Maiko Lum

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EDUCATION

Boston University, College of Engineering   **2021 – 2025**
Bachelor of Science in Biomedical Engineering | Minor in Computer Engineering   GPA: 3.43

Coursework: Circuits, Logic Design, Signals and Controls, Computer Organization, Algorithms, Biotransport, BME Data Analysis, Molecular Cell Biology, Thermodynamics, Systems Physiology, Mechanics, Statistics

SKILLS

Laboratory: DNA Sequencing, qPCR, EKG, Gel Electrophoresis
Programming Languages: C++, C#, C, Verilog, MATLAB, Python
Mechanical Design: Autodesk Inventor, OnShape, CAD, Cura, Reconstruct
Language: English (Fluent), Japanese (Fluent)

WORK EXPERIENCE

Boston University Dept. of Electrical & Computer Engineering   **Aug 2024 – May 2025**
Undergraduate Teaching Fellow – Logic Design   Boston, MA
- Reinforce student understanding of logic design concepts by working with a professor to design and lead labs, demonstrating technologies such as Xilinx Vivado, FPGA boards, and Verilog HDL
- Instruct 80+ students by constructing homework problems, providing support with assignments, debug and host office hours for one-on-one and group help sessions
- Manage workflow of student graders by ensuring grades are logged before deadlines

Boston University School of Medicine Gong Lab   **Jun 2022 – May 2025**
Undergraduate Research Assistant   Boston, MA
- Experimented with different flow rates and effects on drainage of a human eye giant vacuole (GV) through 3D reconstruction (Reconstruct software) of over 200 GVs to better understand anatomy for micro-invasive surgical treatment of glaucoma
- Evaluate findings against published literature using serial block-face scanning electron microscopy (SBF-SEM)
- Presented work titled *Comparison of Giant Vacuoles to the Inner Wall Endothelium of Schlemm's Canal between Normal and Glaucomatous Human Donor Eye* at BU Undergraduate Research symposium

PROJECTS

3D Successive Over-Relaxation (C, Pthreads)   **Apr 2025 – May 2025**
- Developed and parallelized a 3D SOR algorithm using pthreads with domain decomposition across x, y, and z axes
- Engineered thread-safe synchronization and dynamic convergence tracking, achieving optimal performance through z-axis partitioning and memory-aware design
- Benchmarked serial vs. multithreaded performance, demonstrating up to 4x speedup and identifying cache locality as critical factor in scalability through testing runtime improvement on large grid simulations

Machine Learning in Python   **Apr 2024 – May 2024**
- Designed a predictive program to anticipate the number of Sudanese women present at community centers in refugee camps
- Analyzed 100+ data points by applying Python's ML packages
- Researched displaced communities' conditions to assist global health organizations and report what women in internally displaced populations need

Android Application Game   **Apr 2023 – May 2023**
- Coordinated with a team of four engineers to draft an Android application, enabling users to swipe incoming opponents through C++ back-end and Java front-end design
- Programmed front-end enhancement, integrating interactive elements and applying collision detection techniques
- Collaborated with back-end developers to establish user manuals, settings, difficulty levels, and character selection

Desk Lamp for Neurodiverse Learning Needs   **May 2022 – Jun 2022**
- Designed and coded a working prototype of a desk lamp accommodating users with ADHD and learning disabilities, considering given specifications in a group project leveraging a budget of $400
- Managed creation of prototype enclosure utilizing CAD and operated metal sawing, milling, laser cutting, drilling, and tapping machines and assisted with programming Arduino Nano microcontroller using C

LEADERSHIP

Biomedical Engineering Society (President, 2024 – 2025), **Theta Tau Psi Delta Chapter** (Treasurer, 2022 – 2023)