

Jianzhong He

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EDUCATION

University of California, Berkeley, CA.

June 2023

Bachelor of Arts in Computer Science

- **Relevant Coursework:** Operating System and System Programming, Computer Security, Efficient Algorithm and Intractable Problems, Database System, Computer Graphics, Artificial Intelligence, IOS development

Foothill College, Los Altos Hill, CA

August 2019 - May 2021

Associate of Science in Physics & Associate of Science in Computer Science

- Dean's list, High Honors

HIGHLIGHTED PROJECTS & EXPERIENCE

Weak CN Stars, Carbon Stars, and other Exotic Stars in M31, M33, and the LMC

April - July 2021

Science Internship Program, University of California, Santa Cruz

Santa Cruz, CA

- Utilized automated classification algorithms for the newly discovered WeakCN stars in observatory star catalog with optimized efficiency and accuracy in cross-correlation.
- Analyzed and compared M31, M33, and the LMC stars samples in terms of color-magnitude diagrams and kinematics.
- Developed preliminary machine learning methods for visually inspected rare stars based on their co-added spectrum.
- Created a framework for benchmarking stars' spectrum relative to normal oxygen-rich stars.

Pintos: An Operating System

CS 162: Operating Systems and System Programming - UC Berkeley

- A simple, bare-bones operating system framework on x86 architecture. Designed and implemented user programs, threads scheduler, system calls, virtual memory, and file systems.
- Optimized for multi-threaded user program with user-level synchronization. Implemented fine-grained synchronization system calls for multi-threaded programs.

RookieDB: A database implementation

CS 186: Introduction to Database Systems - UC Berkeley

- A bare-bones database implementation that supports executing transactions in series and in parallel.
- Added supports for B+ tree indices, efficient join algorithms, query optimization, multigranularity locking, and 2PL recovery.

Pac-Man: An AI replicate

- Implemented the core routines of a multi-agent searching, reinforcement learning, bayes net and HMMs.
- Used probabilistic inference on Bayes Nets and the forward algorithm and particle sampling in the Hidden Markov Model to find ghosts.
- Achieved over 90% win-rate on the approximate Q-learning agent after 50 training games.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Foothill College EOPS STEM Tutor

November 2019 - Aug 2021

With the emphasis on Physics, Computer Science, and Mathematics

- Led 1-1 weekly sections of 3-4 students to help reinforce course concepts and practice problems
- Worked in Math and Physics classes as embedded tutors to help in-class student discussions, classwork completion, and conceptual questions.