MAISHA ZUI

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EDUCATION

Boston University, College of Engineering Boston, MA
Bachelor of Science in Mechanical Engineering *May 2026*

- Concentration: Technology Innovation
- Relevant courses: Heat Transfer, Automation & Manufacturing Methods, Electromechanical Design, Fluid Mechanics, Energy & Thermodynamics, Probability & Data Science for Engineers

PROJECTS

Micro Turbine Energy Recovery System — Senior Design Project Sep 2025 – Present
Designed a micro-hydroturbine system to replace pressure-reducing valves in high-rise plumbing, recovering hydraulic energy for small-scale power generation

- Modeled and optimized Pelton-style turbine geometry to achieve ~60 % efficiency and a 40–60 psi pressure drop
- Implemented magnetic coupling for sealed energy transfer to an external generator and integrated battery storage for voltage stability
- Ensured compliance with ASHRAE pressure standards through simulation and multi-stage prototype testing
- Tools & Skills: SolidWorks, CFD, 3D printing, prototyping, pressure optimization, energy systems

Bling Box — Automated Jewelry Holder Sep 2025 – Present
Designed and machined a two-part jewelry holder for automated robotic assembly at Boston University's ADML

- Programmed CNC toolpaths and validated manufacturability in Fusion 360 CAM, achieving ±00005 in press-fit tolerances
- Integrated computer-integrated manufacturing (CIM) workflows using BUMES software and applied Lean principles to minimize idle time and improve yield
- Tools & Skills: Fusion 360, CNC milling, BUMES (CIM), tolerance analysis, Lean manufacturing

Cartesian Motion System Mar 2025 - May 2025
Designed and built a 25-axis Cartesian motion system for automated wood burning (pyrography)

- Converted images into G-code and automated motion via Repetier Host; simulated mechanics in SolidWorks to ensure accuracy and fit
- Resolved thermal distortion in 3D-printed components by refining tolerances and print orientation
  Tools & Skills: SolidWorks, Arduino programming, G-code generation, 3D printing, CAD, troubleshooting

EXPERIENCE

Office Assistant Sep 2023 - Present
Boston University Divisions of Materials Science and Systems Engineering Boston, MA

- Provided administrative support through filing, scanning, organizing departmental documents, and managing mail deliveries
- Assisted with event setup and cleanup, including arranging materials, signage, and room preparation for faculty and student activities
- Posted and maintained departmental flyers and announcements to support internal communication and outreach
- Supported faculty and staff with errands, visitor assistance, and general office organization to maintain smooth daily operations
- Utilized Microsoft Excel and Google Suite for basic data entry, tracking, and record organization

NORY STEM Camp Lead Teacher June 2025 - Aug 2025
NORY Inc. Manhattan, NY

- Led hands-on STEM lessons for students ages 3–12, fostering curiosity and creativity through engaging, project-based activities
- Taught core topics in robotics, engineering, physics, and environmental science using interactive kits and demonstrations
- Supervised and assisted students in building projects such as motorized boats, solar-powered machines, and basic circuit projects
- Provided real-time troubleshooting and guidance to ensure projects were safe, functional, and educational
- Adapted instruction for diverse age groups, emphasizing teamwork, problem-solving, and inquiry-based learning

SKILLS

Languages: Bengali (Native), Hindi (Basic), Spanish (basic), Latin (basic)
Software: SolidWorks (CAD), Autodesk Fusion 360 (CAM), MATLAB, Python, Microsoft Office, Google Suite, Adobe Suite
Fabrication: CNC milling, 3D printing, laser cutting, water jet cutting, Flexible Manufacturing Cell (FMC) operation, sewing for soft-material prototyping, thermoforming
Core Competencies: Prototyping, design for manufacturing (DFM), mechanical assembly, tolerance, and fit analysis
Interests: Sustainability (energy systems, composting, waste reduction, gardening), origami, baking