

May 2024

SPRING 2024 NEWSLETTER

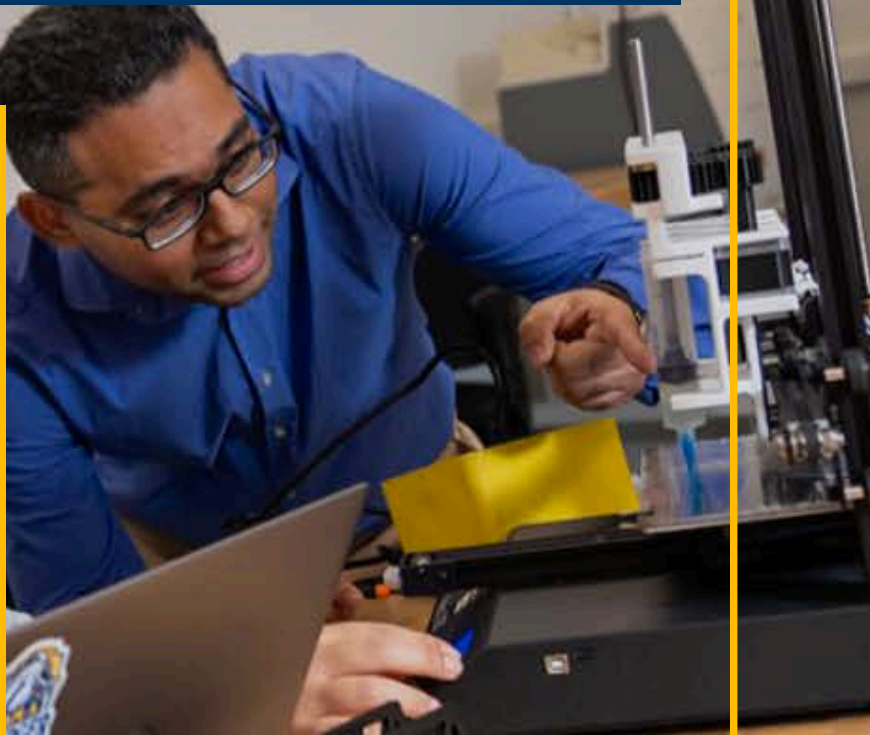


MECHANICAL AND INDUSTRIAL ENGINEERING DEPARTMENT

As we conclude the spring semester, we applaud the Mechanical and Industrial Engineering Department at the University of New Haven for their outstanding achievements.

A heartfelt thank you to all the faculty members who have contributed their achievements for publication in this newsletter.

We wish everyone a rejuvenating summer and look forward to future accomplishments.



NEWSLETTER HIGHLIGHTS

- Publications
- Conference Presentations
- Graduate Students Showcase
- Students Success
- Capstone Design Expo
- Product Design Lab Showcase
- EML in ISE
- Expressing Gratitude

Editor:
Marzieh Soltanolkottabi, PhD

PUBLICATIONS

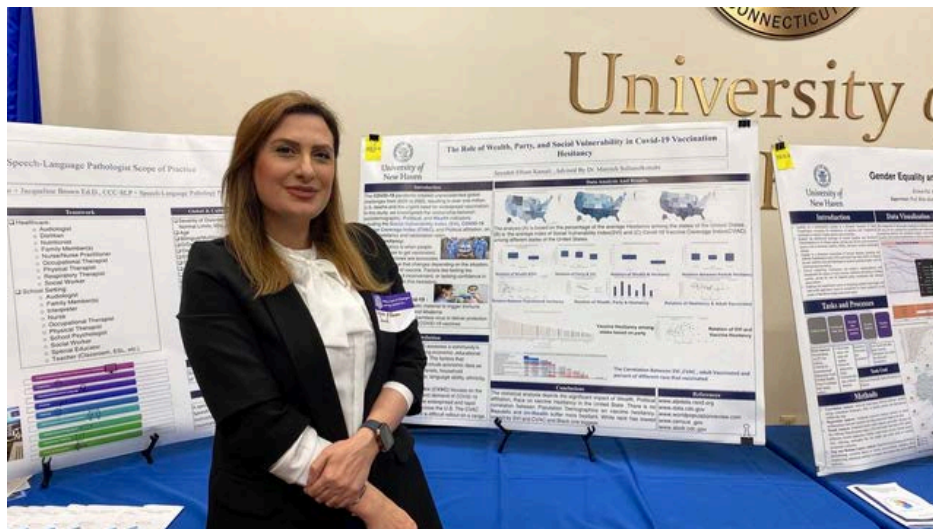
- T. Ibrahim, A. Ritacco, D. Nalley, O. F. Emon, Y. Liang, H. Sun, Chemical recycling of polyolefins via ring-closing metathesis depolymerization, Chemical Communications, 2024, 60, 1361-1371
- S. Raval, S. Saxena, M. Soltanolkottabi, N. Sadeghiamirshahidi, Exploring Consumers' Panic Buying Behavior: An Agent-Based Model for Supply Chain Management in Crisis Situations, Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2024 (Accepted for publication).
- N.O. Erdil, Build, Experiment, and Learn: Promoting Curiosity and Creativity While Learning DOE, Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2024 (Accepted for publication).

CONFERENCE PRESENTATIONS

- C. Rowley, M. Correa, MA. Montazer, Aerospace Part Manufacturing Analysis Using Simulation, 9th North American Conference on Industrial Engineering and Operations Management, 2024 (Accepted for presentation)
- K. Jakkli Sounder Karthi, A. Irukulla and MA. Montazer, A Simulation Study of Peak Time Operations at Jaya's Kitchen, 9th North American Conference on Industrial Engineering and Operations Management, 2024 (Accepted for presentation)
- M. Soltanolkottabi, N. Sadeghiamirshahidi, Modeling Panic Buying in Supply Chains: An Agent-Based Simulation Approach in a Game-Theoretic Framework for Decision-Making, Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2024 (Accepted for presentation).
- S. Raval, S. Saxena, M. Soltanolkottabi, N. Sadeghiamirshahidi, Exploring Consumers' Panic Buying Behavior: An Agent-Based Model for Supply Chain Management in Crisis Situations, Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2024 (Accepted for presentation).
- N.O. Erdil, Build, Experiment, and Learn: Promoting Curiosity and Creativity While Learning DOE, Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2024 (Accepted for presentation).

GRADUATE STUDENTS SHOWCASE SUCCESS

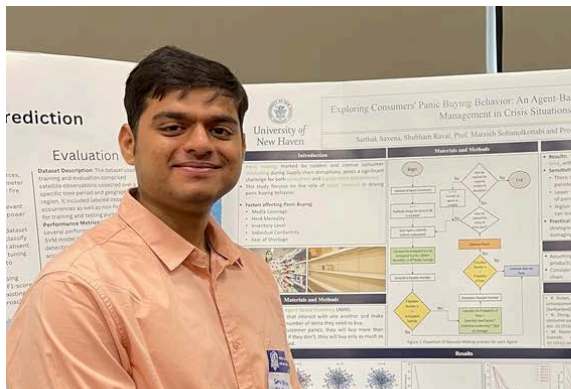
Congratulations to Seyedeh Elham Kamali for earning second place in the Graduate Student Showcase. Elham is studying Engineering and Operations Management and joined the University of New Haven in Fall 2023. She is currently working with Dr. Soltanolkottabi on data analysis of COVID-19 vaccination hesitancy in the United States.



GRADUATE STUDENTS SHOWCASE

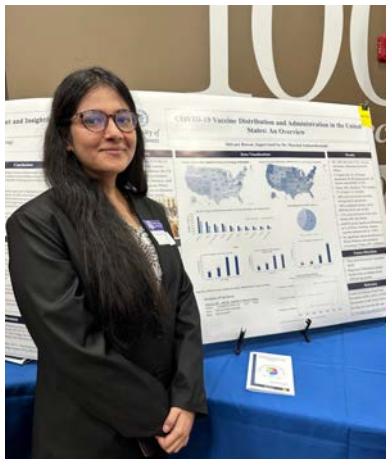
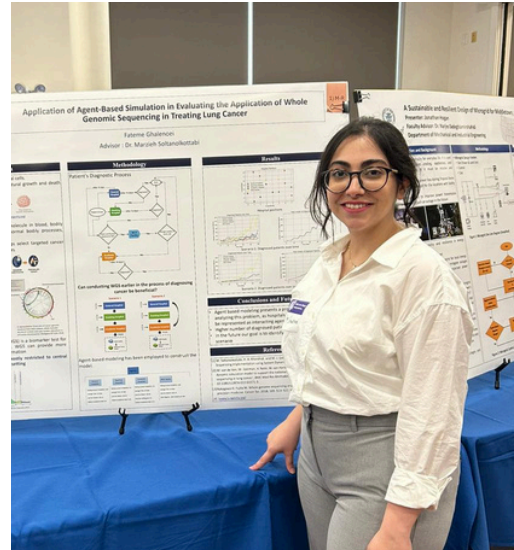
Congratulations to our graduate students who presented their research in the Graduate Student Showcase on April 2nd.

Shubham Raval and Sarthak Saxena
Advisors:
Dr. Marzieh Soltanolkottabi
Dr. Narjes Sadeghiamirshahidi
"The Impact of Consumer Panic Buying and Stockpiling on Supply Chain Performance"



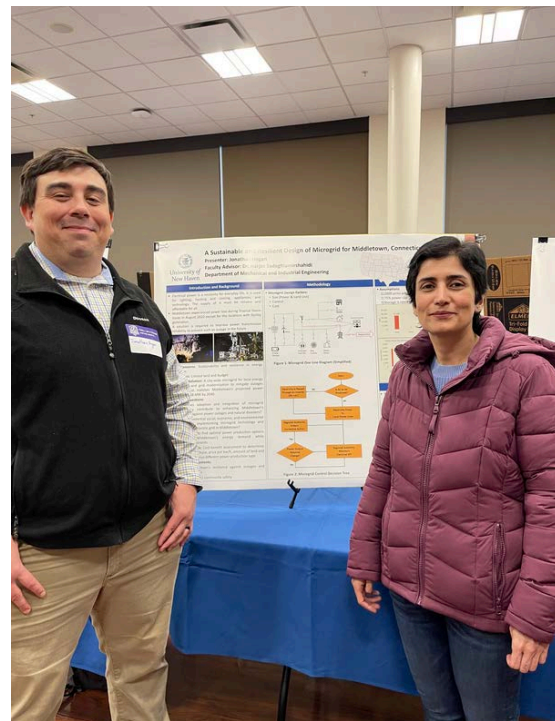
GRADUATE STUDENTS SHOWCASE

Fateme (Hasti) Chalenoei
Advisor: Dr. Marzieh Soltanolkottabi
**"Applications of Agent-Based
Simulation in Evaluating the
Implementation of Whole Genomic
Sequencing in Treating Cancer"**



Shivani Rawat
Advisor: Dr. Marzieh Soltanolkottabi
**"COVID-19 Vaccine Distribution and
Administration in The United States:
An Overview"**

Jonathan Hogan
Advisor:
Dr. Narjes Sadeghiamirshahidi
**"A Sustainable and Resilient
Design of Microgrid for
Middletown, Connecticut"**



STUDENTS SUCCESS

Outstanding Undergraduate Student Award in Mechanical Engineering

- Anna Ort

Anna is a senior mechanical engineering student who loves to be involved on campus. During her first year on campus, she helped revive the ASME student section and, as a senior, served as the Vice President. She worked as a Peer Assistant in the engineering department for 2 years, and in her last year at the university, she worked at the Makerspace. She interned at RBC Bearings the summer after her junior year and will be working there full-time after graduation. This past year, she has been updating the air revitalization section of a NASA training primer as a research project. In Anna's free time, she loves to do art, including drawing, painting, and crocheting.



Outstanding Graduate Student Award in Mechanical Engineering

- Sundar Dangol



Sundar Dangol is a graduate student from Nepal, enrolled in the Master of Science program in Mechanical Engineering. Currently, he holds a cumulative GPA of 3.9. As a recipient of the TCoE Endowed Graduate Fellowship award, he works as a Graduate Research Assistant in the realm of Additive Manufacturing at the Smart Fabrication Lab. His primary research revolves around pioneering the 3D printing of flexible force sensors, a venture poised to transcend the limitations posed by conventional rigid sensors. This breakthrough could be promising for diverse applications spanning electronics, automotive accessories, and biomedical devices.



STUDENTS SUCCESS

Outstanding Graduate Student Award in Industrial Engineering

• Abdul Rahman Mohammed



Abdul Rahman Mohammed is currently pursuing M.S. in Industrial Engineering. With a background in Mechanical Engineering, he was honored as the Overall College Topper with a Certificate of Merit for Outstanding Performance in India. He possesses work experience in Enterprise Resource Planning (ERP) systems, particularly with SAP. Recently, he received an 8-month internship offer from Trumpf Inc. in Farmington, Connecticut, where he'll join as an Internal Logistics Intern. His career trajectory is geared towards becoming a Techno-Functional Consultant. Committed to continuous growth, he aims to blend his engineering prowess with practical experience to drive innovative solutions in the industry.

Outstanding Graduate Student Award in Engineering and Operations Management

• Asa deBlois

Asa deBlois is pursuing a Master's in Engineering and Operations Management from the University of New Haven and works full-time as a Principal Strategy Analyst in Medtronic's Surgical Operating Unit. In this role, he has played a pivotal role in shaping Medtronic's strategic initiatives through developing market models, delivering competitive insights, and conducting deep consultative research in areas such as digital technologies, robotics, and operations. Before his current role, Asa held various positions within Medtronic's R&D division, developing complex electromechanical surgical tools. He holds a BS in Mechanical Engineering with a concentration in Mechatronics from Western New England University.



STUDENTS SUCCESS

Outstanding Graduate Service Award - Engineering and Operations Management

- **Kiran Jakkli Sounder Karthi**



Kiran is a graduate student in Engineering and Operations Management, with over 8 years of professional software industry experience, specializing in quality assurance, project/regulatory compliance, and project management. As a former Teaching Assistant for the Mechanical and Industrial Engineering department, he facilitated many knowledge-sharing training sessions for the student community and spearheaded the inaugural MIE Showcase symposium, showcasing adept multitasking and leadership skills. He also assisted professors with day-to-day tasks, honing operational knowledge.

Outstanding Undergraduate Service Award - Mechanical Engineering

- **Nicholas Babich**

Over the last few semesters, Nick has had the opportunity to work within the department to conduct 3D printing research and assist in operating various machines within the laboratory spaces. He has taken great pride in doing so and is incredibly grateful for the experiences he has gathered throughout. Nick will continue his mechanical engineering studies in the Fall to obtain his master's degree as part of the 4+1 program. In his extra time, he leads the university's astronomy club and enjoys traveling, playing hockey, and spending time with friends or family.



Outstanding Graduate Service Award - Mechanical Engineering

- **Justin Duprey**

Justin Duprey received his Bachelor's degree of Science in Mechanical Engineering from UNH in 2023. Now in graduate school, he is working for the Makerspace as Head TA helping to facilitate the facility and assisting students with their projects using the space's equipment. Justin Duprey has been a Manufacturing and Quality Engineering Intern at Beta Shim Co., a small Manufacturing Company, since June 2021. His hobbies include 3D Modeling, 3D printing, running, weight training, hiking, and snowboarding.



CAPSTONE DESIGN EXPO

Kudos to our students who showcased their Capstone Design projects at the Capstone Design Expo on April 30. We extend our heartfelt thanks to the advisors, our industry sponsors, and Dr. Orabi for their dedication and coordination of the event.

Innovative Solutions against 'Under-the-Door' Break-Ins

Team members: Nicholas Khaimov, Thomas Cafarelli, and Ziyi Pan

Faculty advisor: Dr. Joseph A. Levert



Battery Tube Redesign of an Insulin Pump

Team members: Kyle Roy and Greg Castronova

Faculty advisor: Dr. Ismail Orabi

Sikorsky Active Vibration Actuator

Team members: Kevin Burg and David Tabak

Faculty advisor: Dr. Ismail Orabi



CAPSTONE DESIGN EXPO

IEdgewell Robot End-of-Arm-Tool

Team members: Phillip Hinojosa and Jack Bassett

Faculty advisor: Dr. Ismail Orabi



Weight Optimized and Vibration Dampened Suspension Components

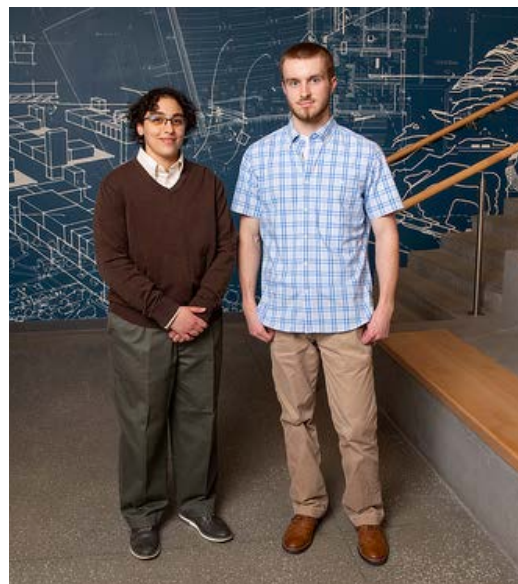
Team members: Nicholas Demayo and Alejandro Ramos

Faculty advisor: Dr. Ismail Orabi

High Pressure Water Recirculating Testing Unit

Team members: Jonathan Gladding and Hassan Soliman

Faculty advisor: Dr. Ismail Orabi



PRODUCT DESIGN LAB (MECH 2240) SHOWCASE

by Dr. Levert

The eight teams from the Product Design Lab course proudly presented their final designs in their Showcase on Thursday April 25, 2024.

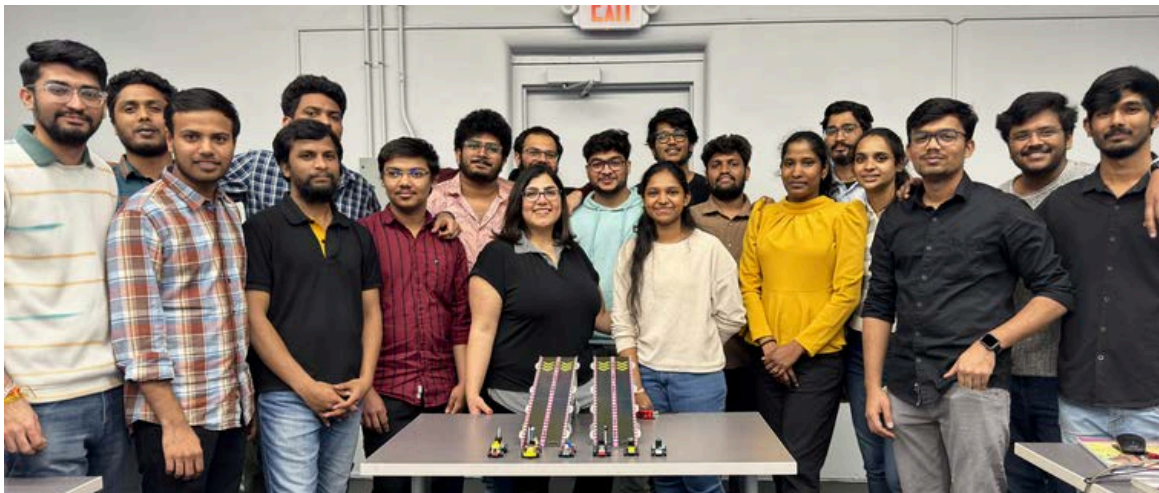
These teams created solutions for their external customer's open-ended needs. The designs included a low-cost, flexible robotic gripper, a particulate matter sensor payload for deployment to the stratosphere, as well as a tamper-resistant design adaptation for an automatic cat feeder. Fellow TCoE faculty and graduate students served as the "customers" for this live-client design education experience. Students were motivated and developed creative solutions through the "customer-centered design" education in the course.

The instructor, Dr. Levert, would like to thank fellow faculty from across TCoE for collaborating generously to serve as customers: Dr. Stephanie Gillespie (Associate Dean), Dr. Kagya Amoako and his graduate assistant Mr. Frank West, Dr. Nagasree Garapati, Dr. Kristine Horvat, Dr. Chong Qiu (Chemistry, Chemical Engineering & Biomedical Engineering), Prof. Philip Levine (Electrical & Computer Engineering and Computer Science Department), Dr. Omar Emon, and Dr. Sumith Yesudasan (Mechanical and Industrial Engineering Department). The only participant that's disappointed is Archimedes - the cat - that can no longer defeat the automated cat feeder....



ENTREPRENEURIAL MINDED LEARNING IN INDUSTRIAL AND SYSTEMS ENGINEERING

Dr. Soltanolkottabi has received the Entrepreneurially Minded Learning mini-grant for her project in the Spring 2024 INDE 6620 - Optimization and Application class. In this project, students designed Lego cars optimized to travel the furthest from a slope, integrating operations research models to manage constraints such as budget and part availability. This project exemplified the practical application of mathematical modeling, helping students master optimization and model-building in a real-world context.



Entrepreneurial Engineering Mindset in ISE Practice Workshop



Dr. Nadyie Erdil will be a featured presenter at the "Entrepreneurial Engineering Mindset in ISE Practice" workshop on May 19th in Montreal, Canada. This event is part of the IISE Annual Conference. Organized by the Society for Engineering and Management Systems (SEMS), this workshop aims to delve into the integration of the Entrepreneurial Mindset (EM) into Industrial and Systems Engineering (ISE). The session will focus on discussing EM's relevance, strategizing its incorporation into ISE courses, and exploring various EM resources.

Expressing Gratitude: Celebrating Dr. Kagya Amoako's Impactful Tenure as Interim Chair of MIE



As the semester concludes, we extend our heartfelt gratitude to Dr. Kagya Amoako for his exceptional leadership as the interim Chair of the Mechanical and Industrial Engineering Department.

Since assuming the role in Fall 2022, Dr. Amoako has been instrumental in enhancing the visibility and connectivity of our department. His initiative to launch the MIE website has been a revolutionary step, providing a platform to showcase the outstanding work of our faculty and students alike.

Moreover, Dr. Amoako's commitment to strengthening our community engagement is evident from his enthusiastic support for the publication of our semesterly newsletter. This publication has become a vital source of information, celebrating our achievements and keeping us all informed and connected.

His leadership culminated in the organization of a highly successful showcase in Fall 2023, which highlighted the innovative projects and research undertaken by our students and faculty. This event not only honored the hard work and creativity within our department but also amplified our contributions to the field of engineering.

As Dr. Amoako's tenure as interim chair draws to a close, we thank him for his dedication and visionary leadership, which have left an indelible mark on our department's journey.