Elias Bilal

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EDUCATION

Tufts University

2022 – 2026 Bachelor of Science Mechanical Engineering (BSME)

- Relevant courses: Robotics, Computation in Engineering, Mechanics, Materials and Manufacturing, Electronics and Controls, Digital Signals Processing, Statistical Quality Control, Engineering Design, Thermal Fluid Systems, Instruments and Experiments, Physics, Calculus, Differential Equations

The American University in Cairo

2024-2024 Non-Degree Seeking Study Abroad Student

- Relevant courses: Mechanics II Dynamics, Materials and Manufacturing II, Calculus III

EXPERIENCE

Microscale Sensors and Systems Lab | Research Assistant   *October 2024 - Present*

- Designing electronics housing for a satellite communication system for a research project to record high altitude Ultrasonic Anemometer data funded by NASA.
- Programming Arduino based boards such as the Artemis and Thing plus to communicate sensor data with Red Pitaya over the Iridium Network.
- Prototyping designs using SOLIDWORKS and additive manufacturing methods to optimize electronics housing to meet requirements.

Consigli Construction | Mechanical Engineering Intern   *June 2024 - August 2024*

- Optimized mechanical, electrical and plumbing systems with owners, architects, and trades to restore the MIT East Campus Parallels.
- Managed quality control of systems by ensuring 964 steam, electric, and plumbing units met system requirements through product data analysis and field condition inspection.
- Applied understanding of heating, cooling, electric, and water distribution systems to coordinate required methods of fabrication, installation and maintenance of mechanical, electrical and plumbing units.

PROJECTS

Electric Scooter Project   *June 2023 - August 2023*

- Manufactured a functional Lithium Ion / solar power hybrid electric scooter with aluminum and steel to meet desired load specifications via SOLIDWORKS.
- Assembled using an 800W DC motor, Altrax motor controller, braking mechanism and steering mechanism. The project was completed under a budget of $200 to create a functional product.

Crossbow Project   *October 2022 - November 2022*

- Programmed Lego Spike Prime to operate a Lego and wood website-controlled crossbow that could aim to pop balloons.
- Developed to entertain middle school age clients who tested the crossbow from their school location.

Machine Learning Lung Cancer PyScript Website   *April 2023 - May 2023*

- Coded a PyScript program which utilizes machine learning, medical patient data of lung cancer probabilities, and user inputs to predict lung cancer risk.
- Formatted to receive user input through HTML/CSS/JavaScript front end, then analyzed data using back end Python algorithm to compare to data files, then result is computed and displayed on the front end page.

EXTRACURRICULARS

National Society of Black Engineers (NSBE)

- Managing budget of $20,000 to invest in Black excellence in STEM at Tufts as NSBE 2024-2025 Treasurer.
- Organized events and initiatives to increase NSBE membership as 2023-2024 NSBE Underclassmen Representative

American Society of Mechanical Engineers (ASME)

- Leading company and student body events as Tufts ASME 2025-2026 Vice President.
- EngagedTufts' students with professional development opportunities as ASME 2024-2025 Junior Representative.

Tufts Football Team

- Training extensively to execute athletically and striving to be a great teammate on and off the field.

SKILLS

Languages & Programs: Python, SOLIDWORKS, JavaScript, HTML, MATLAB, CSS, Comsol, Office, LabVIEW

Fabrication: 3D printing, Laser Cutting, Prototyping, Design, Injection Molding, lathe, Soldering, Bridgeport Mill, Water Jet