

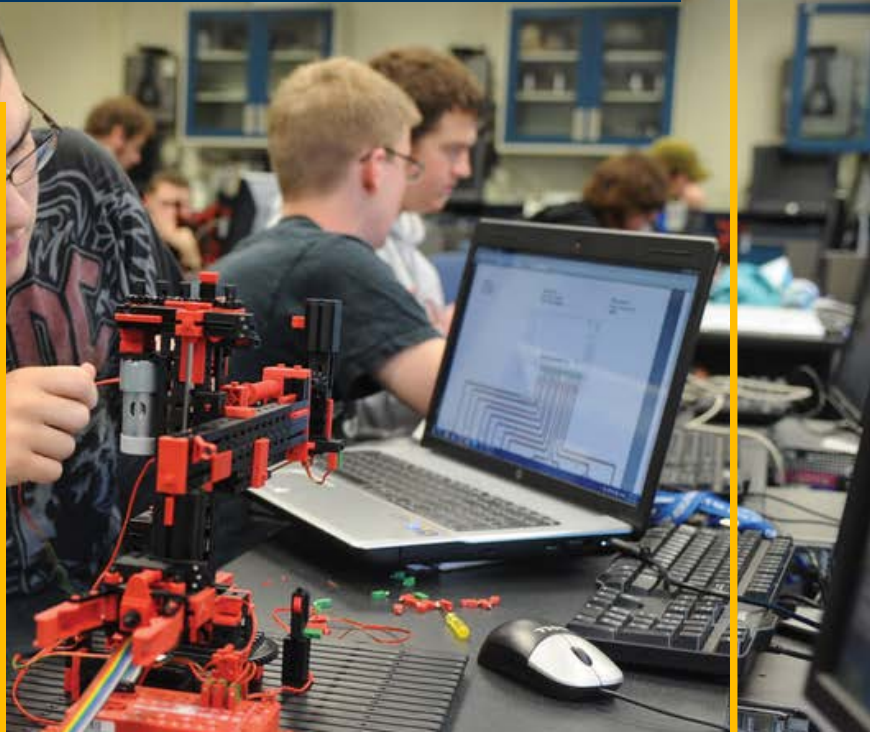
May 2023

SPRING 2023 NEWSLETTER



MECHANICAL AND INDUSTRIAL ENGINEERING DEPARTMENT

As we wrap up the spring semester, we want to acknowledge the incredible achievements of the Mechanical and Industrial Engineering Department at the University of New Haven. Our students and faculty have once again demonstrated their dedication and talent through innovative research projects and inspiring community outreach initiatives. We thank all members of our community for their hard work and support throughout the semester and wish everyone a restful summer. We look forward to seeing more amazing accomplishments in the upcoming academic year.



NEWSLETTER HIGHLIGHTS

- Publications
- Conference Presentations
- Research Awards and Grants
- Graduate Students Showcase
- Students Success
- Faculty Success
- Field Trips

Editor: Marzieh Soltanolkottabi, PhD
Co-editor: Kagya Amoako, PhD

PUBLICATIONS

Dr. Amoako and his students asked the question "How close are we to the perfect second lung?" In his group's first 2023 publication, a multi-team effort looked at how antiplatelet LNPs and antifouling Zwitterionic grafting in the **artificial lung** may move the technology towards that goal. Thanks to members of the biomaterial and medical device laboratory, the Bioengineered Organs Initiative team at Carnegie Mellon University's college of engineering, the Advanced Respiratory Technology team, and the editorial team of Macromolecular bioscience journal for facilitating this contribution to science.

<https://doi.org/10.1002/mabi.202200479>



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PUBLICATIONS

- M.S. Suwal, M. Soltanolkottabi, V. Behzadan, "Reinforcement Learning Approach to Evaluation and Decision-Support of Lockdown Policies for Epidemic Outbreaks", Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2023, New Orleans, USA (Accepted for Publication).
- O.F. Emon, H. Sun, A. Rahim, J.W. Choi, "An Ionic Liquid-Based Stretchable Sensor for Measuring Normal and Shear Force," Soft Robotics, 2023, Accepted, In press
- A. Thakkar, R. Jamghare, R. Mishra, O.F. Emon, "An Inexpensive 3d Printing System for Functional Inks Used in Electronics and Bio Applications," MSEC 2023, Jun. 12-16, New Brunswick, NJ
- N. Babich, D. DeCohen, H. Sun, O.F. Emon, "Effect of Printing Parameters on the Sensing Performance of a 3D Printed Elastomeric Pressure Sensor," NAMRC 51, 2023, Jun. 12-16, New Brunswick, NJ

CONFERENCE PRESENTATIONS

- M.S. Suwal, M. Soltanolkottabi, V. Behzadan, "Reinforcement Learning Approach to Evaluation and Decision-Support of Lockdown Policies for Epidemic Outbreaks", Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2023, New Orleans, USA (Accepted for presentation).
- F. Ghalenoei, M. Soltanolkottabi, H.A. Khorshidi, "Uncertainty Analysis of Implementing Whole Genomic Sequencing Evaluation in Cancer Treatment", Institute of Industrial and Systems Engineering (IISE) Annual Conference, 2023, New Orleans, USA (Accepted for presentation).
- A. Thakkar, R. Jamghare, R. Mishra, O.F. Emon, "An Inexpensive 3d Printing System for Functional Inks Used in Electronics and Bio Applications," MSEC 2023, Jun. 12-16, New Brunswick, NJ
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RESEARCH AWARDS AND GRANTS

Dr. Omar Faruk Emon has received a faculty research grant from NASA Connecticut Space Grant Consortium (CTSGC) for the 2022-23 academic year.

He is working to develop a 3D printing solution for fabricating polymer-based flexible pressure sensors. Standard sensors come with predefined geometries, mechanical properties, and specifications. Dr. Emon is developing a printing system and materials for printing need-specific sensors, which can be employed to measure strain, pressure, and temperature. This work can be crucial for NASA's space-related applications by enabling on-demand fabrication, adjustment, and repair of electronics.



Dr. Tom Filburn and Anna Ort received a faculty-student research grant from the CT NASA Space Grant Consortium. The research grant will support Anna (Mech Eng rising senior) and Tom as they update a primer on Life Support Technology that Tom created with 3 colleagues in 2007. The update will include new NASA missions (lunar habitat and mars) plus the experience garnered on-board the International Space Station of the Life Support technologies employed on that platform.

GRADUATE STUDENTS SHOWCASE

Congratulations to our graduate students who presented their research in the Graduate Student Showcase on April 11th.

- Abdur Rehman Shahbaz, "Role of Industrial Engineering and Operations Research (IEOR) in improvement of United States Postal Service (USPS) during 1600 to 1950"



- FNU Abid Ali Junaid, Ravi Mishra, "Non-planar 3D printing of functional polymers"



- Ramanaboina Aravind, Shivashashank Puvvuala, "Controlling Pneumatic Cylinders Single and Double Acting Using PLC (PRODUCTIVITY2000)"



- Ishaq Shahzad Syed, "ROS Based Synergistic Articulated Robotic Manipulator (R-SARM)"

STUDENTS SUCCESS

Outstanding Undergraduate Student Award in Mechanical Engineering

- **Jonathan Kolodziejczak**

Jonathan Kolodziejczak initially joined the University of New Haven as undecided in the field of engineering, but soon chose to major in mechanical engineering. His most notable academic achievement is his work in his capstone project, during which he was partnered with Medtronic to redesign a component of a surgical stapling device. Outside of engineering, Jonathan's favorite hobby is drawing, leading him to pick up a minor in illustration.



Outstanding Graduate Student Award in Mechanical Engineering

- **Abid Ali Junaid**



Abid is a dedicated international graduate student hailing from India, actively pursuing the third semester of his Master's degree in Mechanical Engineering program. At the University of New Haven, Abid works as a graduate research assistant at the Smart Fabrication Lab and holds the distinguished honor of an Endowed Graduate Fellowship recipient. His research work in the domain of 3d printing modernizes the way to design and manufacture products, unlocking limitless possibilities in fields such as medicine, printed electronics, and beyond.

2023 Honors Program Recipients from Mechanical Engineering

- **Tyler Kanter**
- **Aliza Johns**



STUDENTS SUCCESS

Outstanding Graduate Student Award in Industrial Engineering

• Dhiraj Agrahari



Dhiraj Agrahari is from Nepal, and is the son of Mr. Parmeshwar Agrahari and Kalawati Agrahari. He is currently pursuing his M.S. in Industrial Engineering at University of New Haven and is in his final semester. He has a background in Mechanical Engineering, which he completed in 2018 from Bangalore, India. He has work experience in the manufacturing and teaching domains. Recently, he completed a six month internship at Trumpf Inc. in Farmington, Connecticut where he worked as an industrial engineering intern. Currently, he is working as a teaching assistant in the department of mechanical and industrial engineering at the University of New Haven.

Outstanding Graduate Student Award in Engineering and Operations Management

• Biplaw Adhikari

Biplaw Adhikari is a graduate student from Nepal, currently pursuing his master's degree in Engineering and Operations Management. He has an undergraduate degree in Electronics Engineering and has earlier worked as a quality engineer.

Biplaw has been a graduate assistant at the Graduate Admissions department since his first semester. He holds a Six Sigma Green Belt certification from IISE and is interested in areas such as quality control, process improvement, project management, and data analysis. He intends to work in manufacturing industry to apply his technical knowledge and management skills into practice. In his spare time, he loves playing football, painting, and hiking.



STUDENTS SUCCESS

Outstanding Undergraduate Service Award – Mechanical Engineering

- **Aliza Johns**



Over her four years at the University, Aliza has been an active member of the community. Aliza has held numerous positions, most notably the Senior Class President, Society of Women Engineers President, Alpha Sigma Kappa – Women in Technical Studies Vice President of Operations, and Founding President of The Engineering Council. Over the summer of her sophomore year, Aliza interned with AVANGRID, specifically Southern Connecticut Gas where she determined which gas district regulators needed to be replaced. Currently, Aliza is working on her Honors Thesis where she is analyzing the energy efficiency of residential halls and making them more sustainable.

Outstanding Graduate Service Award – Mechanical Engineering

- **Sebastian Prieto**

Sebastian Prieto graduated with his B.S. in Mechanical Engineering with the class of 22' at the University of New Haven. In school he took an interest in aerospace, affording him the opportunity to intern with Sikorsky Aircraft's Ground Test Department where he worked for 3 years supporting mature models and special projects. After his bachelors, he continued his education as a part of the 4+1 program and will be on track to graduate spring 23' with his masters in mechanical engineering. After graduation, he will be set to start a full-time position with Sikorsky to continue his engineering career!



Outstanding Graduate Service Award – Industrial Engineering

- **Dhiraj Agrahari**

Dhiraj Agrahari is from Nepal, and is the son of Mr. Parmeshwar Agrahari and Kalawati Agrahari. He is currently pursuing his M.S. in Industrial Engineering at University of New Haven and is in his final semester. He has a background in Mechanical Engineering, which he completed in 2018 from Bangalore, India. He has work experience in the manufacturing and teaching domains. Recently, he completed a six month internship at Trumpf Inc. in Farmington, Connecticut where he worked as an industrial engineering intern. Currently, he is working as a teaching assistant in the department of mechanical and industrial engineering at the University of New Haven.

FACULTY SUCCESS



Congratulations to Dr. Nadiye Erdil for winning the Excellence in Teaching by Tenured and Tenure-Track Faculty at the University of New Haven.

Nadiye Erdil is an associate professor of industrial and systems engineering at UNH. Her background and research interests are in quality and productivity improvement using statistical tools, lean methods and use of information technology in operations management. Her work is primarily in manufacturing and healthcare delivery operations. She has been also actively involved in engineering education research. Prior to join academia, she worked in the sheet metal manufacturing and pipe fabrication industry as a process engineer.

FIELD TRIPS

Nuclear Engineering Class Visits Millstone Unit 2 Control Room Simulator

Students in the Nuclear Engineering Class (special Topics class) visited and operated the Millstone Unit 2 Control Room Simulator on Thursday 4/20, in Waterford CT. The students operated the primary and secondary loops (eg reactor and steam side) of the plant through a down power iteration. The class was then able to witness the plant experiencing a simulated TMI type accident (small break loss of coolant accident) with the attendant response preventing core melting, unlike the original TMI accident.

