




Sungkar Bolat

 github.com/sungkarb  linkedin.com/in/sungkar-bolat  sungkar.bolat@gmail.com

EDUCATION

University of Wisconsin-Madison
B.S. Computer Sciences & Mathematics

May 2026
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

RAID FS

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.

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.

Generative Models for Materials Science

June 2024 - Present

- Trained a Crystal Diffusion Variational Autoencoder (CDVAE) on the Alexandria dataset to generate novel crystalline materials.
- Collaborated with the Informatics Skunkworks research group to resolve data quality and formatting issues for custom material datasets.
- Configured Docker environments to streamline deployment and experimentation on the Center for High Throughput Computing (CHTC) infrastructure.

TEACHING EXPERIENCE

Computer Sciences Department | Peer Mentor

Jan. 2025 – Present

- Serving as an undergraduate teaching assistant for the Introduction to Operating Systems course at UW-Madison. Provide support to students on coding-intensive project assignments by assisting with debugging and troubleshooting. Address questions related to key operating systems concepts, including threading, file systems, and virtual memory management (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.

LEADERSHIP & INVOLVEMENT

Wisconsin Robotics | Project Lead

Sept. 2024 - Present

- Lead an autonomous systems subteam within the Wisconsin Robotics Club, overseeing the development of navigation and perception algorithms for a Mars rover.
- Designed and implemented long-range path planning algorithms that account for terrain elevation to optimize route selection.
- Developed computer vision models for real-time obstacle detection and avoidance.
- Wrote and maintained ROS 2 nodes for interfacing with motor drivers, enabling accurate straight-line traversal and motion control.