Matthew Mizumoto

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Summary — Innovative and detail-oriented software engineer with experience in full-stack development, AI/ML applications, and hardware design. Skilled in C++, Python, Java, SystemVerilog, and modern frameworks, with a strong focus on building efficient, scalable, and user-friendly solutions.

Skills

- C, C++, Java, Python, System Verilog
- Javascript, HTML, CSS

- PyTorch, OpenGL, JavaFX, OpenCL, NumPy, Pandas
- MongoDB, RESTful API integration, Git / GitHub

Experience

AJ Telecommunications, Los Angeles, CA   Jun 2024 – Sep 2024
Software Engineering Intern (Python)
- Developed and maintained Python-based applications and scripts to support internal telecommunications operations
- Participated in peer code reviews by evaluating Python code for correctness, readability, and performance, and applying feedback to meet team coding standards
- Collaborated with engineers to gather requirements, translate specifications into Python solutions, and deliver features on schedule
- Tested Python applications using structured test cases and debugging tools to ensure correctness and maintainability

Education

University of California, San Diego   Sep 2021 – Jun 2025
Bachelor of Science, Computer Engineering

Projects

PantryPal Application   Sep 2023 – Dec 2023
- Developed a full-stack Java application using JavaFX for the front end and a custom backend server to handle API requests and user data.
- Created an AI-driven recipe system that generates meal ideas from user-provided ingredients, with Whisper for speech input and DALL·E for recipe imagery.
- Built HTTP handlers for each API, along with mock handlers to simulate ChatGPT and DALL·E responses for efficient testing without token usage.
- Utilized MongoDB for account management and recipe storage, enabling users to save and access personalized recipes.
- Managed development workflow using a GitHub Projects storyboard to organize, assign, and track tasks and issues collaboratively.

Raytracer Application   Feb 2024 – Mar 2024
- Developed a raytracing project from scratch, implementing fundamental algorithms for rendering realistic images
- Implemented lighting models, including sophisticated shading, shadows, and reflections, to create realistic illumination in rendered scenes.
- Utilized geometric acceleration structures to optimize raytracing for improved efficiency
- Utilized C++ and OpenGL to build the raytracer

Lifesaver Backpack   Mar 2024 – Jun 2024
- Developed a 3D environment using Unity 3D SDK for an interactive medical training simulation
- Designed a virtual world where users navigate to locate and treat injured individuals using an interactive backpack system
- Optimized the simulation for Meta Quest, enabling an immersive VR experience for hands-on medical practice
- Utilized C# scripting to handle game logic, interactions, and physics-based mechanics for a realistic experience
- Implemented using Python, PyTorch, and OpenCV for model training and real-time inference

Handwritten Digit Classification with CNN and OpenCL Acceleration   Jan 2025 – Mar 2025
- Implemented a convolutional neural network (CNN) to classify handwritten digits from the MNIST dataset.
- Designed the architecture with convolutional, pooling, and fully connected layers to effectively capture spatial patterns in image data.
- Applied techniques such as normalization, dropout, and tuning of hyperparameters to improve generalization and prevent overfitting.
- Parallelized core operations (convolutions, matrix multiplications) using OpenCL, enabling efficient execution across CPU and GPU architectures.
- Optimized memory transfers and kernel execution to minimize overhead and achieve significant speedups compared to a CPU-only baseline.