Brandon Penilla

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Education

The University of California, Berkeley   **Graduation - May 2024**
Bachelor of Science - Electrical Engineering and Computer Science   Berkeley, CA
Honors - UC Berkeley Regents and Chancellor's Scholarship Finalist, Questbridge Scholar, Hispanic Scholarship Fund Scholar
Relevant Coursework - Data Structures and Algorithms, Computer Architecture and Machine Structures, Discrete Math and Probability Theory, Computer Security, Database Systems, Efficient Algorithms and Intractable Problems, Artificial Intelligence

Skills

Languages/Frameworks: Java, Python, PyTorch, C, Golang, SQL, RegEx, TypeScript, JavaScript/HTML/CSS, Lua, C++, Pandas
Technologies/Tools: Git, Bash, Docker, SpringBoot, Nginx, Unix, Jenkins, Bitbucket, React.js, Netty, Express.js, PostgreSQL

Experience

SourceGraph | Contract Technical Project Manager   12/2023 - 07/2024
- Led 6 engineers implementing roBERTa-based machine learning pipeline with PyTorch and Hugging Face Transformers, effectively ranking relevance of documentation and issues pages to user queries, enhancing AI code assistant's response accuracy 10%.
- Built and processed a dataset from 10,000+ open-source documentation and issues pages using Beautiful Soup and Scrapy; used Hugging Face's roBERTaTokenizer for text preprocessing and tokenization to train models to accurately rank relevant context.

Mastercard | Software Engineering Intern - API Gateway Team   06/2023 - 08/2023
- Optimized API Gateway performance by leveraging Unix sockets, with IPC allowing for greatly increased response times.
- Incorporated dynamic buffering for Nginx upstream server responses, reducing average memory usage by 40% and latency for client data transfer by 30%.
- Developed a PR script to validate other teams NGINX YAML configurations, ensuring only valid inputs are accepted and utilized.

Recidiviz | Software Engineer   01/2023 - 05/2023
- Built Typescript web tool for Missouri justice system, enabling real-time calculation and visualization of sentencing outcomes, streamlining decision-making for policymakers and prosecutors reducing incarceration by 9% since 2019.
- Implemented data-driven sentencing reform algorithms, projected to benefit 28 states and contribute 240,000 life years over 5 years.

San Francisco Conservatory of Music | Software Engineer   08/2022 - 01/2023
- Engineered React web pages with SAML authentication and Spectrix API integration, implementing calendars, attendance analytics, and donation metrics for 20+ staff members to enhance data management capabilities.
- Streamlined workflow by implementing centralized client data management system, reducing data retrieval time and drastically increasing team productivity.

Programming Projects - Repo access available upon request

Encrypted File Sharing System - Golang
- Engineered a secure file sharing system in Golang, utilizing AES-CTR for data encryption, RSA-OAEP for secure key exchange.
- Ensured data confidentiality and integrity by utilizing HMACs and achieving IND-CPA security, creating a tamper-proof and revocable file sharing system.

Gitlet Version Control System - Java
- Developed a version control system incorporating file persistence, commit tracking, version reverting, and branch creation.
- Utilized the SHA1 hashing system, serialization, breadth-first search algorithm, and data structures like sets, maps, and deques.

RookieDB - Java, SQL
- Constructed a miniature database, using B+ Tree indexing to efficiently index records and optimize data retrieval.
- Used hash and sort-merge join algorithms, leveraging the Selinger optimizer to improve query execution time on complex joins.
- Enhanced concurrency by incorporating granular locking mechanisms, write-ahead logging, and ACID-compliant recovery.

Leadership & Extracurricular

Berkeley Codebase | External Vice President - Led recruitment, collaboration, and outreach initiatives engaging with over 500 students within two weeks. Coordinated 10+ professional development and industry networking events facilitating connections for over 250 students with industry leaders. Coordinated a tech-focussed career fair providing networking opportunities for over 750 students.
HSF Stem Summit Mentor | - Mentored 6 students in STEM fields from underrepresented backgrounds in professional development, leadership, and academics through full-day exercises and reflections alongside facilitating conversations with industry leaders.

Organizations

Colorstack, Berkeley Codebase, CS Scholars, Berkeley (ES^2), Berkeley PREP Tutor and member, HES, BMC Mentor