Raymond House

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Experience

Full Stack & Computer Vision Engineer | IMETALX LLC.

2026 Feb — Present

- One of two full-time engineers developing a satellite 3D reconstruction platform with 6-DoF pose estimation, integrating model execution, visualization, and GPU-backed deployment flows.
- Deployed the full GPU pipeline to ARM-based, low-SWaP edge hardware, quantizing fine-tuned transformer based vision models to run on devices with sub-8GB RAM.
- Adapted and iterated upon state-of-the-art computer vision methods including Gaussian Splatting, NeRF-based reconstruction, pose optimization, image alignment, and camera calibration techniques.
- Optimized 3D reconstruction pipelines for constrained GPU deployment, reducing training time by 15x and improving memory efficiency through rasterization improvements, model tuning, and dataset-specific algorithm adaptations.
- Architected deployment of a long-running multi-service application using Next.js, Flask, Docker, and reverse-proxied internal services to support interactive user-driven compute workflows.
- Collaborated with defense customers to define deployment requirements across varied environments, including networking, storage, service isolation, and user access patterns.
- Implemented deployment requirements for secure environments, including networking, storage, service isolation, and user-access patterns. Added build-time hardening measures to reduce exposure of proprietary code.
- Integrated AI assisted and agentic development workflows using LLM coding agents for debugging, refactoring, machine learning research and experimentation, and CI/CD automation.

Software Engineering Intern | IMETALX LLC.

2025 Sep — 2026 Feb

- Architected and implemented a scalable GPU compute infrastructure on AWS using Batch, EC2, ECR, and S3.
- Reduced infrastructure cost by over 70% through AMI-based image strategy and storage/network optimization.
- Developed security architecture and SOPs aligned with NIST 800-171 and CMMC Level 2 objectives.
- Led rollout of zero-trust and CUI-handling practices across devices, cloud systems, and engineering workflows.

Android Development Researcher | UCI Gavin Herbert Eye Institute

2023 July — 2024 August

- Developed a CNN-based Android app (Java/Kotlin) that identifies medication labels using object detection and text recognition for visually impaired users.
- Published on Google Play store with 500+ downloads, adopted by several medical facilities.
- Improved expiry-date detection accuracy by ~40% through algorithmic and preprocessing optimizations.

Personal Projects | Multiple projects across various environments

2022 April — Present

- Compiler Implementation: Built a compiler front to back, including CFG construction, SSA form, and DLX code.
- CUDA & GPU Programming: Implemented custom CUDA kernels for 2D convolution and matrix multiplication using grid-stride loops and async memory prefetch; earned NVIDIA CUDA certifications.
- Game Plugin Development: Implemented a modular video game plugin. Built systems for 3D interactions.

Technical Skills

Languages: Python, TypeScript/JavaScript, C++, CUDA, Go, Java, Kotlin, SQL, Bash
Cloud & DevOps: AWS (EC2, Batch, S3, ECR, Lambda), Docker, Kubernetes, Linux, GitLab CI/CD, Agentic Development
ML & Vision: PyTorch, OpenCV, COLMAP, Nerfstudio, Gaussian Splatting, NeRF, 3D Visualization
Web & Backend: Next.js, Nginx, React, Flask, REST APIs, PostgreSQL, Supabase

Education

University of California Irvine – B.S in Computer Science (June 2025)
Irvine, CA