

# FERGAL HENNESSY

COMPUTER SCIENCE & CYBERSECURITY

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## EDUCATION

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### University of California, Berkeley

Berkeley, CA (2021 - 2025)

Double Major: Computer Science, Statistics

Major GPA: 3.6

Honors: Dean's Honor List

- Coursework: Operating Systems, Algorithms, Computer Architecture, Data Structures, Optimization, Machine Learning, Natural Language Processing, Compilers, Algorithmic Economics, Advanced Algorithms (graduate level)

### Michigan State University

East Lansing, MI (2019 - 2021)

Coursework in Economics, Mathematics

Cumulative GPA: 3.8

## WORK EXPERIENCE

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### HSBC Holdings

Web3 Developer Intern

Berkeley, CA (Jul-Aug 2022)

- Maintained web application services based on Blockchain technology (Ethereum contracts, decentralized chain of command based on proof-of-work principles)
- Prototyped potential products and presented to a team of 40
- Built MVP token on the Binance Smart Chain (BSC) using Solidity, C++, C#
- Integrated blockchain technology backend with React / node.JS / Koa / mongoDB frontend

### University of California, Berkeley

Course Staff for CS 70

Berkeley, CA (Jun - Aug 2022)

- Managed course resources, graded student papers, designed assignments for a class of 200+ students
- Held office hours and handled requests for topics including algorithms, computational complexity, discrete math, and probability theory

### Mango Technologies

Mobile Application Developer

Palo Alto, CA (Dec 2020)

- Utilized Swift frontend with Firebase backend to develop a native iOS social media app for sharing videos
- Transitioned from callbacks to promises reducing source code size by 50%
- Responded to bug reports and fixed a variety of potential data security oversights

## PROJECTS

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### PintOS

(Jan-May 2024)

- Developed a lightweight OS with kernel threads, user programs, and a file system
- Implemented thread and process control syscalls, context switching, priority scheduler, file system buffers, etc.

### Serendipity

(Oct 2022 - Feb 2023)

- Built a fully featured social media app complete with cloud image hosting, user accounts, password hashing and email authentication
- Developed both frontend and backend of the application, leveraging MongoDB/Express/React/Node.JS in conjunction with Heroku and Tencent Cloud hosting

### ChessTogether

(Jan 2022)

- Developed a multiplayer, online real-time chess application with user selection between active games, storing game data between moves with Google Firebase.
- Designed a user authentication process using cookies, allowed players to connect peer-to-peer with websockets.
- Available at <https://www.hennessy.page/chess>.

### Gitlet

(Dec 2021)

- Developed a lite version of GitHub with file content tracking functionality; closely recreates features like git commit, staging, status, log, branch, and remote pushing/pulling from a local development server.
- Designed and implemented file addition and removal with constant run time efficiency.
- Implemented complex functionality such as maintaining related branch commit sequences, merging and resetting, and commit searching, along with JUnit tests

## SKILLS AND EXPERTISE

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**Technologies** C/C++, Python, Java, Unix/Linux, Javascript, MySQL, Solidity, L<sup>A</sup>T<sub>E</sub>X, x86, RISC-V, PyTorch, R, Regex. Git, HTML, API management, NumPy/Pandas, Express, MongoDB, React, Tailwind, Selenium, AWS, Google Cloud, Jupyter, Go

**Skills** Data Structures, Natural Language Processing, Machine Learning, Computer Vision, Multithreading, Parallel Computing