Ben Xia

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Education

University of California San Diego Sept. 2021 – June 2025
Bachelor and Master of Science in Computer Science *GPA: 3.98*
Courses: AI/Machine Learning, Deep Learning, Computer Vision, Recommender Systems, Operating Systems, Computer Security, Algorithms, Systems Programming, Data Structures, Digital Systems/Logic, Software Engineering, Computer Architecture, Computer Graphics

Technical Skills

Languages: Java, C, C++, C#, Go, Python, x86/ARM Assembly, SQL, HTML, CSS, JavaScript/TypeScript
Libraries/Frameworks: React, Node.js, ASP.NET, NumPy, PyTorch, TensorFlow, OpenCV, scikit-learn, Robot Operating System 2 (ROS2)
Developer Tools: Git, Perforce, Jira, GitHub Actions, Jenkins, Docker, Vim, Postman, Miro

Experience

Viasat, Software Engineer Intern June 2023 – Sept. 2023
- Overhauled satellite modem UI with **React** to automate key swaps and reduce human intervention by **95%**.
- Enhanced modem/network security by updating interfaces and **Docker** containers to utilize new SSL certificates from key swap tool.
- Resolved race conditions for **real-time embedded systems** in C, preventing over **$5000** in potential aircraft antenna unit damages by redesigning state machines and restricting IPC messages based on log analysis.
- Introduced **Jest** as the new standard unit-testing framework and automated **50+** unit and end-to-end tests, increasing test-coverage from **0%** to **90%** by simulating user flow and backend responses.
- Seamlessly integrated multiple testing frameworks from **Go** and **JavaScript** into a single **CI/CD** pipeline via **Jenkins**.

UC San Diego CSE Department, Undergraduate Researcher/Developer February 2023 – Present
- Fine-tuned **computer vision machine learning** (ML) models such as Single-Shot-Detectors and YOLOv8 via **transfer learning** for localizing avacado nodes to identify effects of climate change on agriculture.
- **Mentored** younger members of AI lab by teaching ML and delivering intuitive presentations of ML research papers.
- Addressed product-breaking bugs in state machine visualization and simulation tools used by **1000+** students per year.

UC San Diego CSE Department, Undergraduate Tutor September 2022 – Present
- Guided **1000+** students in mastering Python, C, and ARM Assembly programming, and tools such as Git, and Bash.
- Instructed **advanced algorithms**, **operating systems**, machine learning theory and implementation with optimization mathematics, scikit-learn, and **PyTorch**.
- **Identified and patched security vulnerabilities** for programming assignment autograders on Gradescope, completely eliminating most student autograder exploits.
- Hosted office hours to assist students with programming assignments/conceptual problems and achieved **100%** student approval ratings across multiple courses.

California Coast Credit Union, Data Analytics Intern June 2022 – August 2022
- Developed and deployed an executive dashboard for viewing company-wide metrics related to call volume, call types, number of active users, number of transactions, etc.
- Wrote automated **SQL** scripts/queries for fetching/compiling data across multiple databases for dashboard.

Projects

Game Recommender | Pandas, NumPy, Scikit-Learn
- Designed a collborative-filtering based **recommender system** to predict which games Steam users are likely to play.
- Optimized models by **hyperparameter tuning** with grid search, cross-validation, and ensembling predictions.
- Utilized feature engineering with **text-mining** techniques such as topic modeling to mitigate cold-start problem.
- Ranked among the **top 0.3%** participants in machine learning competition in both regression and classification tasks.

Notebook Picker | React, HTML, CSS, JavaScript, ASP.NET, C#, Oracle Cloud
- Led team of 5 students to develop a website for filtering laptops by specifications/price to assist with shopping.
- Planned and built a **REST API** for finding and filtering laptops based on CPU/GPU model, brands, release, etc. by querying from **Oracle Cloud** database with an ASP.NET backend.
- Reduced API response times by over **90%** by caching database queries with ORM's such as Entity Framework Core.
- Designed wireframe layout in **Miro** and implemented routing and user interface with React.