

Muhannad Al Arameen

600 West 150th Street, New York, NY 10031

☎ (610) 604-6655

✉ muhannadalarameen@gmail.com

🌐 linkedin.com/in/muhannad-al-arameen

Education

Lehigh University

B.S. in Mechanical Engineering, Minor in Energy Engineering GPA: 3.58
– King Abdullah II Scholars University Scholarship Recipient.

Bethlehem, PA

Graduated: May 2025

Work Experience

ATLSS Research Center

Research Assistant — Soil-Foundation Interaction of Offshore Wind Turbines

Bethlehem, PA

Jun 2023 – Aug 2023

- Investigated soil-foundation interactions for 15 MW offshore wind turbines to support monopile foundation design.
- Inspected AutoCAD drawings of a large-scale soil testing box to verify dimensions and support foundation experiment setup.
- Simulated East Coast soil conditions to evaluate load transfer and optimize foundation stiffness.
- Characterized 50+ soil samples through direct shear, specific gravity, and grain size testing to inform geotechnical models.

Batool Craftsmanship

Design Intern

Zarqa Governorate, Jordan

May 2022 – Aug 2022

- Designed and refined mechanical components in SolidWorks to improve manufacturability and system performance.
- Collaborated with technicians and gained practical experience in welding, bending, and grinding processes.

Research and Project Experience

Dr. Emrah Bayrak Lab

Research Assistant — Smart Wearable System with Personalized AI to Improve Balance in Older Adults

Bethlehem, PA

May 2024 – May 2025

- Analyzed motion sensor data from 20+ participants to enhance predictive AI models for balance improvement.
- Redesigned seven on-body sensor straps to improve comfort and accuracy, achieving up to 90% signal precision.
- Developed Python pipelines for automated analysis of 100+ datasets, identifying key biomechanical parameters.

General Ecology

Product Development Lead — Cartridge Life Indicator

Bethlehem, PA

Jan 2024 – Dec 2024

- Designed and prototyped polypropylene enclosures, focusing on geometry optimization for strength and manufacturability.
- Optimized wall thickness and geometry to improve structural integrity and reduce production cost.
- Performed endurance testing exceeding 100,000 cycles to validate design integrity under operational stress.
- Conducted finite-element analysis on 10+ prototypes to identify stress concentrations and guide redesigns.
- Tested materials to ensure water absorbance below 0.5%, preventing moisture-related degradation.

Leadership and Professional Activities

American Society of Mechanical Engineers (ASME)

Treasurer

Bethlehem, PA

Oct 2023 – May 2025

- Founded Lehigh's ASME chapter, creating a hub for technical workshops and mechanical design collaboration.
- Secured \$2,000+ in funding to host energy-focused events and hands-on engineering projects.

Lehigh University's Physics Department

Physics Tutor

Bethlehem, PA

Aug 2023 – May 2024

- Tutored undergraduates in mechanics, thermodynamics, and energy systems, reinforcing conceptual and applied understanding.
- Delivered individualized and small-group tutoring, creating step-by-step guides that improved comprehension and exam outcomes.

Relevant Coursework

Thermodynamics, Heat Transfer, Fluid Mechanics, Strength of Materials, Dynamics, Finite Element Analysis, Engineering Vibrations, Applied Engineering Computer Methods, Manufacturing, Mechanical Elements, Machine Design, Energy Systems, Control Systems, Nuclear Fusion and Radiation, Engineering Materials and Processes, Computational Methods in Mechanical Engineering

Technical Skills

Software: SolidWorks, AutoCAD, Ansys, Mastercam, Moldflow, LabVIEW, MATLAB, Python

Engineering: CAD Design, FEA, Heat Transfer, Thermodynamics, Data Analysis, Prototyping, GD&T, FMEA, CNC Programming, Materials Testing