Sungkar Bolat

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Education

University of Wisconsin-Madison May 2026
B.S. Computer Sciences & Mathematics *Current GPA: 4.0*

Coursework

Courses: OOP, Machine Organization and Programming, Matrix Methods in Machine Learning, Operating Systems, Algorithms, Artificial Intelligence, Theory of Computation, Programming Languages and Compilers
Awards: Dean's Honor List Spring 2023, Fall 2023, Spring 2024, Fall 2024

Skills

Languages: C/C++, C#,Python, Java, JavaScript, R
Tools: Git/GitHub, Unix Shell, VS Code, IntelliJ CLion/PyCharm/IDEA
Frameworks: React, Node.js, Svelte, .NET, PyTorch, TensorFlow
Libraries: pandas, NumPy, Matplotlib, scikit-learn, geopandas, selenium

Projects

Generative Models for Materials Science June 2024 - Present
- Training Crystal Diffusion Variational AutoEncoder on Alexandria dataset to generate new materials.
- Working with the Informatics Skunkworks group to fix issues related to training data on custom dataset. Fine tuning the model to target specific properties like band gap and magnetization. Setting up docker configuration files for working with CHTC resources.

WSH Nov. 2024
- Developed a custom Unix-like shell from the ground up as part of an operating systems course.
- Implemented command parsing with support for built-in and external commands, input/output redirection, command pipelining, and process control using system calls such as fork, exec, and wait.
- Strengthened understanding of Unix process management and low-level systems programming concepts.

RAIDFS Dec. 2024
- Designed the code for the file system implementation using FUSE (Filesystem in Userspace) software for an operating systems course.
- Developed support for essential file operations, including read, write, create, and delete, while integrating RAID 0, RAID 1, and RAID 1V modes to ensure data redundancy and fault tolerance.
- Gained in-depth understanding of file system architectures and the importance of implementing robust safety measures to prevent data loss in failure scenarios.

Teaching Experience

Computer Sciences Department | *CS 537 Peer Mentor* Jan. 2025 – Present
- Working as a peer mentor for Introduction to Operating Systems course at UW-Madison. Helping students with debugging in coding intensive project assignments. Answering students' questions related to Operating Systems concepts like threading, file systems, and paging.

Computer Sciences Learning Center | *Volunteer* Sept. 2024 – December 2024
- Provided help with debugging and code review for introductory object-oriented programming courses at UW-Madison.

Greater University Tutoring Service | *Math Tutor* Sept. 2023 – December 2023
- Offered drop-in tutoring services to UW-Madison students who were facing challenges in the introductory Calculus series including MATH 221, MATH 222, and MATH 234 for 4 hours a week.

Leadership & Involvement

Wisconsin Robotics | *Project Lead* Sept. 2024 - Present
- Managing a software team to design a navigation algorithm for mars rover using graph traversal algorithms like A* and random tree algorithms like RRT. Responsible for collecting the point cloud for the competition and improving algorithm's runtime efficiency. Creating unit tests and test cases for the efficient evaluaiton of the algorithm.