

Neel Tamtam

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[github](#) | [linkedin](#) | [website](#)

SKILLS

Programming Languages	Rust C++ C ARM Assembly Python Java
Frameworks & Libraries	Tokio Axum Leptos Django Scikit Pandas
Graphics & Computing	CUDA TensorFlow Pytorch OpenGL Thrust
Embedded Systems	FreeRTOS Microcontrollers IoT Protocols
Web & Cloud	AWS Docker MongoDB PostgreSQL Apache Airflow

EXPERIENCE

National Institutes of Health

July 2024 - Present

Software Engineer, National Library of Medicine

Remote

- Built AI/ML anomaly detection pipeline for 4.5M medical devices using Python Scikit, SBERT, and Apache Airflow.
- Oversaw AWS stack (CloudWatch, S3, EC2, OpenSearch) to support secure and scalable health data systems.
- Managed database operations for DailyMed and AccessGUDID websites using both PostgreSQL and MongoDB.
- Migrated batch processes to Apache Airflow, reducing average job runtime by 40% via parallel task execution.

International Research Fellow

Jan 2023 - Aug 2023

Undergraduate Research Scholar

Japan, South Korea

- Analyzed video game platform usage patterns across Japan and South Korea using Python for data aggregation.
- Investigated correlations between digital platform trends and indicators of socially-induced stress patterns.

NOTABLE PROJECTS

Ray Tracing Simulator

Collaborative - 2 Developers

Graphics Programming, GPU Computing, Interactive UI

C++, CUDA, OpenGL, ImGui, Google Test

- Developed a real-time ray tracing simulator with CUDA-accelerated rendering and OpenGL-based visualization.
- Implemented lighting models including diffuse, specular, shadows, and reflections with toggles via GUI.
- Utilized CUDA/OpenGL interop using Pixel Buffer Objects (PBOs) for zero-copy GPU memory sharing.
- Created unit tests for geometric intersection routines, BVH construction, and math utilities.

Multiplayer Japanese Kanji Game

Independent

Full Stack

Rust, Tokio, Axum, Leptos, WebSocket, PostgreSQL

- Developing a real-time multiplayer kanji guessing game with custom lobbies and performance tracking.
- Built robust system using Rust Axum for backend, Leptos for frontend, and PostgreSQL for data storage.
- Implemented WebSockets enabling real-time gameplay with sub-100ms latency for up to 20 concurrent users.
- Fostering a growing user base of Japanese learners from a variety of learning communities.

Custom Real-Time Operating System

Independent

Embedded Systems (STM32F4)

C, Assembly, Unity, CMake, GDB, OpenOCD

- Designed and implemented a custom Real-Time Operating System with priority-based round-robin scheduling.
- Achieved deterministic task execution with 100% on-time completion of high-priority tasks within 5ms.
- Tested RTOS kernel in embedded C, ensuring task scheduling and IPC with zero failures across 100+ test cycles.
- Implemented assembly-based context switching, preserving task state between registers and stack in <10μs.

EDUCATION

Bachelor of Computer Science and Japanese

Aug 2020 - May 2024

Austin College

Sherman, Texas

Semester Abroad - Japanese Language

Jan 2023 - May 2023

Osaka Daigakuin University

Osaka, Japan

Summer Abroad - Machine Learning

June 2023 - Aug 2023

Yonsei University

Seoul, South Korea

CERTIFICATIONS

Technical: NVIDIA CUDA Accelerated Computing • AWS Cloud Practitioner • LPI Linux Essentials

Language: Japanese Language Proficiency Test - N1 (Bilingual)