

Alan Yuan

US Citizen | 917-915-3557 | alanyuan402@gmail.com | [Portfolio](#) | [LinkedIn](#) | [GitHub](#)

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, SQL, HTML/CSS, PHP, Bash

Frameworks & Libraries: FastAPI, Flask, Node.js, SQLAlchemy, React, Next.js, Angular, PyTorch, NumPy, Pandas

Cloud & Databases: AWS, PostgreSQL, MySQL, SQLite, Supabase, Firebase

Tools: Git, Docker, Linux, CI/CD, REST APIs, WebSockets, JWT/OAuth, Postman, Pytest, Jest, Gemini CLI

EXPERIENCE

Software Engineer – Research

June 2024 – Dec 2025

New York Institute of Technology, Network & Innovation Lab

Manhattan, NY

- Built backend data infrastructure adopted across 3 IEEE and Springer publications; co-authored all three and presented findings at IEEE SusTech 2025 and the 2024 S-STEM Scholar & PI Meeting
- Architected backend services and REST APIs for data-heavy research dashboards used by 100+ annual users
- Migrated the lab website's profile images from local filesystem storage to Supabase and built a role-based CRUD admin tool, eliminating the need to edit code for routine content updates and letting the supervisor manage the site directly
- Designed Python/Pandas batch pipelines to clean and structure 500+ datasets for ML models that reached 82% accuracy

Supplemental Instruction Leader – Data Structures & Algorithms

Sept 2025 – Dec 2025

New York Institute of Technology

Manhattan, NY

- Led weekly problem-solving sessions for 10+ students on arrays, linked lists, stacks, queues, trees, graphs, recursion, sorting, and asymptotic analysis
- Designed interview-style coding exercises on DFS, BFS, hash maps, two pointers, and dynamic programming; exam scores improved up to 25% across the cohort
- Led live-coding sessions implementing core data structures from scratch, pairing each with custom interview-style problems and diagrams tailored to that week's lesson to reinforce concepts visually

Undergraduate Research Assistant (UREP)

Oct 2023 – May 2024

New York Institute of Technology

Manhattan, NY

- Debugged a Folium heat map where color intensity was inverted relative to underlying data values, tracing the issue to the colormap direction and fixing it by reversing the color scale
- Improved website accessibility and SEO by restructuring HTML elements, using more semantic markup, and optimizing the page structure for screen readers and search engines
- Conducted a literature review of existing urban data visualization tools and surveyed researchers in the field to inform the design of a new dashboard, contributing to a first-author IEEE SusTech 2025 publication

TECHNICAL PROJECTS

PRism | Python, FastAPI, SQLite, Gemini AI, TypeScript | [GitHub](#)

Jan 2026 – Present

- Engineered a Python diff chunker that splits large PRs without breaking function context for coherent AI review on arbitrarily large diffs
- Built an async FastAPI backend with webhook handling, a background task queue, and commit-SHA idempotency to prevent duplicate reviews on retries; shipped the pipeline with CI-safe retry handling
- Added exponential backoff for Gemini calls, SHA256 diff caching, and per-IP rate limiting to protect the review pipeline
- Developed a Next.js 14 dashboard in TypeScript with severity filters, code-quality trends, and a CLI for local diff review

A* 8-Puzzle Solver | Python, Flask, REST API, Git | [\(Team\) GitHub](#)

Oct 2025

- Engineered an A* service with Manhattan Distance heuristic, solving all 181,440 puzzle states with optimal paths
- Designed a Flask REST API with priority-queue state exploration and solvability checks before computation
- Deployed the API with UML diagrams and technical specifications

Turing AI Discord Bot | Python, Discord.py, Google Gemini API, REST APIs | [\(Team\) GitHub](#)

Sept 2025

- Built a multi-server Discord bot using the Gemini API and custom prompts to assign anonymous human/AI roles across concurrent sessions
- Architected randomized role assignment and direct-message anonymity to manage concurrent player interactions

PUBLICATIONS

IEEE & Springer Publications

2024 – 2025

- **IEEE SusTech 2025:** “Visualization Tool for NYC Open Data” | “Impact Analysis of NYC Flash Floods with Machine Learning”
- **Springer 2024:** “Evaluation Tool for Cybersickness Mitigation Techniques in Virtual Reality Environment”

EDUCATION

New York Institute of Technology

Manhattan, NY

Bachelor of Science in Computer Science | GPA: 3.82/4.0 | Summa Cum Laude

Sept 2022 – Dec 2025

* **Awards:** NSF FASTRAC Scholarship, Presidential Honor List, Dean's Honor List