

# Neel Tamtam

ntamtam614@gmail.com | +1 830-556-4446 | Texas, USA

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

## SKILLS

<b>Programming Languages</b>	C   Rust   C++   ARM Assembly   Python   Bash
<b>Frameworks &amp; Libraries</b>	Tokio   Axum   Leptos   Django   Scikit   Pandas
<b>Environments &amp; Tools</b>	Linux   Docker   AWS   Apache Airflow   PostgreSQL   MongoDB
<b>Embedded Systems</b>	FreeRTOS   Microcontrollers   IoT Protocols
<b>GPU &amp; Computing</b>	CUDA   TensorFlow   Pytorch   OpenGL

## EXPERIENCE

### National Institutes of Health

July 2024 - Present

*Software Engineer, National Library of Medicine*

*Remote*

- Administered Linux server infrastructure for application, batch processing, and queueing systems in production.
- Built AI/ML anomaly detection pipeline for 4.5M medical devices using Python Scikit, SBERT, and Apache Airflow.
- Managed AWS cloud infrastructure including S3, EC2, and ECS supporting secure, scalable health data systems.
- Maintained database operations for DailyMed and AccessGUDID websites using 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

### Custom Real-Time Operating System

[GitHub](#)

*Independent - Embedded Systems (STM32F4)*

*C, Assembly, Unity, GDB, OpenOCD*

- Designed preemptive kernel with priority-based round-robin scheduling supporting up to 8 concurrent tasks.
- Achieved deterministic task execution with <50μs scheduling jitter and 100% compliance for critical tasks.
- Built inter-task communication using message queues and semaphores with blocking/non-blocking semantics.
- Implemented ARM assembly context switching preserving CPU state between tasks in <10μs.

### Multiplayer Japanese Kanji Game

[Live Site](#) | [GitHub](#)

*Independent - Full Stack*

*Rust, Tokio, Axum, Leptos, PostgreSQL*

- Developed real-time multiplayer kanji learning game with custom lobbies and performance tracking.
- Built full-stack application using Rust Axum backend, Leptos frontend, and PostgreSQL for persistent storage.
- Implemented custom error handling with Anyhow ensuring graceful failure recovery and crash prevention.
- Deployed production application serving active user base across Japanese learning communities.

### Ray Tracing Simulator

[GitHub](#)

*Collaborative - Graphics Programming, GPU Computing*

*C++, CUDA, OpenGL, ImGui*

- 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.
- Integrated ImGui interface for real-time parameter adjustment and .ppm image export functionality.

## EDUCATION

### Bachelor of Computer Science and Japanese

Aug 2020 - May 2024

*Austin College*

*Texas, USA*

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

**Language:** Japanese Language Proficiency Test - JLPT N1 (Bilingual)