ANNUAL REPORT

2023-2024

STEVENS
INSTITUTE OF TECHNOLOGY
1870

Schaefer School of Engineering and Science

Department of Mechanical Engineering

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MESSAGE FROM THE CHAIR

I am delighted to present the annual report for the Mechanical Engineering Department, summarizing our accomplishments, advancements, and aspirations. Over the past year, we have made remarkable strides in research, education, and community engagement, driven by the exceptional work of our faculty and students. Over the past year, our department has made remarkable progress in various areas of mechanical engineering research. Notably, the department's faculty earned three prestigious NSF CAREER awards this year, underscoring our commitment to research excellence.

In 2023-2024, we prioritized faculty-student engagement through initiatives such as the ME Summer Research Programs, Annual Research Day, townhall meetings, wellbeing events, Spring Fest, and support for student organizations and clubs. Our academic programs continued to thrive, bolstered by a collaborative spirit among faculty. Key successes include an effective advising system, a senior design program with strong industry sponsorship, expanded undergraduate laboratories, and advanced graduate offerings in robotics and aerospace.

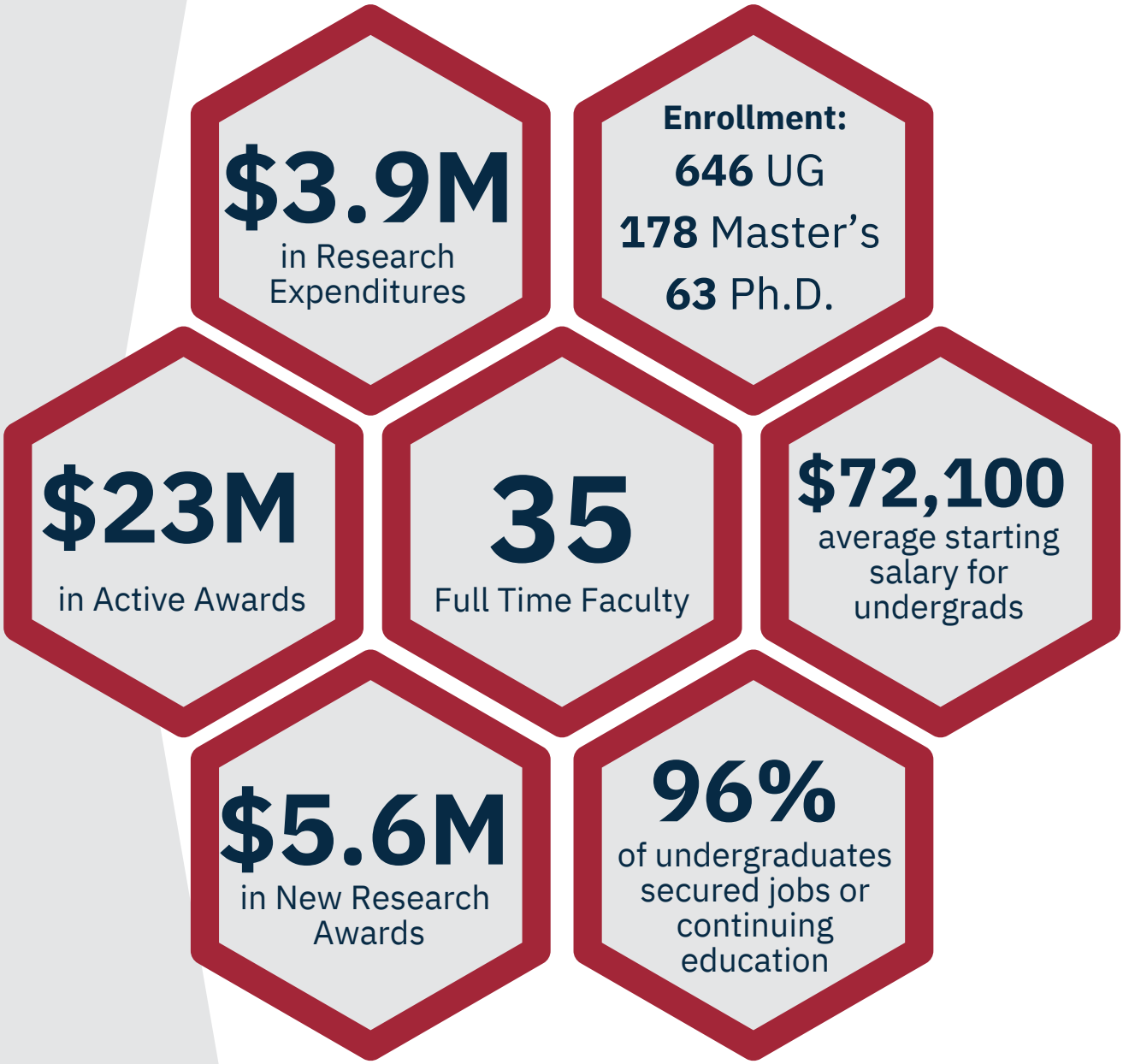
This report reflects the shared efforts and significant achievements of our community. As we look to the future, I am confident that the Mechanical Engineering Department will continue to excel, fueled by our passion for innovation and knowledge. My heartfelt gratitude goes to everyone who has contributed to our success and supported us on this journey.

Sincerely,

Souran Manoochehri

Souran Manoochehri
Professor and Chair of the Department of Mechanical Engineering

DEPARTMENT DASHBOARD



STUDENT-FACULTY INTERACTIONS

ME STUDENT ADVISORY COUNCIL

The **Mechanical Engineering Student Advisory Council (MESAC)** works with faculty and administration to provide feedback and suggestions aimed at improving the academic experience and program quality.

The Council is split into two groups: the **Undergraduate Council** and the **Graduate Council**, each focusing on the needs of their respective students. Both councils work to improve communication, represent student interests, and help enhance the department's educational offerings and resources.

ME TOWNHALL

Each semester, the ME Townhall provides an open forum for undergraduate students to meet with faculty and department leadership. This event encourages candid conversations about curriculum, resources, and student concerns, helping to shape the future of the program.

ME 322 DESIGN SHOWCASE

The ME 322 Design Showcase was a new and exciting event where undergraduate students in the design course could present their final projects. It allows students to demonstrate their creativity and problem-solving skills while receiving feedback from faculty and peers.

WELLBEING ACTIVITIES

The department supports students' mental and physical health through wellbeing activities, including mindfulness sessions, snacks, quiet study spaces during finals, fitness challenges, and games to help students recharge and relax.

WOMEN IN ME

An informal group for women faculty and graduate students to connect and discuss topics specific to their experiences in the field. The Women in Mechanical Engineering Group organizes events like co-op and internship panels, networking lunches, alumni panels, ME-related workshops, and walks, fostering community and professional development.

UNDERGRADUATE ICE CREAM SOCIAL

Held at the start of the semester, this casual event helps undergraduates, faculty, and staff connect early on in an informal, welcoming setting.

STUDENT-FACULTY INTERACTIONS

ME RESEARCH SYMPOSIUM

A day of innovation and collaboration within Mechanical Engineering. Featuring research presentations, poster sessions, and networking opportunities, it showcases the latest work from both undergraduate and graduate students. This event allows students to share their research with peers and faculty, fostering academic growth and a strong sense of community.

GRADUATE BOWLING EVENT

The Graduate Bowling Event provides an opportunity for students and faculty to unwind and socialize in a relaxed setting. This fun, team-oriented activity helps build camaraderie and strengthen connections within the ME department outside of the classroom.

ME SEMINAR SERIES

The ME Seminar Series features expert speakers from academia and industry, giving students and faculty the opportunity to discuss advanced topics in mechanical engineering and engage in direct interactions.

ME BAGEL WEDNESDAYS

Bagel Wednesday offers students and faculty a chance to connect over a light breakfast and a cup of coffee. This informal event helps to build stronger relationships and foster a sense of community within the ME department.

ME GRADUATE STUDENT ASSOCIATION

The Mechanical Engineering Graduate Association (MEGA) is a student-led organization composed of graduate students pursuing advanced degrees in mechanical engineering. MEGA provides opportunities for networking, professional development, academic collaboration, and social events. Notable events include 'Get to Know Your Faculty Trivia,' fostering informal connections between students and faculty, and industry/academic career panels, designed to provide valuable insights and guidance for students pursuing careers in both academia and industry.

UNDERGRADUATE

The Mechanical Engineering program offers a comprehensive Bachelor of Engineering degree, equipping students with the skills and knowledge needed for success in a variety of engineering fields. The program emphasizes both theoretical understanding and practical application, covering core subjects like mechanics, thermodynamics, and materials science, as well as advanced topics like robotics and sustainable design.

Through hands-on design projects, students develop critical thinking, problem-solving, and teamwork skills. Graduates are well-prepared for careers in industries such as automotive, aerospace, and energy, and may pursue further academic studies in graduate programs.

SENIOR DESIGN

Senior Design remains a cornerstone of the Mechanical Engineering curriculum and a hallmark of the department, representing a yearlong capstone course taken during the senior year. Spanning two semesters, the course introduces new structure and processes, guided by insights from the Senior Design Task Force established in Fall 2022. The class is divided into around fourty multidisciplinary teams, with projects now organized into themed sections, including Thermal-Fluids Engineering, Product Design and Manufacturing, Robotics, and others. This structure aligns with faculty research areas and departmental concentrations, promoting cohesion between academic expertise and the faculty panel for each section.

The enhanced project selection and team formation processes allow students to indicate advisor preferences and expected deliverables, ensuring stronger alignment between team objectives and available resources. With an evolving dynamic project list, students begin engaging with their projects earlier in Summer.

The program's success is bolstered by the generous support of sponsors, including General Dynamics, SeebeckCell Technologies, Kearfott, the IEEE Foundation, NASA (competition), L3Harris (competition), HS Design, Mountain Lakes Public Library Makerspace, St. Joseph's School for the Blind, Sigma Design LLC, and FM Global. We are excited to welcome Gaw-Mac, Digital Ocean, Siemens, S-Wind, and Linkgear as new sponsors, further expanding the breadth of opportunities and resources available for student projects.

For the 2023–2024 academic year, the Senior Design Award for Mechanical Engineering was given to the team behind Robuka – Musical Instrument Playing Robot, under the guidance of faculty advisor Mishah Salman. Team members Genesis Cevallos, Spencer Chen, William Hanna, Jamielyn Juan, and Amanda Murnick delivered an impressive display at the Innovation Expo.

HAPTIC HERO

Created a video game experience that can be enjoyed by anyone, regardless of their visual abilities

ROBUKA
HAND PERCUSSION PLAYING ROBOT

The robot's mechatronic system dynamically adjusts its movements, and its user interface allows real-time control of its drumming patterns through custom darbuka rhythms.

SMARTSECURE

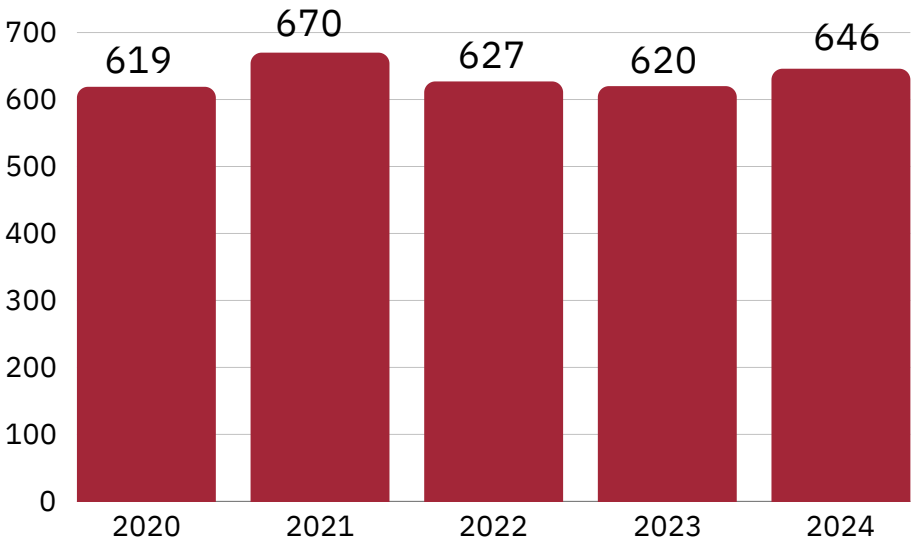
Designed a lock system that bridges the gap between mechanical and electrical security systems to improve home security.

UNDERGRADUATE ENROLLMENT

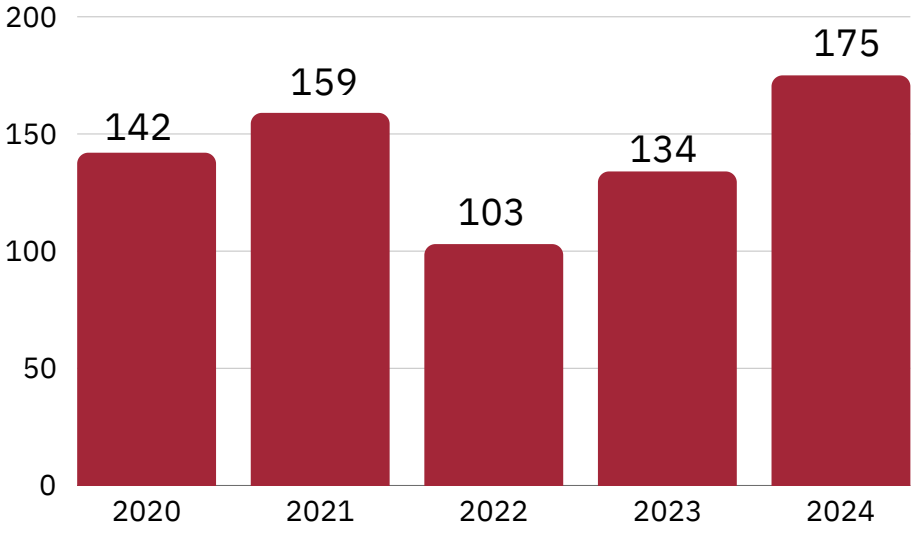
The Mechanical Engineering department continues to experience significant growth in undergraduate enrollment. In the 2023-2024 academic year, we welcomed 175 new undergraduate students, a 30% increase from the previous year. Additionally, total undergraduate enrollment increased by 4%, demonstrating the enduring appeal of the program and the growing demand for skilled mechanical engineers.

Our rigorous curriculum, combined with hands-on learning opportunities and cutting-edge research, provides students with the skills and knowledge they need to succeed in a variety of engineering fields. We are proud of our commitment to providing a high-quality education that prepares our students for successful careers.

TOTAL UNDERGRADUATE ENROLLMENT



NEW UNDERGRADUATE ENROLLMENT



GRADUATE

The Master's programs in Mechanical Engineering and the Doctorate in Mechanical Engineering program represent the pinnacle of advanced education and research in the field. These programs cater to individuals who are not only passionate about mechanical engineering but also seek to make significant contributions to the discipline through in-depth study, groundbreaking research, and innovation.

The Mechanical Engineering Department offers 4 Master's Programs and 4 Joint Master's Programs. These programs enhance students' technical expertise, leadership, and career prospects within the field. They offer specialized exploration, hands-on experience, and equip graduates to tackle complex challenges, lead engineering teams, and drive innovation.

The Doctorate in Mechanical Engineering program is the highest academic pursuit, focusing on cutting-edge research. Candidates work closely with faculty mentors, conduct original research, and encourage interdisciplinary collaboration. Graduates become experts in their research area, contributing to academia, industry, and society.

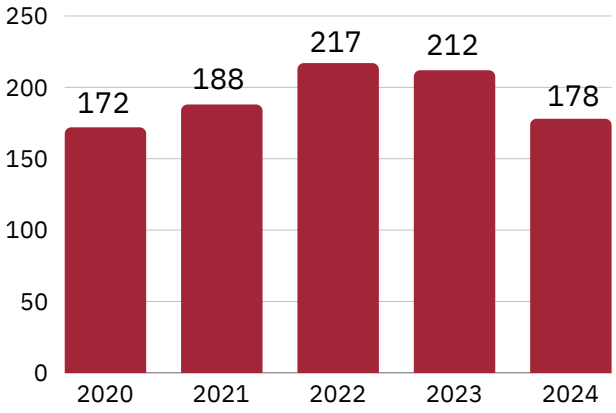
Both programs foster exploration, critical thinking, and innovation. Graduates emerge as leaders, problem solvers, and visionaries shaping the future of mechanical engineering through research and transformative ideas, either in industry or advancing knowledge.

GRADUATE ENROLLMENT

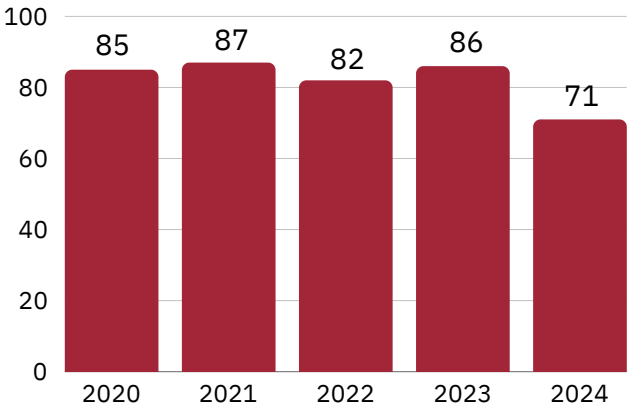
The Mechanical Engineering department continues to experience significant growth in student enrollment. In the 2023-2024 academic year, the department welcomed a total of 178 new Master's students and 11 new Ph.D. students. This demonstrates the enduring appeal of the program and its ability to attract top talent.

The department's focus on cutting-edge research areas like Micro/Nano/Quantum Technology, Dynamics, Controls, and Robotic Systems, Aerospace Engineering, Biomechanical Engineering, Energy, Thermal-Fluids, and Sustainability, and Design Computations and Advanced Manufacturing likely contributes to its growing popularity. Additionally, the department's commitment to providing hands-on experience, state-of-the-art facilities, and a supportive learning environment may have influenced these positive trends.

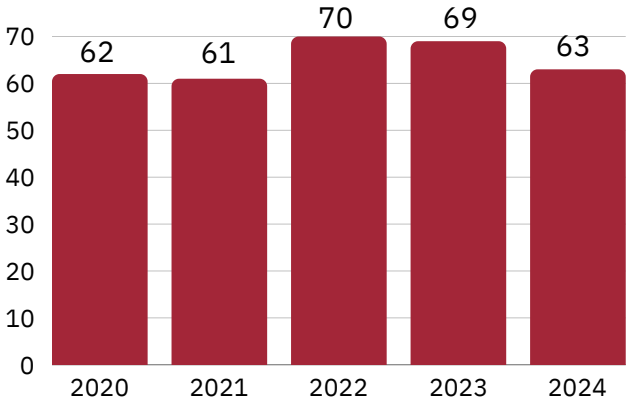
TOTAL MASTER'S ENROLLMENT



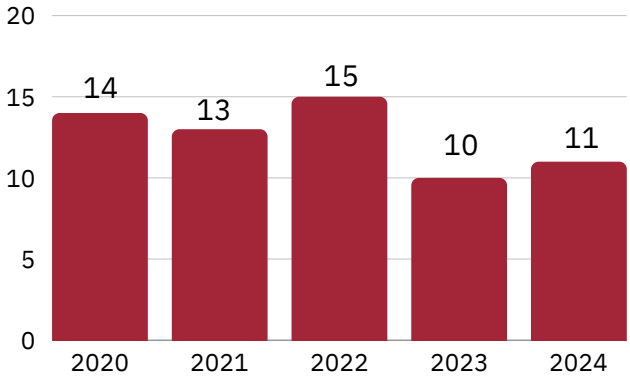
NEW MASTER'S ENROLLMENT



TOTAL PH.D. ENROLLMENT



NEW PH.D. ENROLLMENT



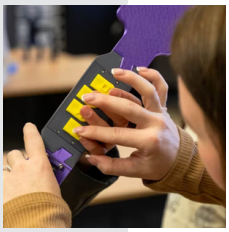
STUDENT HIGHLIGHTS

INNOVATIVE PAPER AWARD (ASME)

ME Ph.D. candidate **Zitao Tang,** advised by EH Yang, received the Innovative Paper Award by the American Society of Mechanical Engineers (ASME) MicroElectroMechanical Systems (MEMS) Division and International Mechanical Engineering Congress & Exposition (IMECE) 2023 Track 13: Micro- and NanoSystems Engineering and Packaging for his work entitled "Aharonov-Bohm Oscillations in Chemical Vapor Deposition-Grown Graphene Rings and Ribbons."

EDITOR'S PICK IN JOURNAL OF VACUUM SCIENCE & TECH.

ME doctoral student **Yingtao Wang** and ME undergraduate student **Mona Savalia's** work was selected as an Editor's Pick in the Journal of Vacuum Science & Technology B.



FIRST PLACE IN RESNA STUDENT DESIGN CHALLENGE

ME undergraduate students **Sebastian Almonte**, **Emanuel Diaz**, **Richard He** and **Paul Leible**; and CS undergraduate students Hasumi Tanemori and Kimberly Tsang claimed first place in the national Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) 2024 Student Design Challenge Competition with their music and rhythm-based video game, Haptic Hero, which they designed for players with visual impairments.

ASME TREBUCHET COMPETITION

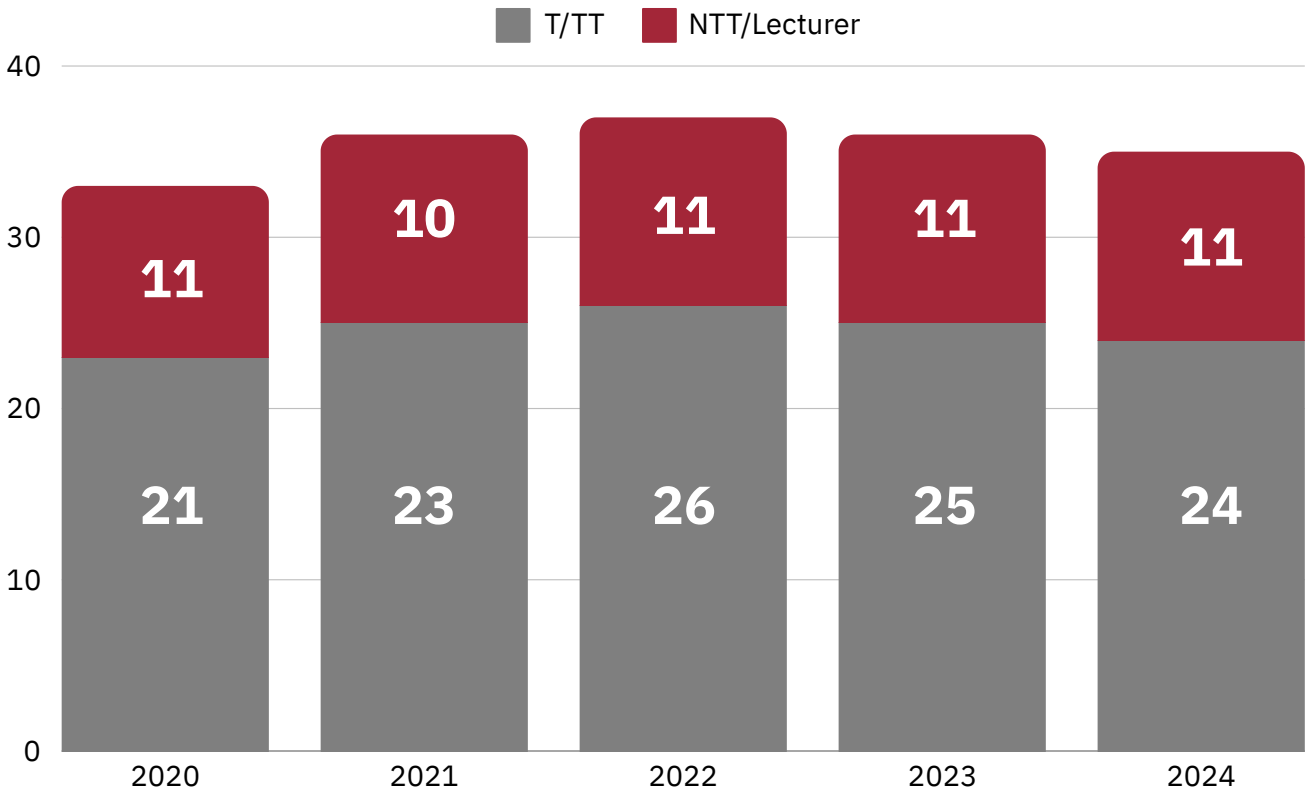
Stevens American Society of Mechanical Engineers (ASME) Club — including ME undergraduate students **Thomas Wohlbruck, Noah Golan**, **Daniel Ahn**, **Konnor Getz**, **Francisco Arroyo Cruzat**, **Adrien Susino**, **Cole Spitzner**, **Krishna Mansukhani**, **Ryan Musantry**, **Cooper Kinsley** and **Logan Hickey** — were winners of the American Society of Mechanical Engineers (ASME) Trebuchet Competition against Fairleigh Dickinson University.

FACULTY

BY THE NUMBERS

Our world-class faculty, comprising 35 members, practice diverse activities across engineering. They prioritize hands-on learning and research, providing students with experiential knowledge and abundant resources. Globally recognized for their contributions to research, teaching, and professional practice, our faculty's expertise spans various disciplines, fostering intellectual curiosity and academic excellence.

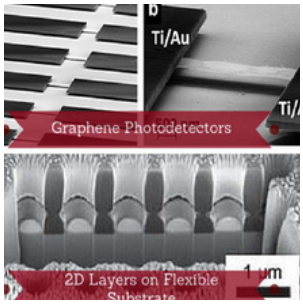
Our faculty's commitment to both theory and application drives groundbreaking research addressing pressing global challenges. Their insights advance the field of Mechanical Engineering and hold far-reaching implications for industries, societies, and communities. Out of our 35 faculty members, 24 are Tenure or Tenure Track (T/TT), and 11 are Teaching Track. The faculty size trend over the past five years is illustrated below.



T/TT FACULTY BY RESEARCH AREA

MICRO/NANO/QUANTUM TECHNOLOGY

Chang-Hwan Choi
Frank Fisher
Shima Hajimirza
Yong Shi
Eui-Hyeok Yang
Annie Zhang

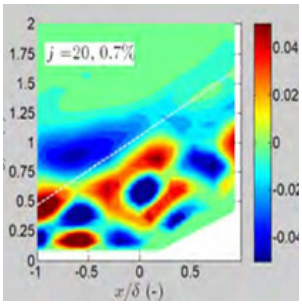


DYNAMICS, CONTROLS, AND ROBOTIC SYSTEMS

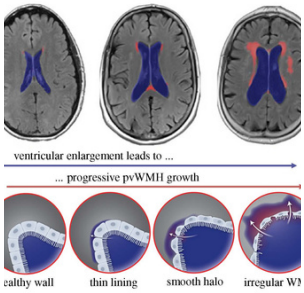
Gizem Acar
Brendan Englot
Christophe Pierre
Kishore Pochiraju
Hamid Jafarnejad Sani
Christopher Sugino
Long Wang
Damiano Zanotto

AEROSPACE ENGINEERING

Nick Parziale
Christophe Pierre
Jason Rabinovitch
Siva Thangam



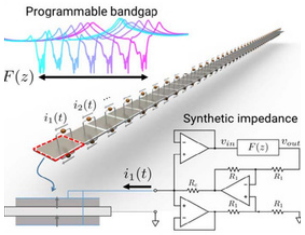
BIOMECHANICAL ENGINEERING



Robert Chang
Long Wang
Johannes Weickenmeier
Damiano Zanotto

ENERGY, THERMAL-FLUIDS AND SUSTAINABILITY

Chang-Hwan Choi
Hamid Hadim
Shima Hajimirza
Nick Parziale
Jason Rabinovitch



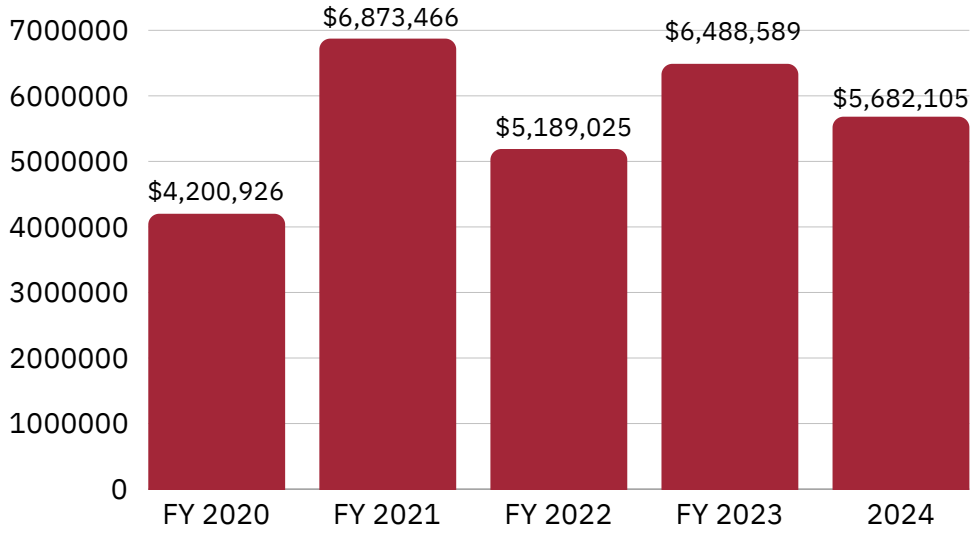
DESIGN COMPUTATIONS AND ADVANCED MANUFACTURING

Robert Chang
Chang-Hwan Choi
Sven Esche
Souran Manoochehri
Kishore Pochiraju

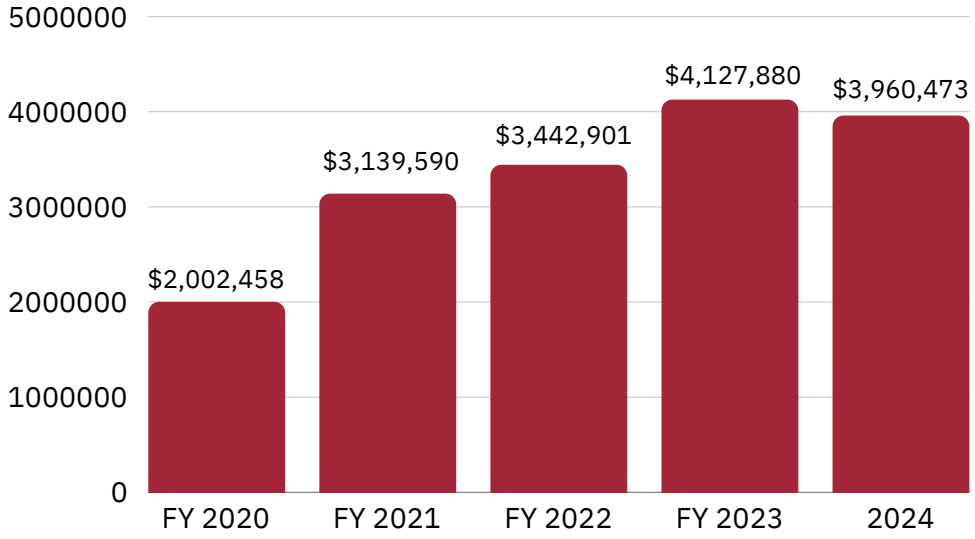
SPONSORED RESEARCH

The Department of Mechanical Engineering is dedicated to innovative, interdisciplinary research, fostering collaboration among esteemed faculty members. Research areas include hypersonic reactive flows, mobile robotics navigation, biomechanics of soft materials, and 2D material development. The department has experienced significant research growth, securing over $23 million in active awards from various government and industry sources in 2023-2024. Our institution's substantial research expenditure underscores our commitment to advancing knowledge and driving innovation, acknowledging research's pivotal role in shaping industries, economies, and societies.

ANNUAL RESEARCH AWARD



ANNUAL RESEARCH EXPENDITURE



ACTIVE RESEARCH AWARDS

Our Department boasts a vibrant research community, spanning from theoretical to applied fields. Recent growth in multi-PI grants has fueled larger research labs and innovative projects. This collaborative spirit, combined with $23.6 million in active awards, drives our scholarly impact.

Sponsor	Award	Percent
National Science Foundation	$7,566,403.00	32.04%
US Department of Defense - Office of Naval Research	$2,674,446.00	11.33%
U.S. Army Medical Research Acquisition Activity	$1,497,728.00	6.34%
U.S. Air Force Office of Scientific Research	$1,486,134.19	6.29%
Perspecta Labs Inc.	$1,439,276.00	6.09%
University of Minnesota	$1,206,500.00	5.11%
DOD-Combat Capabilities Devel Command Armaments Ct	$1,141,865.00	4.84%
National Institutes of Health	$976,977.00	4.14%
Leidos, Inc	$960,000.00	4.07%
Raytheon Company	$940,771.00	3.98%
U.S. Army-Picatinny	$931,852.00	3.95%
Kaswin	$379,904.00	1.61%
US Department of Agriculture	$375,000.00	1.59%
University of Washington	$364,498.00	1.54%
CORVID Technologies LLC	$360,993.00	1.53%
Consolidated Edison, Inc.	$250,000.00	1.06%
UC Davis U19 NIH	$240,049.00	1.02%
Georgia Institute of Technology	$232,000.00	0.98%
Sandia National Laboratories	$209,973.00	0.89%
Duke University	$100,000.00	0.42%
US Depart of Defense - Off Deputy Asst Sec	$95,540.00	0.40%
SEO YEONG Co., Ltd.	$76,805.00	0.33%
National Aeronautics and Space Administration	$61,695.00	0.26%
New Jersey Health Foundation	$35,000.00	0.15%
Analytical Mechanics Associates	$11,327.00	0.05%
Total	**$23,614,736.19**	

3 NSF CAREER AWARDS

SHIMA HAJIMIRZA: MAKING ENERGY TRANSFER MORE EFFICIENT

Associate Professor Shima Hajimirza aims to impact energy efficiency, safety and equipment longevity in numerous technologies and industrial processes with her research. She received $519,309 NSF CAREER Award, “Precise Mathematical Modeling and Experimental Validation of Radiation Heat Transfer in Complex Porous Media Using Analytical Renewal Theory.”

The five-year project seeks to develop mathematical and computational models that significantly improve the accuracy, speed and applicability of radiation heat-transfer estimations beyond the capabilities of existing methods. This research could revolutionize the way energy transport is measured and managed at multiple scales. Potential impacts include enhancing solar energy systems, improving thermal management in electronic devices, and developing more efficient and sustainable energy technologies, including new materials with optimized thermal properties.

CHRISTOPHER SUGINO: RETHINKING HUMAN INTERACTION WITH SOUND

Assistant Professor Christopher Sugino is working to reframe how people interact with sounds and acoustic waves. Through his groundbreaking, five-year, $650,081 NSF CAREER Award, "Non-Local Metamaterials and Metasurfaces for Next-Generation Non-Reciprocal Acoustic Devices," Sugino will challenge the conventional boundaries of reciprocal acoustics.

The project builds on Sugino’s expertise in metamaterials and metasurfaces. One day, he realized that existing research might be missing something simple — researchers study how sound moves through time and space, but their control has been limited to time. If those reactions can be shifted in space as well, it may be possible to unlock new possibilities for controlling sound. Sugino decided to change how the unit cells of metamaterials — architected structures engineered to have unconventional properties — interact with each other and with sound waves. The project will also involve educational outreach to help local middle school students learn about acoustics and explore the connections among sound, urban environments and engineering careers.

JOHANNES WEICKENMEIER: BEATING COGNITIVE DECLINE TO THE PUNCH

ME Faculty Johannes Weickenmeier received a $570,574 CAREER Award for his project, “Biomechanical Characterization of Periventricular White Matter and Its Age-Related Degeneration.” The five-year project seeks to use experimental and computational strategies to explain the impact of decade-long brain shape changes on functional brain structures.

Weickenmeier will combine medical image registration, brain tissue experiments and constitutive modeling to study how progressive tissue loss drives ventricular enlargement. He will also show how such loss is visible in medical imaging and establish a brain aging model that predicts ventricular enlargement and corresponding periventricular white matter lesion locations. This research stands to allow clinicians to identify subjects showing signs of abnormal aging early on.

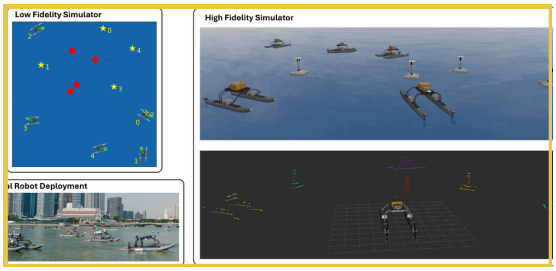
FACULTY RESEARCH PROJECTS

ADVANCED AUTONOMY CAPABILITIES FOR UNMANNED SURFACE VEHICLES

BRENDAN ENGLOT

Professor Brendan Englot and his team in the Robust Field Autonomy Lab are enhancing unmanned surface vehicles (USVs) with advanced reinforcement learning to tackle complex naval tasks in dynamic, uncertain, and congested environments. Their research aims to enable USVs to safely navigate harsh conditions—such as wind, waves, and currents—while coordinating tasks across large teams and operating under degraded perception and communication.

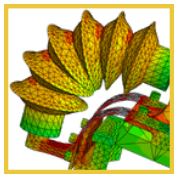
The team employs Distributional Reinforcement Learning, which models full probability distributions of outcomes rather than averages, allowing USVs to make risk-aware decisions and better handle uncertainty. The work, which focuses on enabling USVs to respond quickly and effectively to unpredictable hazards, has three main thrusts: teaching USVs to perform versatile tasks, developing architectures for multi-vehicle coordination, and refining a "Sim2Sim2Real" training pipeline that integrates low- and high-fidelity simulators with real-world testing on the "BlueBoat" platform.



SOFT ROBOTICS FOR MEDICAL THERAPIES AND HUMAN INTERACTION

JACQUELINE LIBBY

Assistant Professor Jacqueline Libby started at Stevens in September 2023. Her research focuses on soft robotics for medical applications and human-machine interaction. She published a paper in October entitled: “Comparative Analysis of Evolutionary Algorithms for PID Controller Optimization in Pneumatic Soft Robotic Systems: A Simulation and Experimental Study”. This work is part of an effort to build modular and scalable pneumatic controllers for soft robotic actuators. She also works on the design and fabrication of soft robots, using techniques such as silicone casting, finite element modeling, and computer vision for shape analysis and motion tracking. Most recently she and her students have been developing hybrid silicone-foam casting techniques for orthotics and wearables that can be customized to individual body scans. She is researching novel soft additive manufacturing techniques to 3D print silicone parts and soft electronics, with the goal to streamline the fabrication of robotic artificial muscles and e-skins. Her career vision is to create innovative devices for neuromuscular rehabilitation, pain management, and other therapeutic applications.

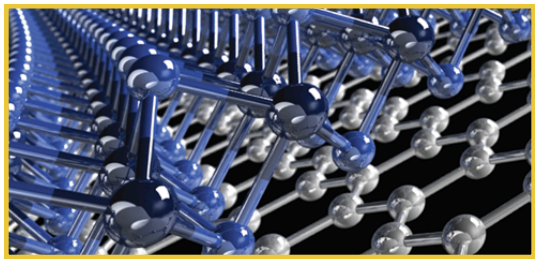


FACULTY RESEARCH PROJECTS

PIONEERING 2D QUANTUM MATERIALS FOR SPINTRONIC INNOVATIONS

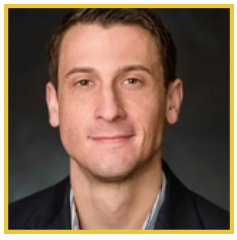
EH YANG

In the quest to revolutionize information storage and sensing technologies, Dr. EH Yang's research focuses on developing advanced quantum materials, particularly two-dimensional (2D) dilute magnetic semiconductors, for transformative applications in spintronic memories and detectors. His team has pioneered an in situ substitutional doping method to embed metal atoms into transition metal lattice sites within van der Waals monolayers, achieving robust room-temperature ferromagnetism and exceptional electron transport properties [See Nat. Comm (2020)]. This innovation led to the first demonstration of spin-orbit torque switching of 2D van der Waals magnets at the true atomic monolayer limit, marking a significant leap toward realizing low-power, high-density spintronic devices. By combining cutting-edge synthesis techniques with advanced electron transport studies, Dr. Yang's work isn't just advancing quantum materials—it's rewriting the future of data storage and sensing technologies, starting with these extraordinary atomic-scale innovations.



PIONEERING SUPERSONIC AND HYPERSONIC FLOW RESEARCH

NICK PARZIALE



Nick Parziale's research with measurement techniques in supersonic/hypersonic flows has given insights to flow physics that have been sought after by NASA, the DoD, and the fluid-mechanics community for decades. Parziale works with optics, lasers, and atomic physics that has resulted in: a) Focused Laser Differential Interferometry (FLDI), which measures density; and, b) Krypton Tagging Velocimetry (KTV), which measures velocity. He has also investigated high-speed vehicle weather encounter, where his group studies how rain impacts high-speed vehicles.

These measurement techniques are so-called 'non-intrusive, optical diagnostics,' which means they do not disturb the gas flow. This enables Parziale's group to study new fluid mechanical phenomena in the thin (1 millimeter) gas layer near a high-speed vehicle called the boundary layer. The transition of a boundary layer from a laminar (well-ordered) state to a turbulent (chaotic) state dictates a vehicle's capability because a vehicle with a turbulent boundary layer has higher drag and heat transfer, requiring more thrust and thermal protection.

FACULTY RESEARCH PROJECTS

MODELING CRYOVOLCANIC PLUMES TO DECODE OCEAN COMPOSITION

JASON RABINOVITCH

NASA has recently selected one of Professor Rabinovitch's proposals on modeling the Enceladus plume for funding. The project, titled "To What Extent Does Enceladus' Plume Sample its Ocean: Insights from Conduit Flow Modeling," will model the cryovolcanism that is occurring at the southern pole of Enceladus, one of the moons of Saturn. Enceladus has a thick layer of ice on its surface (~10 km), and a liquid water ocean beneath the ice.

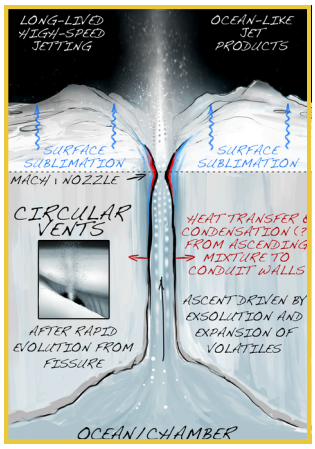


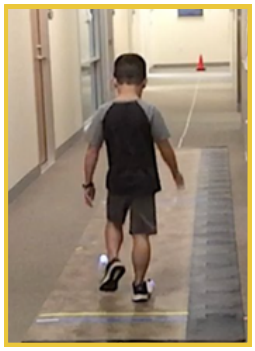
Fig. Schematic of the Enceladus plume eruption

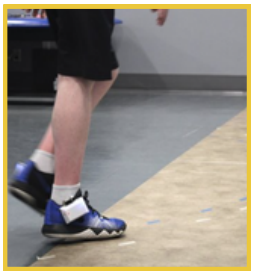
NASA's Cassini mission discovered a plume of water vapor, ice particles, and volatile gases erupting from the southern pole of Enceladus. Scientists are eager to understand why the plume erupts, as it could reveal insights about Enceladus and support future robotic missions aiming to sample the plume to infer the ocean's composition. Given the presence of liquid water, researchers hope to determine if the ocean could support life. To interpret plume samples, it is crucial to establish if the plume reflects the ocean's composition and understand how the eruption occurs.

This project proposes that dissolved gases, such as methane and hydrogen, drive the eruptions by forming bubbles as the mixture rises toward the surface. These bubbles expand and propel material outward, much like liquid from a shaken soda can. By modeling this process, the research will enhance our understanding of Enceladus and aid future missions aiming to sample its intriguing plume.

DIGITAL BIOMARKERS FOR MUSCULAR DYSTROPHY AND ATROPHY

DAMIANO ZANOTTO



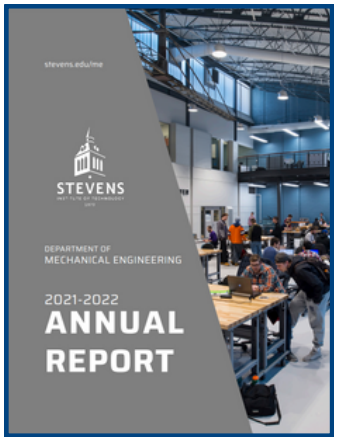


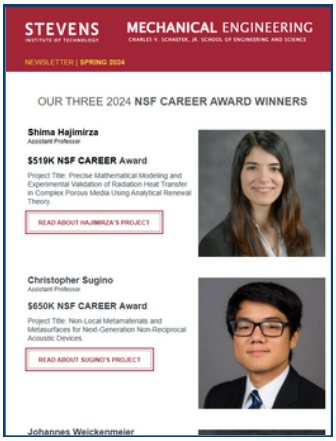
Professor Damiano Zanotto and CUIMC professor Jacqueline Montes are working to develop AI-enhanced in-shoe sensors for monitoring neuromuscular disorders like Duchenne muscular dystrophy (DMD) and spinal muscular atrophy (SMA). These sensors measure gait quality and kinetic data, offering insights that standard wearables and clinical tests cannot.

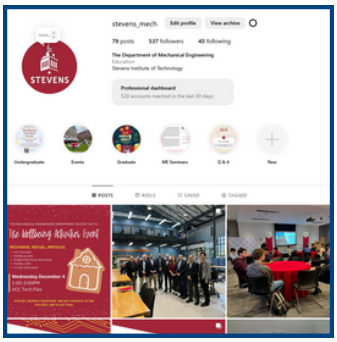
The study, conducted with patients at CUIMC, Boston Children's Hospital, and Stanford Medical School, will use the sensors to track real-world mobility during two one-month periods a year apart. By comparing this data with traditional evaluations, the team aims to identify digital biomarkers that more accurately assess disease severity and progression. This approach could improve mobility tracking, streamline drug trials with more sensitive metrics, and reduce trial duration and costs. The researchers also plan to train AI models to predict future disease progression, offering insights for personalized care and therapy development.

COMMUNICATIONS

The Department of Mechanical Engineering engages its audience through a variety of communication channels. Annual reports showcase key achievements and groundbreaking research, while seasonal newsletters highlight updates on faculty, students, and events. The department leverages LinkedIn to connect with alumni and industry partners, and Instagram to share its culture and research through dynamic visuals. Additionally, event flyers promote conferences and other departmental activities. Together, these efforts effectively share information and foster connections within the academic and professional community.







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