# Ridwan Haque

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## Education

**Georgia Institute of Technology**, BS in Computer Engineering — Aug 2023 – Expected May 2027

- **Coursework:** Computer Architecture, VLSI Design, GPU Programming, Embedded Systems, Data Structures, Digital Hardware/System Design, Object Oriented Programming, Physics II Electricity and Magnetism

## Experience

**Biomedical ML Researcher**, GT Robotic Human Augmentation – Atlanta, GA — Jan 2025 – Present

- Upgraded PCB architecture and power delivery, optimizing signal integrity for hip-exoskeleton
- Optimized data acquisition for sensor suits via 7-IMU setup in hip exoskeleton ablation experiments.
- Engineered hierarchical data structure, 4 data visualization MATLAB functions, and GUI for ML model training,
- Processed biomechanical data from 24 pilots using MATLAB & NVIDIA Jetson for real-time analysis.

**IT Project Manager**, GT Office of Commercialization – Atlanta, GA — Aug 2024 – Present

- Optimized Airtable databases by designing a custom GUI, enabling employees to efficiently view and manage their assigned tasks, track deadlines, and collaborate, resulting in a 60% increase in task completion rates
- Programmed JavaScript automations for hiring processes, enabling application tracking, record organization, and a GUI for aggregating applicant form fields to generate 8 data metrics for departmental insights
- Delivered AV support for 5 conferences and trained 10 employees on Airtable database implementation

**Astrophysics Researcher**, Dept. Physics & Astronomy – Athens, GA — Aug 2023 – May 2024

- Engineered Solar System simulation to predict future Solar Eclipses in Blender optimized for Meta Quest VR
- Programmed an interactive GUI with Python, optimizing user control and navigation by 50%
- Integrated 10 NASA Visualization Tech Apps & Development resources and utilized observational research data
- Awarded $1000 CURO Research Reward and presented at the Spring 2024 CURO Research Symposium.

## Projects

**NBA Game Analysis System** | *Python, OpenCV, PyTorch, ML, Lightning AI, RoboFlow API* — June 2025

- Developed a Python-based NBA analytics system for real-time game event analysis. Trained computer vision ML models to increase object detection accuracy by 90%. Implemented aerial view, team affiliation, and quantified 5 metrics (speed, distance, possession, passes, steals), improving data analysis efficiency by 60%.

**Retro Snake Game** | *C, C++ , ARM Mbed OS, Circuit Design* — April 2025

- Built a hardware Snake game on an ARM Mbed microcontroller in C++ with 9 responsive I/O controls, audio module, and a micro-LCD display. Optimized game logic using linked list data structures. Built 2 maps, 8 sprites, 3 abilities, 4 cosmetics, 3 lifelines, and 5 menu screens.

**Cyber-Threat Defense SOC + Honeynet** | *KQL, Azure, Microsoft SQL Server/Sentinal/Defender* — Aug 2025

- Engineered a SOC/honeynet with 3 VMs and SQL databases within unsecured NSGs. Integrated Sentinel SIEM and configured 14 KQL alert queries and 4 geoIP heatmaps. Tracked 150 brute-force incidents in 4 days from 6,000+ global auth attempts. applied security hardening resulting in 90% decrease in incident reports

**Frontend App Dev Portfolio** | *React, Next.js, TypeScript, Tailwind CSS, Framer, Context/Resend API, Vercel* — May 2025

- Built a responsive frontend portfolio website with advanced UI/UX, featuring 30 Framer Motion animations and 20 interactive elements, plus system preference-based dark/light mode via React Context API. Integrated a functional contact form (React Email, Resend API), and deployed to Vercel with firewall-enabled security.

**Piano Light Visualizer/Learning System** | *C++, Arduino IDE, Midi bridge, Circuit Design* — July 2025

- Engineered an Arduino Uno–based system that maps 49-key piano input to immediate LED illumination above each key, enabling interactive visual feedback and guided learning. Designed a stable circuit with capacitors for 5V/4A power integrity and developed modular C++ firmware enabling universal MIDI compatibility.

**Air Traffic Control Visualization System** | *Intel Quartus Prime, FPGA, VHDL, Assembly, DE10* April 2025

- Co-developed an embedded LED interface using memory-mapped registers on an FPGA dev board, enabling real-time control of 10 LEDs via a 16-bit protocol to simulate airway status (open/closed) and speed limits via brightness. Contributed to pattern generation logic and demo code for an air traffic control API.

## Technical Skills

**Languages:** Java, Python, C, C++, C#, JavaScript, HTML, CSS, VHDL, Verilog, Assembly, SQL, KQL

**Frameworks:** .NET, Microsoft SQL Server, Intel Altera Quartus Prime, EasyEDA, Airtable, Framer Motion, Tailwind CSS, React, Next.js, Unity3D, Pytorch

**Embedded/Hardware & IoT:** Raspberry Pi, Arduino, Esp32, Mbed OS, Oscilloscopes

**Developer Tools:** VS Code, Git, Docker, Azure, AWS, GCP, Matlab, PyCharm, IntelliJ, Eclipse, Webstorm