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EDUCATION

University of California, Berkeley **GPA: 4.0/4.0**
B.S. Electrical Engineering and Computer Science Expected Graduation: May 2025
Relevant Coursework: Operating Systems and System Programming, Computer Security, Database Systems, Designing Information Devices and Systems, Efficient Algorithms and Intractable Problems, Intel 16 SoC tapeout, Computer Architecture and Engineering, Digital Design and Integrated Circuits

WORK EXPERIENCE

Apple Inc. Cupertino, CA
CPU Design Intern May 2024 – Aug 2024
- Enhanced random stimulus generator for better coverage analysis and replaying rare events
- Integrated toolkit into existing verification flow
- Developed new stimulus sequences and collaborated with various teams to improve coverage on new unit designs

SLICE lab at UC Berkeley Berkeley, CA
Undergraduate Research Assistant Sep 2023 – May 2024
- Designed open source digital circuits for high-bandwidth, low-latency, inter-chiplet communication using UCIe specifications
- Employed Chisel and ChiselTest to implement and test the logical PHY layer (eg. scrambler) of the interconnect
- Implemented UART TSI to improve bring-up flow in the lab

EECS Department at UC Berkeley Berkeley, CA
Head Teaching Assistant Jan 2022 – Present
- Led weekly discussion sections and office hours for CS186 covering Databases (eg. Query Optimization, Consensus Algorithms, Database Recovery) working closely with Prof. Alvin Cheung
- Graded homework submissions and assisted learning in Office Hours setting for over 800 students in several offerings of CS70 Discrete Mathematics and Probability Theory under Prof. Satish Rao and Babak Ayazifar
- Designed rubrics and offered material feedback to improve later iterations of the courses

JamCoders Kingston, Jamaica
Teaching Assistant Jun 2023 – Jul 2023
- Collaborated with graduate students to develop an Introduction to Algorithmic Thinking curriculum under the supervision of Prof. Jelani Nelson
- Materialized the curriculum at an intensive summer camp for gifted high schoolers at UWI Mona

PROJECTS

End-to-End Encrypted File Sharing System: Go, Git
- Implemented a dropbox-like system that users can store, append, load, and share files with each other
- Provided confidentiality, integrity, and authenticity guarantees by incorporating techniques like RSA encryption and signatures, AES encryption, and salting passwords

PintOS: Unix-like OS: C, GDB, Git
- Designed and developed an operating system which features core functionalities such as multithreading, floating point operations, and an inode-based file system
- Included a command-line interface (shell) to support user interactions with the operating system

Pipelined RISC-V CPU: Verilog, SystemVerilog, Vivado, Verdi, GTKWave
- Implemented a 4-stage CPU for RISC-V ISA employing instruction prefetching and coprocessing to decrease CPI and increase clock speed specifically optimizing for matrix multiplication
- Integrated other components (UART, low-pass filter, sine-wave generator) so the CPU functions as a music synthesizer when synthesized onto an FPGA board
- Created unit and integration tests for the pipelined CPU

RookieDB: Java
- Implemented a SQLite-like database using policies such as multi-granularity locking, ARIES recovery, and Selinger optimizer