DUC NGUYEN

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EDUCATION

B.S. in Electrical Engineering and Computer Science, University of California-Berkeley
GPA: 3.8, Expected Spring 2024
Relevant Coursework: Data Structures & Algorithms, Computer Architecture, Computer Networking & Security, Database Management Systems, Operating Systems and Systems Programming, Optimization Models in Engineering.

SKILLS

Programming Languages	Java, Python, Go, C, C++, Dart, RISC-V, HTML, CSS, JavaScript, Node.js
Database Systems	PostgreSQL, MongoDB, Apache Spark, Apache Hadoop
Development Frameworks	Spring/Spring Boot, Flutter, Flask, React

EXPERIENCE

Undergrad Researcher Oct 2022 - Present
Simons Institute for the Theory of Computing *Berkeley, CA*

- Assisting Dr. Dor Bitan, a Postdoctoral Researcher in EECS at UC Berkeley, with constructing a zero-knowledge proof (ZKP) system for legal and privacy applications.
- Developing a mobile application in Flutter that allows users to prove and verify using ZKP principles with memory-optimized algorithms while ensuring end-to-end security based on cryptography.

Laboratory Tutor Aug 2022 - Dec 2022
University of California-Berkeley *Berkeley, CA*

- Supported 50 students with lab assignments/conceptual questions over 11 weekly labs offered by the course EECS 16A: Designing Information Devices and Systems I at UC Berkeley.
- Debugged weekly labs and contribute valuable feedback for the course staff.

PROJECTS

Rookie Database. Engineered a fully functional relational database which supports concurrency and has a recovery process in case of crashes. Integrated indexes plus a query optimizer to decrease latency and increase throughput of multiple database queries.
Tech stack: Java, JUnit, Multigranularity Locking, ARIES Recovery Algorithm, B+ Tree Index, System R Optimizer.

Secure File Sharing. Designed and implemented the client application for an end-to-end secure file sharing system written in Go using symmetric and asymmetric cryptographic algorithms. The security is strong enough to defend against all in-path, on-path, and off-path adversaries.
Tech stack: Go, Ginkgo, Symmetric Cryptographic Algorithms, Asymmetric Cryptographic Algorithms.

Sentient. Developed a web app in Python that can retrieve and analyze 10-K reports filed by all U.S. companies to the U.S. Securities and Exchange Commission. Constructed from scratch a data-processing pipeline for sentiment analysis to generate results and suggest high-potential company portfolios to investors.
Tech stack: Python, Web Scraping, Flask API, Data Science, Sentiment Analysis.

NumC. Coded a library written in C that can perform mathematical and logical operations on arrays and matrices. Speeded up all matrix operations by at least 56.5 times by utilizing algorithmic optimization, data-level parallelism, and thread-level parallelism.
Tech stack: C, CUnit, Intel Intrinsics, OpenMP, Algorithms, Object-Oriented Design.

HONORS & AWARDS

Transfer Student Pathways to Graduate School Scholarship. Sponsored by National Science Foundation and UC Berkeley Engineering to support students with excellent academic merits who want to pursue graduate school.

Berkeley Undergraduate Scholarship. Awarded to UC Berkeley undergraduates with 3.5 GPA or better.