David McLain
davidmclain@arizona.edu
https://david-mclain.github.io/ | https://www.linkedin.com/in/mclain-david

EDUCATION

University of Arizona Tucson, Arizona
Bachelor of Science, Computer Science May 2021 – Present
Minor in Mathematics
- GPA: 3.6 / 4.0
- ASEMS NSF Grant Scholarship

Pima Community College Tucson, Arizona
Pre-Engineering August 2019 – May 2021

TECHNICAL SKILLS

Programming Languages: Java; Python; C#; C; MIPS; SQL; Bash; JavaScript; HTML; CSS
Operating Systems: Linux; Unix; Windows
Software and Libraries: Git; Vim; Lucene; Pandas; NumPy; Make

RELEVANT EXPERIENCE

Department of Aerospace and Mechanical Engineering, University of Arizona – June 2023 – Present
Undergraduate Research Assistant
- Designing and implementing wrapper classes to automate simulation tasks while seamlessly integrating machine learning algorithms for advanced data analysis.
- Translating complex MATLAB codebase to Python libraries, incorporating machine learning frameworks such as TensorFlow and scikit-learn for data-driven decision-making.
- Operating within an agile development framework, participating in weekly sprint planning, stand-up, and retrospective meetings to track progress, address challenges, and ensure timely delivery of projects and milestones.

University of Arizona, Department of Computer Science – December 2022 – Present
Undergraduate Course Coordinator
- Serving as an undergraduate Course Coordinator in Computer Architecture, providing academic support to students by hosting weekly office hours to provide students with additional opportunities to practice course concepts, and receive personalized feedback.
- Collaborating with the course instructor and other teaching assistants to ensure consistency in teaching style, grading policies, and course content.

PROJECTS

Operating System – In Progress
- Collaborating with a partner to design and develop a custom operating system from scratch in C.
- Implemented critical foundational components of the operating system, including bootloading, process table management, and process lifecycle control.
- Designed and implemented a robust process dispatcher that efficiently schedules and manages system tasks and user processes, incorporating a round-robin scheduling algorithm with an 80 ms quantum time slice, ensuring fair and predictable task execution.

Mini Watson – Spring 2023
- Led a team of 5 developers in the creation of a software application that acted as a simplified version of IBM's Watson Question Answering machine.
- Developed the application using Java, and integrated OpenNLP and Lucene frameworks to implement a bag of words and probabilistic model for searching indexed Wikipedia documents.
- Coordinated with team members to design and implement an algorithm that indexed relevant Wikipedia documents and extracted necessary information using natural language processing techniques.

Chess Game – Fall 2022
- Managed a team of 4 developers in the development of a GUI-based chess application using Java's Swing and AWT libraries, which included features such as online gameplay, saving and loading games, and a competitive mode.
- Implemented agile development methodologies to ensure efficient and flexible project management, including regular team meetings, task prioritization, and continuous integration and deployment.
- Utilized object-oriented design patterns such as the Model-View-Controller (MVC) pattern to develop a and user-friendly interface.