Pedraam Nikzad

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Education

University of California, Berkeley, **Spring 2023**
Bachelor of Arts, Computer Science and Integrative Biology

- GPA: 3.76

Relevant Coursework: **Data Structures**, **Efficient Algorithms and Intractable Problems**, Machine Structures, Structure and Interpretation of Computer Programs, Discrete Mathematics and Probability Theory, Linear Algebra and Differential Equations

Skills

Languages: Proficient in Python and Java, Experienced in JavaScript, C, and C++
Frameworks: React and Pandas
Software/Tools: Git, HTML/CSS, and LaTeX

Experience

Akhurst Lab at UCSF Medical Center, San Francisco, CA **Summer 2020**
Research Assistant **Post-doc:** Eswari Dodagatta-Marri, eswari.dodagatta@ucsf.edu

- Built database for 1078 cell lines and 126 individual mice in **Pandas** with robust information to provide detailed tumor tracking.
- Created unified directory of physical cell line location data in Pandas, sourced from legacy excel files.
- Created a service for efficient location lookup from query parameters such as genetic F1. Lowered physical lookup time from 5 minutes to 30 seconds.
- Implemented **loc functions** in Pandas backend to allow pulling based on specified criteria.

Projects

Random World Generator, Java **pedraam.org/worldgenerator** **Summer 2021**

- Used **depth-first search** to dynamically generate valid, random map configurations.
- Fully gamified each world. Including actionable characters with animated movements and firing.
- Created enemy AI that uses the **A* algorithm** to find nearest item.
- Built text-based UI that supports gameplay events.

Pedraam.org, JavaScript(React), HTML/CSS **pedraam.org** **Summer 2021**

- Deployed a React portfolio website as a means to learn the React framework and show off projects.
- Utilized the **React Spring** library for smooth animations in real physics.
- Used **Styled Components** for CSS in order to maintain scalability with React components.

Gitlet, Java **pedraam.org/gitlet** **Summer 2021**

- Recreated Git's core version control features. Including support for add, rm, commit, find, log, branch, reset, merge, and more.
- Utilized serialization and hashing to store files as blobs in order to reduce memory usage to O(n) space.
- Implemented **Dijkstra's algorithm** for efficient search and commit tracking.

Chess with Minimax AI, Python **pedraam.org/chess** **Spring 2021**

- Created Chess clone in Python using **PyGame** framework.
- Implemented AI that uses the **Minimax** algorithm to find optimal move based on Stockfish criteria.
- Optimized AI by implementing **alpha-beta pruning** which increased AI's runtime by 30% via early pruning of nodes evaluating lower than running max.