ANSHUL JAGTAP

+1 (628) 777-8074 | anshulsmitajagtap@gmail.com | Santa Cruz, CA, USA | LinkedIn | GitHub

EDUCATION

University of California - Santa Cruz **September 2022 - August 2025**
Bachelor's, Computer Science *GPA: 3.82*

- Data Structures & Algorithms, Machine Learning, Artificial Intelligence, NLP, Discrete Math, Statistics and Probability, Principles of System Design, Introduction to Management of Technology I, Calculus, Multivariate Calculus

PROFESSIONAL EXPERIENCE

Baskin Engineering **Santa Cruz, CA, USA**
Undergraduate Researcher *February 2024 - Present*

- Developing distributed control algorithms using Python and MATLAB for campus eVTOL simulations, improving path efficiency by 25% and reducing energy consumption.
- Collaborated with IIT Madras to optimize atmospheric sensing models, enhancing air-ground data collection safety by 20%.

Akhetonics **Berlin, Germany**
Software Engineer Intern *June 2024 - August 2024*

- Developed and optimized Graph Coloring algorithms in C# using .NET for Sapphire Compiler, reducing register allocation time by 30%, which accelerated build processes across the development team.
- Enhanced memory management by implementing advanced NUnit test cases for graphs with 100,000+ registers, leading to a 60% improvement in time complexity
- Translated SPIR-V Bit Instructions to Ray Core for 16-bit ISA, streamlining GPU performance.

PROJECTS

Multi-Threaded HTTP Server *November 2024 - December 2024*
Developer

- Developed a multi-threaded HTTP server in C using a fixed thread pool and thread-safe queue to handle concurrent client requests, Improved throughput by 4× over single-threaded implementation
- Engineered a synchronization-safe audit logging system using pthread_mutex to ensure correct request ordering and durability of logs under concurrent access, in compliance with strict linearizability requirements.
- Implemented a per-resource locking scheme by designing a hash table to map URIs to rwlock_t locks, reducing unnecessary synchronization and significantly improving server throughput while maintaining correctness under race conditions.

Trading Strategy Simulator: - *Link to project* *July 2024 - August 2024*
Developer

- Designed a trading simulator handling real-time financial data for over 1,000 tickers using yfinance and NumPy, supporting multi-indicator strategy backtesting.
- Automated buy/sell signals based on technical indicators like MACD, RSI, and Bollinger Bands, improving trading accuracy by 20% in backtests with historical datasets spanning 5+ years.
- Integrated dynamic visualization with Matplotlib and an interactive GUI using Tkinter, supporting user-defined strategy parameters.

ASL Gesture Detection Software - *Link to project* *November 2023 - December 2023*
Developer

- Engineered a real-time ASL detection model using TensorFlow/Keras, trained on a custom dataset of 5,000+ labeled gesture images, achieving 95% accuracy in diverse lighting conditions.
- Optimized real-time performance using OpenCV and cvzone, achieving gesture recognition speeds of <50ms per frame, enabling seamless user interaction.
- Enhanced model robustness through data augmentation techniques, including rotation, scaling, and background noise reduction.

SKILLS

Technical Skills: MATLAB, Python, JavaScript, HTML/CSS, C/C++, C#, Java, R, Machine Learning, AI, Gitlab, Github, Git, Assembly, HTML, CSS, React.js, REST APIs, Fintech, Linux/Unix, JavaScript, SQL, RISC-V
Financial Skills: Tradingview, Financial Modeling, Fundamental Analysis, Excel/Numbers/Sheets, Adobe Premiere Pro