Daniel Hodde

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Education

University of California, Berkeley **August 2021 – May 2025**
B.A. in Computer Science / B.A. in Cognitive Science & Minor in Data Science *Berkeley, CA*
GPA: 3.41

Relevant Coursework: Artificial Intelligence, Computer Vision, Internet Architecture and Protocols, Computer Security, Database Systems, Operating Systems, Data Structures, Optimization Models, Machine Learning & Data Science, *Computer Graphics, Linguistic Science, Cognitive Science
* = in progress

Professional Experience

Amazon Web Services (AWS) **May 2024 – August 2024**
Software Development Engineer Intern *Seattle, WA*

- Developed a simulation testing tool in **Java** for AWS E-Invoicing that drives the mitigation of **$94M USD** annually in government compliance failures thereby reducing issues contributing to **63%** of teams operational load.
- Designed comprehensive and generalizable obfuscation strategy that enabled the team to use customer data for more accurate testing without compromising confidentiality by covering up sensitive fields, ensuring security and expanding scope of testing tool.

Viola Walk Home **September 2023 – December 2023**
Software Engineer Intern *Berkeley, CA*

- Produced and maintained robust webscraping scripts in **Python** using **Beautiful Soup** and **Selenium** for gathering mapping points of interest (POI) and use in research and development.
- Implemented mapping and routing features to guide users to safe POIs and away from high crime areas, for a mobile application using **Mapbox, Flutter, Firebase and JavaScript** and delivered for beta launch.

Optum **June 2023 – August 2023**
Software Engineer Intern *Irvine, CA*

- Employed multiprocessing, multithreading and distributed programming techniques in **Python** to merge **tens of millions** of medicaid member eligibility information in minutes, achieving a **6.5x speedup** in processing time.
- Migrated away from external dependencies which saved company **$60,000 per year** and improved speed of delivery to vendors.
- Created an intelligent testing framework to dynamically create test data sets, with which several implementations were tested and statistics were calculated to compare improvements in processing speed.

Projects

Training a Diffusion Model **November 2024**

- Trained a **U-Net-based** denoiser using **PyTorch** with an L2 loss function to restore noisy MNIST images, demonstrating generalization to unseen noise levels.
- Implemented a diffusion model with a time-conditioned U-Net, enabling stepwise denoising from pure noise and improving control over image generation through timestep and class conditioning.

Secure File Sharing System **October 2024**

- Developed a secure, scalable file storage and sharing system in **Go**, using encryption, integrity checks, and hierarchical access control, ensuring confidentiality, consistency across devices, and efficient user permissions management.
- Implemented cryptographic authentication and revocation mechanisms with **Argon2** key derivation, **RSA** encryption, and **HMAC** validation, preventing unauthorized access and ensuring complete access removal for revoked users.

PintOS **April 2024**

- Designed and built an operating system using **C and x86** that supports user programs, process control, complex file operations, floating point operations and multi-threading.

Technical Skills

Languages: Java, Python, C/C++, Rust, JavaScript, HTML/CSS, x86, RISC-V, Scheme
Tools: SQL, NoSQL, Git, Postman, Flutter, Firebase, Pandas, NumPy, PyTorch, ScikitLearn, Mapbox, AWS(ECS, S3, Lambda, Dynamodb, CloudWatch, SQS), MongoDB, LaTeX

Awards

- BlackRock Prize - CalHacks 9.0
- United States Davis Merit Scholar
- College Board National Recognition Program Rural and Small Town Scholar