

Mahdi Islam

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SUMMARY

Mechanical Engineering student with hands-on experience in CAD, FDM 3D printing, embedded systems, and rapid prototyping. I build end-to-end solutions that blend hardware (Raspberry Pi, sensors, circuits) with software (Python/Node.js, React/Next.js) and user-focused product design. Recognized in hackathons and innovation sprints; founder of a campus delivery startup and a 3D-printed products shop. Seeking roles where I can ship real hardware/software systems and iterate fast.

EDUCATION

City College of New York, CUNY - New York, NY

August 2022 - Est. May 2026

- B.E. in Mechanical Engineering, coursework in Thermodynamics, Fluid Mechanics, Electrical Circuits; member of Zahn Innovation Venture Incubator
- Researcher at Grossolab, Photonics Lab @ASRC

Stuyvesant High School - New York, NY

September 2018 - June 2022

- Varsity Football, Linebacker - honed quick decision-making and teamwork under pressure
- SAT Score: 1580

ENGINEERING PROJECTS

Raspberry Pi Systems Prototyping

September 2025 - Present

- Configured Raspberry Pi 5 as a local server for ML/IoT workloads; deployed web apps (Node.js) for voice detection.
- Integrated audio peripherals (USB mic, Bluetooth speaker/Beats Pill) via PipeWire; scripted auto-connect on boot.
- Built Pi-hole DNS filtering node; diagnosed DHCP/IP conflicts, router interactions, and network reliability.
- Connected ESP32-CAM to stream frames to the Pi; evaluated lightweight object detection and inference pipelines.

Small-Scale Electromechanical Hand-Crank Alternator Generator

July 2025 - Present

- Engineered a compact power generator using electromagnetic induction principles for small-scale charging applications
- Designed rotor assembly and coil mounts in Autodesk Inventor, ensuring precise alignment for maximum efficiency
- Built and tested a bridge rectifier circuit with diodes and capacitors to convert AC output into stable DC voltage
- Exploring improvements in mechanical gearing ratios to increase RPM and electrical efficiency without increasing user effort

Independent CAD & Prototyping Work

May 2025 - Present

- Designed and 3D-printed an ice tray holder optimized for freezer organization and structural stability.
- Engineered a sealed storage container with multifunction and snap-fit features to ensure airtight performance.
- Applied iterative CAD modeling and FDM prototyping to refine designs and improve durability across projects.

Unity Game Developer

April 2023 - Present

- Developed gameplay prototypes in Unity to strengthen skills in C# and object-oriented programming
- Built a lightweight physics engine to simulate real-time collision detection, velocity changes, and angular reflections
- Prototyping new mechanics to explore interactive design, system logic, and user responsiveness in dynamic simulations

Home Automation Webserver

September 2025 - Present

- Built a scalable Node.js (Express) web server hosted on Raspberry Pi 5 to control smart-home devices.
- Integrated Tuya Cloud API for lighting controls; structured REST endpoints for room/group actions and future clients.
- Shipped a minimal web UI for low-friction toggles; designed modular adapters to add ESP32 devices and local protocols.
- Enabled secure remote access via Tailscale; evaluated temporary public tunneling with ngrok for Alexa skill testing.
- Roadmap: migrate from Tuya Cloud to local control, add ESP32-CAM video streaming, and expose Alexa Smart Home endpoints.

Portfolio Website — mahdiislam.vercel.app

August 2025 - Present

- Developed with Next.js + React + Tailwind; responsive layout and fast deploys on Vercel.
- Showcases engineering, embedded, and entrepreneurship projects with concise write-ups and visuals.

ENTREPRENEURIAL PROJECTS

Founder & CEO | QuickBites - New York, NY

April 2023 - Present

- Founded and led a student-oriented food delivery startup, managing app development, logistics, and operational strategies.
- Designed an efficient delivery logistics system, significantly reducing delivery times and lowering operational costs by 25%
- Secured funding and honed business strategies through active participation in startup competitions.

Founder & Product Designer | Etsy Shop - New York, NY

August 2025 - Present

- Designed and launched two 3D-printed products using Autodesk Inventor, applying iterative prototyping methods
- Managed the complete product lifecycle from CAD modeling to FDM printing, post-processing, and listing creation
- Produced professional-grade product photographs and detailed descriptions with SEO-focused titles to improve discoverability

Second Place - Zahn X Robin Hood Foundation Social Impact Innovation Spring - New York, NY

April 2025

- Collaborated in a week-long sprint to design a scalable solution addressing poverty-related challenges in NYC
- Applied design thinking and rapid prototyping to develop and test a user-centered intervention
- Supported the startup **WeSuap** by conducting user research and proposing a scalable earning 2nd among CCNY teams

Finalist of the Cornell Digital Agriculture Hackathon - Ithaca, NY

February 2025 - March 2025

- Collaborated on a solution to improve data literacy and availability for underprivileged agriculturalists.
- Integrated tools like ChatGPT LLM with WhatsApp Chat API to deliver processed satellite imaging data to users.

Winner – BYTE Hacks X Google Labs Hackathon (Transformative Learning Track) – New York, NY *September 2025*

- Engineered a Raspberry Pi-powered standalone speech therapy assistant for children with speech impediments
- Deployed custom ML with Google Gemini + Vertex AI to recognize phonetics rather than text-to-speech
- Integrated hardware/software in a PLA-printed housing with speaker output to foster user engagement

PROFESSIONAL EXPERIENCE

Math Tutor @ CCNY Artino Lab Tutoring Center - New York, NY *June 2024 - Present*

- Assisted peers in understanding complex mathematical concepts, resulting in a 14% increase in whole-class test averages.
- Built a strong reputation for effective teaching methods, leading to a growing, recurring clientele.
- Led review workshops of 100+ students, reinforcing key math concepts in preparation for final exams.

Lead Teacher @ Bobby Tariq Tutoring Center - Queens, NY *October 2023 - September 2024*

- Led instruction for SAT/SHSAT prep and advanced STEM courses: AP Precalculus, AP Physics, AP Calculus
- Improved the average students' SAT scores by 200.

Academic Tutor (Self-Employed/Freelance), New York, NY *Jun 2022 – Present*

- Multi-year one-on-one tutoring in math/science; customized curricula; maintained long-term client relationships.

TECHNICAL SKILLS

Programming & Data: C++, C#, Python, JavaScript, MATLAB, Excel (VBA, Macros, Data Analysis)

Engineering Software: AutoCAD, Autodesk Inventor, Onshape, Revit, Unity

Fabrication & Hardware: FDM 3D Printing (PLA, PETG), Breadboard Prototyping, Circuit Design, Soldering

Languages: English, Bengali (fluent)