Prerana Gowda

(925) 394-8076 | prgowda@ucsd.com | linkedin.com/in/prerana-gowda | prerana-e.github.io

Education

University of California, San Diego — Expected Graduation: Jun. 2027
B.S. in Computer Science, Provost Honors, GPA: 3.8 — *La Jolla, CA*

- *Coursework: CSE 100: Adv. Data Structures | CSE 101: Design of Algorithms | CSE 110: Software Eng. | CSE 150B: AI Search & Reasoning | CSE 151A: ML Learning Algorithms | CSE 190: Deep Reinforcement Learning*
- Conducting research on Interpretable ML under Dr. Sanjoy Dasgupta; Instructional Assistant for CSE 151A

Experience

Equinix — Jun. 2025 – Sept. 2025
Network Operations Intern — Recieved Return Offer for Summer 2026 — *Redwood City, CA*

- Developed an AI-powered NSO assistant with an **Angular Web UI** chat interface and **Slack App**, to enable natural language troubleshooting; Won the ***Equinix Intern Shark Tank*** across 60+ global participants.
- Built Python Model Context Protocol **MCP servers** to expose **Cisco NSO RESTCONF APIs** for real-time data access. Integrated with **Azure OpenAI** models to translate natural language inputs into automated terminal commands. Reduced resolution time of repeatable support tickets by **65%** by streamlining network operations.
- Built a **Java Spring Boot microservice** with custom **REST APIs** to visualize network package data from **YANG** data models; designed **Kafka** message dispatch deployed using **Docker**, and UI enhancements using **CSS**.

Scale AI — May 2025 – Present
Gen AI Technical Advisor Intern — *San Francisco, CA*

- Fine-tuned **multimodal LLMs** on complex Olympiad-level algorithm datasets to improve reasoning accuracy.
- Built a data extraction/web scraping tool using Python **(Requests/HTTPX, BeautifulSoup, Tor)** to scrape .onion sites, apply **regex filtering**, and output **JSON** datasets with custom headers and evasion techniques.
- Implemented a robust **Python/Pytest** suite and **JUnit Assertions** in Java for perfect assertions; authored high-quality reference solutions for the **Aider Benchmark dataset**, achieving 100% pass rate on valid tests.
- Promoted to **L1 reviewer**, responsible for evaluating and helping peer contributors uphold solution code quality.

MIT Lincoln Laboratory — Jun. 2024 – Aug. 2024
Co-Lead Instructor — *Boston, MA*

- Taught the Natural Language Processing (NLP) unit of the Cog*Works course to 40+ high school students and assisted with **ML/DL topics** related to **audio analysis** and **computer vision**, such as Convolutional Neural Networks, Recurrent Neural Networks, TF-IDF Vectorization, Spectrogram Analysis, and Clustering Algorithms.
- Developed and documented lecture material on Transformers for the *CogWeb* instructional website. Coded practice **Jupyter notebook** on building **Transformer models** from the ground up with an annotated answer key.

Projects

Multi-Agent Traffic Simulation | *Python, PyTorch, Gymnasium, Highway-Env* | ***link***

- Designed and implementing a simulation of autonomous vehicles using multi-agent reinforcement learning (**MARL**) in the **Highway-Env** environment to study the impact of policy coordination on traffic flow and safety.
- Evaluating models across metrics like collision rate, goal completion, and lane adherence, and benchmarked traffic throughput under varying global vs local policy balances using the **Waymo Open Dataset**.
- Training single agents using Behavior Cloning and REINFORCE policy gradient; scaling to multi-agent systems.

PunchLines | **UCLA Hackathon** | *React, Gemini API, Roblox Studio* | ***link***

- Developed **PunchLines**, a full-stack AI debate training platform combining a dynamic **Roblox** experience with a **React.js** and **Tailwind CSS** web interface with two **AI agents** for real-time argument analysis and feedback.
- Used **prompt engineering** with **Gemini API** to evaluate user-submitted arguments and implemented **React hooks** to create interactive input fields, animated feedback visualization, and scalable components.

Multimodal Recognition Systems | *Python, PyTorch, NumPy, Scikit-learn, Whisper, Git* | ***link***

- Built a Python-based audio fingerprinting system using NFFT-4096 spectrograms and fanout-based matching with 15 nearest neighbors, enabling sub100ms **song recognition** across a 1,000+ database with O(logN) query time.
- Developed a face recognition system with MTCNN and InceptionResnetV1 embeddings, achieving $> 95\%$ accuracy and enabling unsupervised clustering of 10K+ profiles via cosine distance matching and **Whispers** algorithm.
- Engineered a **semantic image retrieval system** using 512-D ResNet-18 descriptors and 200-D GloVe embeddings, training a margin ranking neural network on the MSCOCO dataset to achieve 85% query-match accuracy.

Technical Skills

Languages and Frameworks: Java, Python, C/C++, JavaScript, TypeScript, HTML/CSS, SQL, Lua, Scheme, React, AngularJS, Node.js, Spring Boot, Tailwind CSS, YANG, JSON, XML

Libraries and Tools: PyTorch, NumPy, Scikit-learn, Matplotlib, Whisper, OpenAI/Azure OpenAI, Kafka, RESTCONF, Model Context Protocol (MCP), Cisco NSO, JUnit, Pytest, SQLite, Docker, Kubernetes, Jenkins, Git, GitHub, VS Code, Eclipse, Android Studio, Roblox Studio, Jira