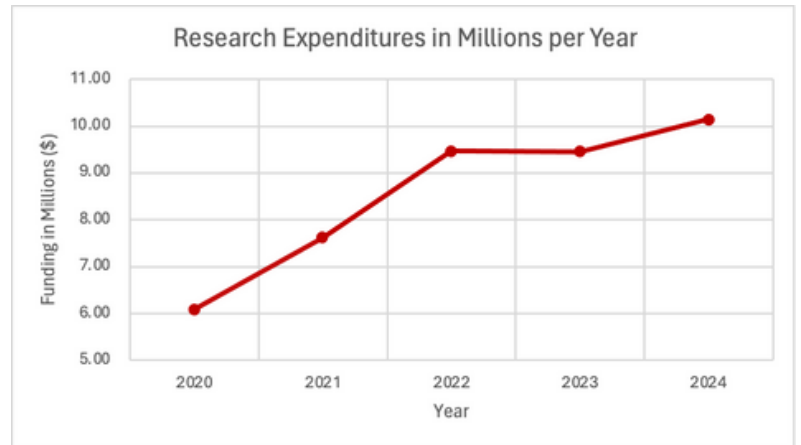
Marisa Chrysochoou was appointed as Dean at the University of Missouri College of Engineering. Dr. Chrysochoou earned her doctorate in Environmental Engineering from Stevens.

Amalia Terracciano was honored by the American Academy of Environmental Engineers and Scientists to the 40 under 40 recognition program. Dr. Terracciano earned her doctorate in Environmental Engineering and served as a Post-Doctoral Research Associate during her time at Stevens.

BY THE NUMBERS

RESEARCH EXPENDITURES IN \$M / YEAR

2020	\$6.09
2021	\$7.62
2022	\$9.47
2023	\$9.46
2024	\$10.14



- Research expenditures increased by about 64% since 2020.
- Research expenditures per T/TT faculty member is \$714K/ year.

PUBLISHED JOURNAL ARTICLES

2020	62
2021	72
2022	105
2023	114
2024	108



- Published journal articles increased by about 51% since 2020.
- Published journal articles per T/TT faculty member is ~8. This is an increase from 2023, with an average of ~7 per T/TT faculty member.

MAJOR SCHOLARSHIP RECIPIENTS

Hailey Achille and **James Johnsen** received the 2024 Moles Scholarships in the amount of \$12,500 each on the basis of their academic achievement and demonstrated interest in the heavy construction industry.

David Plaza was awarded the Donald L. Blount Memorial Scholarship from the Society of Naval Architects and Marine Engineers (SNAME). This is the second year the scholarship has been awarded, with the inaugural year also being given to a Stevens CEOE student.

The American Council of Engineering Companies of New Jersey (ACEC-NJ) awarded the Jim Palush Scholarship through NJWEA to **Julie Garry**, the Bernard Langan Scholarship for Engineering Excellence to **Caden Stott** and the AECOM Scholarship to **Robert Stepien**.

Sanika Tarkar was the recipient of the Jerome Frommer Scholarship, issued through the Utilities and Transportation Contractors Association to provide New Jersey students the opportunity to advance their studies in the field of construction.

Mohamed Abdelkader was honored with the Tri-State Arab American Association of Engineers Architects (AAEA) Graduate Student Scholarship Award.

Paul Baccaglini received the Tom Galgiano Scholarship through the Jersey Shore Partnership Foundation, awarded based on his academic achievement and engagement in the field of coastal engineering and marine science.

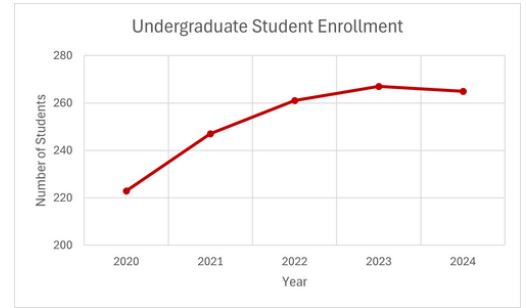
North Central New Jersey American Society of Highway Engineers (ASHE) awarded three scholarships to high achieving engineering students for 2023-2024. All three scholarship recipients were Stevens undergraduate students, **Robert Stepien** (first place), **Julie Garry** (second place), and **Jacob Wills** (third place).

CONTINUED

BY THE NUMBERS

UNDERGRADUATE STUDENTS

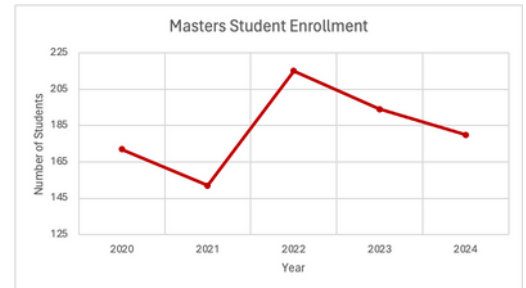
2020	223
2021	247
2022	261
2023	267
2024	265



- The department maintains strong undergraduate degree programs.
- Number of undergraduate students per T/TT faculty member is ~18.

MASTER STUDENTS

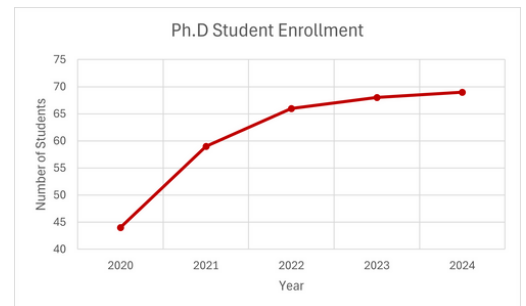
2020	172
2021	152
2022	215
2023	194
2024	180



- Master student enrollment is an area of opportunity for the department.
- Number of master's students per T/TT faculty member is ~12.

PH.D. STUDENTS

2020	44
2021	59
2022	66
2023	68
2024	69



- Number of Ph.D. students has increased by about 56% since 2020.
- Number of advised Ph.D. students per T/TT faculty member in fall 2024 is 4.9.
- Nine Ph.D. students graduated in the 2023-2024 academic year.



Yi Bao



Mohammad Ilbeigi



Dibs Sarkar



Philip Orton

IMPACT

Yi Bao received a grant from the US Department of Transportation to develop a dual-purpose, low-cost robot for pipe inspection and cleaning tasks for operation in hazardous liquid pipelines.

Mohammad Ilbeigi and his collaborators from the University of Florida (UF) and Arizona State University (ASU) received an award from the Humans, Disasters, and the Built Environment (HDBE) program of the National Science Foundation (NSF): "Collaborative Research: Multi-Agent Adaptive Data Collection for Automated Post-Disaster Rapid Damage Assessment." This project aims to transform post-disaster rapid damage assessment methods by introducing a novel adaptive data collection framework that constantly analyzes the most recent observations to determine and update the trajectory of data collector agents toward areas with the greatest potential for information gain. The adaptive data collection system is built on a novel hierarchical Bayesian framework for modeling disaster damage levels and a Bayesian optimization for adaptive destination identification and trajectory planning. The outcomes of this project set the stage for automated damage assessment systems to improve the resilience of built environments and citizens in hazard-prone regions.

In collaboration with Public Service Enterprise Group (PSEG), the university created the Stevens Center for Sustainability and named **Dibs Sarkar** as the Director. The center will further develop sustainability programming to promote access to opportunities in the field of and the development of a pipeline of talent prepared to address threats to sustainable development. The center will greatly enhance Stevens' educational and research capabilities in resilience and sustainability.

Philip Orton contributed as a member of the New York City Panel on Climate Change (NPCC) to five published peer-reviewed papers, four of which were chapters of the 2024 NPCC climate assessment report. These included assessments of climate change, flooding, climate and storm tail risk and overall panel report conclusions. Post-doctoral associate Ziyu Chen contributed to the flooding chapter and the additional related paper, which was on compound pluvial-coastal flooding.

IMPACT

George Korfiatis is a member of the core team in a multimillion dollar project awarded to Stevens by the US Department of Defense through the Acquisition Innovation Research Center (AIRC). The project entails the development and piloting of the Defense Civilian Training Corps (DCTC), a Congressionally-mandated program to strategically develop talent who can immediately contribute to solving emerging National Security and Defense challenging problems and adapt to the future. The program is currently piloted in four land-grant universities.

The department held its inaugural **Environmental Hackathon: Designing Structures for Extreme Weather**, sponsored by Structural Workshop. The event introduced high school students to multiple engineering disciplines at Stevens, as well as resilient infrastructure through hands-on prototyping and exposure to computer simulated models.

Weina Meng played a vital role as a member of the organizing committee of the Offshore Wind Conference held this winter. This event provided a platform for NJ industry, government, and academia to network and carry out knowledge exchange. She also received the 2024 Early Career Award of National Academy of Engineering, Science, and Medicine.

Raju Datla spent one month as visiting faculty at Osaka Metropolitan University, Japan during summer 2024. His activities at OMU included teaching undergraduate and graduate students on various topics in naval architecture and ocean engineering, conducting two seminars and participating in research discussions. This visit has also initiated discussion on formalizing the collaboration between the two universities through an MoU.

In March, the department hosted the **Second Annual CEOE Networking Event**. The event brought together more than 250 CEOE students, alumni, industry professionals, and faculty. Attendees formed connections to foster opportunities for students and industry professionals, faculty, and alumni established new partnerships and enhanced their relationships.



George Korfiatis



Environmental Hackathon



Weina Meng



Raju Datla



Mahmoud Ayyad



Santhi Billapati



Matthew Janssen



Jia Mi



Ronghuan Xu

2024-2025

NEW FACULTY / STAFF MEMBERS

Mahmoud Ayyad, PhD has been appointed as Research Assistant Professor. Dr. Ayyad has been an essential member of the Davidson Lab by working on the evaluation of machine and deep learning tools to predict storm surge, the utilization of the aforementioned data-driven model to predict future storm surge taking into consideration climate change and the implementation of computer vision techniques to predict ice presence, water level height, and surface velocity in near real-time.

Santhi Billapati, PhD has been appointed as Senior Lecturer. Dr. Billapati served as an adjunct in the department since 2015 with high teaching evaluations across a variety of courses. She teaches a wide range of courses across undergraduate and graduate levels, including civil engineering, environmental engineering and interdisciplinary engineering. Prior to joining Stevens, Dr. Billapati worked in industry in the design, installation, operation, maintenance, and monitoring of remedial systems.

Matthew Janssen, PhD has been appointed as Research Assistant Professor. Dr. Janssen brings a wealth of expertise in relation to assessing, predicting, and mitigating coastal hazards using data driven methods. His research provides efficient, probabilistic risk assessment to coastal communities under present and future climate scenarios. Prior to joining Stevens, he spent time in industry as a coastal engineer at Rising Ride Waterfront Solutions and McLaren Engineering Group.

Jia Mi, PhD has been appointed as Assistant Professor. Dr. Mi's research focuses on offshore renewable energy and the Blue Economy. He serves as the Chair of the International Network on Offshore Renewable Energy (INORE), which aims to help support and empower students and early-career professionals in offshore renewable energy fields through networking and professional events. He joined Stevens from the University of Michigan, where he earned his PhD and served as a Research Assistant in the Department of Naval Architecture & Marine Engineering.

Ronghuan Xu, PhD has been appointed as Teaching Assistant Professor. Dr. Xu has supported the department's teaching and advising missions throughout the past two years as a lecturer. She teaches courses across a wide range of disciplines in civil engineering at both the graduate and undergraduate level. In all courses she taught, she has received excellent evaluations.

LeAnn Blunt joined the department as the CEOE Contracts and Grants Manager. She has been at Stevens Institute of Technology for 14 years, with her most recent role was as Project Coordinator.

Ashlyn Gonzalez joined the department as the Davidson Laboratory Research Project Manager



Rojyar Barhemat



Erfan Amini



Chibunnam Ugorji, Mohamed Abdelkader, Jorge Bravo and Berina Kilcarslan



Shengfeng Huang

EXCELLENCE GRADUATE STUDENTS

Rojyar Barhemat received the Best Poster Award for her research in the Offshore Wind Conference at NJIT. Her research, sponsored by NJDEA, focuses on structural health monitoring and condition assessment for offshore wind turbines. She is advised by Dr. Yi Bao.

Erfan Amini won the Student Educational Award by American Shore and Beach Preservation Association (ASBPA). This award is given annually to a student who, through his or her research, is furthering the state of science of coastal systems as it relates to the goals and mission of the ASBPA. He is advised by Dr. Reza Marsooli.

The students of the iSMART Laboratory, **Mohamed Abdelkader**, **Jorge Bravo**, **Berina Kilcarslan**, and **Chibunnam Ugorji**, were selected as one of the winners in the 2023 AGU Michael H. Freilich Data Visualization Competition. Their project on 3D visualization of river ice motion employed a multi-satellite approach. The students are advised by Dr. Marouane Temimi.

Qi Sun presented his research findings at the 76th Annual Meeting of the Division of Fluid Dynamics, organized by the American Physical Society. The presentation focused on an experimental study of the resistance of a partially submerged flat plate moving in a field of synthetic ice floes. This study offers new insights into the highly complex physics of structure-ice-free surface interaction, laying the groundwork for the development of next-generation marine vessels operated in polar seas, a critically important region for alternative marine navigation routes and for studying the impact of climate change. He is advised by Dr. An Wang.

Shengfeng Huang was selected by the Executive Committee of the UCA Young Members (UCAYM) to receive the UCA Cutting Edge Conference Scholarship. This award provides select students with an opportunity to attend the Cutting Edge Conference, where they can experience the challenges, opportunities and rewards of a career in the field of tunneling and underground construction. He is advised by Dr. George Korfiatis and Dr. Rita Sousa.

Berina Mina Kilcarslan has been awarded the AMS (American Meteorological Society) Student Travel Grant. This grant is a financial award designed to support students who are dedicated to advancing their studies in atmospheric and related sciences, enabling them to actively participate in AMS conferences, workshops, and educational events. She is advised by Dr. Marouane Temimi.

EXCELLENCE UNDERGRADUATE STUDENTS

Elizabeth Halton, a civil engineering undergraduate student, was accepted into the DAAD RISE Germany program. During the summer, she worked on a project studying 3D printing with concrete at Hochschule München in Munich, Germany.

Gregory Harrison and **Adam Cohen**, both naval engineering undergraduate students, received the Department of Defense Science, Mathematics, and Research for Transportation (SMART) Scholarship. This award provides both students with full tuition for up to five years, mentorship, summer internships, a stipend and full-time employment with the DoD after graduation.

Naval engineering students **Constantinos Contomichalos**, **Nolan Quade** and software engineering student **Nick Ciraulou** team won second place at the Annual American Society of Naval Engineers (ASNE) Promoting Electric Propulsion (PEP) competition in Virginia Beach. They achieved an average speed of 20+ knots over the 5 mile course, the second fastest speed ever recorded at this event. The team was advised by Senior Research Scientist, Michael DeLorme.

Senior design team Mycoremediation of Heavy Metals, with environmental engineering students **Maurice Chevalier**, **Paul Garipov** and **Sophia Schaefer** won the David and GG Farber Societal Impact Award. The team, advised by Dr. Tsang-Liang Su was selected from all senior design projects based on their use of technology resulting in a positive social impact. The team developed a process that utilizes several species of oyster mushrooms to remove lead, copper, chromate, and zinc for implementation of groundwater remediation.

Civil engineering students **Evan Papageorge**, **Faith Macchione**, **Stephen Sargeant**, and **Atoshi Sarkar** attended ASCE Metropolitan Student Symposium. Evan participated in a paper competition and discussed how the ASCE Code of Ethics is based on principles, rather than specifics, making them adaptable to AI as a consultation tool. He was awarded third place overall.

Senior design team Pier Pressure, with civil engineering students, **Stephen Crocco**, **Joseph Meditz**, **Caden Stott** and **Jacob Wills** received the CEOE Best Senior Design Award. The team went on to receive the golden award at the 2024 ISI Annual Conference. The project, advised by Dr. Weina Meng and sponsored by Stantec, detailed designs to guide the 107th Street Pier & Bobby Wagner Walkway Restoration project in a sustainable manner.

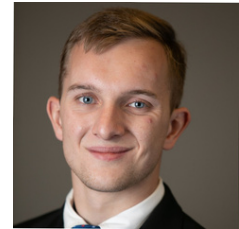
The Construction Industry Advancement Program (CIAP) of New Jersey awarded five undergraduate students scholarships and summer internships: **Julia Lupo** (Keller), **Faith Macchione** (Railroad Construction Company), **Neylan Preetanchal** (Tilcon), **Trent Redman** (Northeast Remsco) and **Emma Spoonauer** (IEW).

Students across all three undergraduate programs and among all academic years, received scholarships totally **more than \$395,000** for the academic year.

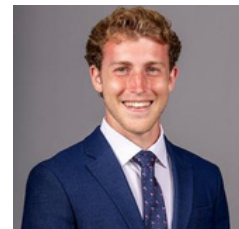
Twelve senior design projects were sponsored by industry professionals. These included: **Stantec**, **Pegasus Partners**, **Langan Engineering**, **Keller - North America**, **Kimley Horn**, **Structural Workshop**, **WSP - USA**, **Thornton Tomasetti**, **Hall Construction**, **NJ-EDA**, **ASNE**, and **Two River Mushroom**. Department faculty and students are very appreciative of this support and mentorship.



Elizabeth Halton



Greg Harrison



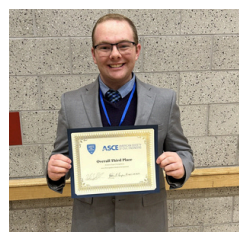
Adam Cohen



Michael DeLorme,
Nolan Quade,
Constantinos
Contomichalos and
Nick Ciraulou



Tsang-Liang Su, Paul
Garipov, Maurice
Chevalier and Sophia
Schaefer



Evan Papageorge



Schaefer School of Engineering and Science

Department of Civil, Environmental,
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