Jorge Emanuel Nuñez

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Education

University of California, Berkeley | Berkeley, CA — May 2024

- B.S. in Electrical Engineering and Computer Sciences

Relevant Coursework: Data Structures, Database Systems, Computer Architecture, Operating Systems, Artificial Intelligence, Algorithms, Principles and Techniques of Data Science

San Diego State University | San Diego, CA — Expected to start Fall 2025

- M.S. in Computer Science

Experience

Qualcomm | San Diego — May 2023 - Aug. 2023

Software Engineering Intern

- Developed and maintained Python automation scripts for testing and validation, processing large datasets of performance metrics.
- Implemented CI/CD pipelines using Bash and CMake to automate testing workflows, reducing deployment time by 40%.
- Collaborated in an Agile environment using Git for version control and Jira for project tracking.
- Optimized system performance through data-driven analysis and implementation of efficient algorithms.

Algorithms & Computing For Education Lab | UC Berkeley — Feb. 2021 - May 2024

Research and Development Assistant

- Designed and implemented RESTful APIs using Node.js/TypeScript to integrate real-time cheat detection with PrairieLearn, handling 200+ concurrent users
- Built and maintained PostgreSQL databases for storing and managing assessment data, implementing efficient query optimization
- Developed automated test suites and CI/CD pipelines for continuous deployment, ensuring 99% system uptime
- Created comprehensive API documentation and maintained version control using Git, facilitating collaboration across a team of 5 researchers

Projects

Database Management System | *CS 186: Database systems*

- Engineered a robust relational database system in Java supporting ACID-compliant transactions, query optimization, and recovery mechanisms
- Implemented B+ Tree indexing for efficient query performance, reducing lookup times by 60%.
- Developed query optimization algorithms including various join implementations (hash join, nested loop join)
- Built a transaction management system with multi-granularity locking and integrated crash recovery using write-ahead logging (WAL)

Gitlet Version Control System | *CS 61B: Data Structures*

- Engineered a lightweight version control system in Java implementing core Git functionality.
- Designed efficient data structures for tracking file changes and managing commit history.
- Implemented complex algorithms for file state management and conflict resolution during merge operations.

Pinto's Operating System | *CS162: Operating Systems*

- Implemented user program support, system call interface, priority thread scheduling, and cached file system in C of the Pintos Operating System in a team of 4.
- Implemented robust synchronization primitives including semaphores and priority donation to prevent priority inversion in multi-threaded processes.

Activities

Google Computer Science Research Mentorship Program (CSRMP) — Sep. 2021 - Dec. 2022

- Selected for a prestigious mentorship program aimed at advancing research skills in computer science.
- Collaborated with Google engineers and researchers on a project focused on computer science education.

Skills

- **Languages:** Python, Java, TypeScript/JavaScript, SQL, C/C++
- **Frameworks & Libraries:** Node.js, RESTful APIs, PostgreSQL, Database Design, Django, React, Pandas
- **Tools & Platforms:** AWS, Docker, Git, CI/CD pipelines, Bash, Jira, PrairieLearn