Wilson Xu

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Education

University of California, Berkeley **December 2023 (Expected)**
***Major*: Computer Science**

- *Courses*: Operating Systems | Computer Security | Machine Learning | Algorithms and Problems | Database Systems | Data Structures | Artificial Intelligence | Computer Architecture | Discrete Math and Probability | Linear Algebra and Differential Equations

Technical Skills

- Python, Java, SQL, C, Golang, HTML/CSS, Javascript, Rust, RISC-V
- Git, Linux, Perforce, Jupyter, Makefile, MongoDB, Postman

Work Experience

Intel **June 2022 - September 2022**
Software Engineer Intern

- Optimized device database management in FPGA design software platform with Python program, retrieved and processed millions of customer design properties from internal databases to improve data storage efficiency
- Wrote Python program to generate large-scale, multi-layer FPGA designs, supporting user-specified circuit parameters in JSON format, for simulation and performance testing of internal device databases
- Streamlined debugging process of logic design software compiler tool for external customers, by revising Makefiles of the compilation process while running regression tests to ensure compatibility with existing repository

Projects

End-to-End Encrypted File Sharing System **2023**

- Constructed a file system in Golang with secure data sharing features across concurrent users with multiple devices
- Utilized RSA encryption, symmetric-key cryptography, HMACs, digital signatures to uphold IND-CPA confidentiality and EU-CPA integrity requirements for file invitations, password management schemes, and select file storage functionality within a Datastore

“Pintos” Operating System **2023**

- Designed and implemented an operating system in C with a team
- Supported fundamental operations such as process executions, forking, system calls, variable data sizes, priority scheduling, and memory management

Handwritten Digit Classification w/ Machine Learning **2022**

- Produced a handwritten digit classification neural network model that successfully classified whether a digit from the MNIST dataset is a “3” or a “9” with 98% accuracy
- Developed back-propagation/gradient descent formula for this model from scratch, performing matrix computations with Numpy library and visualizing model progress with Matplotlib

Caltask: Web Development Productivity Tool **2022**

- Created a workload and assignment manager with HTML/CSS and JS w/ team of three
- Added the ability to add, edit, and remove assignments from a task list
- Embedded Google Maps widgets to display directions towards common study areas

Numc: Numpy Optimization **2021**

- Programmed a matrix calculator in C, supporting features such as adding, multiplying, and exponentiation functions, achieving speedups of up to 700x

Gitlet: Version Control **2021**

- Designed and produced a version control system emulating Git, with Java
- Supported commands such as add, commit, merge, checkout with custom data storage classes and utilized data structures for efficient file tracking

Bias Detection via Sentiment Analysis (Data Science Society) **2020**

- Integrated NLP libraries (NLTK, scikit-learn) to measure political bias in news articles
- Analyzed real-world text data in a Python Jupyter Notebook in a team, published Medium article with results: tinyurl.com/k10iqmb6