

Zaiff Khan

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Bachelor of Computer Science – Stony Brook University, May 2023

GPA: 3.5 / 4.0

Languages & Tech: Java, Python, JS/TS, GDScript, C | FastAPI, Next.js, React, Godot, MongoDB, SQLite, Nginx, PyTorch

Competencies: Full-stack Architecture, Asynchronous Systems, Game AI/Pathfinding, Server Deployment & Security

Recent Projects

Gsbooru (safe.gsbooru.org) | Full-Stack Imageboard Platform

Winter 2025 – Present

- Developed a custom asynchronous task worker system to automate the ingestion, tagging, and processing of **200,000+** high-resolution media assets with zero database locking.
- Designed and deployed a secure, key-authenticated REST API utilizing FastAPI dependencies, implementing custom rate-limiting protocols and asynchronous audit logging.
- Architected a high-performance SSR web application using **FastAPI** and **Jinja2**, engineering a multi-database **SQLite** infrastructure (WAL mode) optimized for high-concurrency read operations.

Autonomous Multimodal AI Agent (Nova)

Spring 2025 – Winter 2025

- Architected a **tiered memory system** (RAM, Vector-based MTM/LTM) and a self-modifying "Addendum" protocol, allowing the agent to persist context and evolve its instructions autonomously.
- Engineered a **multi-stage "Thought Loop" reasoning chain** that uses weighted personality sliders and a three-tier voting system to determine when to initiate contact vs. remain silent.
- Integrated **multimodal tool-use** across Vision APIs, Discord voice/image protocols, and Arduino hardware, enabling the agent to "spectate" screens and interact with the physical environment.

2D Tower Defense Game (Godot Engine)

Spring 2024 - Spring 2025

- Designed and programmed a **fully playable 6-level tower defense game**.
- Implemented unique towers, enemy behaviors, and level progression with Godot/GDScript.

Personal & Academic Projects

Full-Stack Web Map Application

Fall 2022 - Spring 2023

- Collaborated in a team setting using **Next.js** and **MongoDB**.
- Integrated map import/export features and utilized Leaflet for in-browser editing.

Automated Market Analysis in Games

Spring 2021 - Winter 2021

- Scripted tools in JavaScript to automate in-game market scanning.
- Implemented price alerts and automated purchase systems.

Experience & Collaboration Highlights

- Worked closely with a professor on a **year-long neural network research project**, meeting weekly and applying feedback to achieve milestones.
- Collaborated in small teams (3–4 members) across multiple academic projects, demonstrating **project planning, communication, and adaptability**.
- Regularly self-motivated to explore new technologies, from **game engines to AI systems to web infrastructure**.