Andrew Lu

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Education

University of California, San Diego - B.S. in Mathematics and Computer Science — Sept 2023 – Dec 2025

- GPA: 3.8/4.0
- **Coursework:** Design & Analysis of Algorithms, Advanced Data Structures, Software Engineering, Computer Architecture, Operating Systems, Parallel Computing, Recommender Systems, Computational Theory, AI: Probability Models

Experience

D3View - Software Engineer — June 2025 – Sept 2025

- Built C/C++ browser-based tools to process 3D simulation datasets, optimizing memory for rendering speed
- Developed scalable rendering systems with WebGL and multithreading for large dataset visualization
- Integrated low-level compute with real-time graphics pipelines for simulation apps

UCSD - Computer Science Tutor — Aug 2025 – Sept 2025

- Mentored students in caching, memory hierarchy, and parallelism; improved code quality and performance in C++
- Explained challenging concepts using diagrams and step-by-step examples in 1:1 tutoring sessions

UCSD - Undergraduate Researcher — Aug 2024 – Present

- Designed a matrix multiplication C++ library optimized for sparse-dense hybrid matrices by utilizing Intel AMX and NVIDIA Tensor Cores instructions
- Built a validation and benchmarking framework in Python/C++ to assess precision modes, enabling cross-platform performance testing
- Accelerated heterogeneous matrix computations using cuSPARSE for improved parallelism and efficiency on GPU

Projects

Triton Trails Web App

- Developed an AllTrails-inspired trail discovery platform for UCSD students to explore, post, and share local trails
- Designed and implemented a robust SQL database schema to manage location details, user logins, and trail visitation tracking
- Implemented secure backend in TypeScript and Express
- Collaborated in a team using Agile methodologies, focusing on back-end and feature development with React

Goodreads Spoiler Detection

- Processed a Goodreads spoiler dataset to build a predictive model identifying whether a review contains spoilers
- Implemented a data preprocessing pipeline using NLTK for tokenization and cleaning of text data, and developed a custom Word2Vec model to generate dense vector representations
- Built a RandomForestClassifier on the Word2Vec embeddings, achieving 97.49% accuracy in spoiler detection

Skills

Languages: C++, C, Python, Java, JavaScript, HTML, CSS, Verilog

Tools and Frameworks: CUDA, Git, React, SQL, Sequelize, OpenCL, Agile Workflow