Julian Whittaker

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Education

University of Michigan Jan. 2024 – Present
Junior, Bachelor of Science in Data Science, Minor in Mathematics *Ann Arbor, MI*
Selected Coursework: Data Structures and Algorithms, Object-Oriented Programming, Computer Organization, Linear Regression Analysis, Machine Learning, Distributed Systems

Osaka Gakuin University June. 2024 – Aug. 2024
Study Abroad *Suita City, Japan*

Michigan State University Sept. 2022 – Dec. 2023
Bachelor in Supply Chain Management *East Lansing, MI*
Selected Coursework: Introduction to Computational Modeling

Technical Skills

Languages: C/C++, Python, Rust, Go, R, SQL
Libraries/Frameworks: pandas, NumPy, Matplotlib, TensorFlow, SciKit Learn, PyTorch, Seaborn, SciPy, ROS (Robot Operating System)
Skills: Intermediate-Advanced Japanese, Git, Shell Scripting, Linux

Work Experience

CSE Teaching Assistant - Algorithmic Thinking and Programming Jan. 2023 – Dec. 2023
Michigan State University *East Lansing, MI*

- Instructed and provided support to over 50 students in a flipped classroom setting, fostering an interactive learning environment and increasing student engagement through personalized assistance
- Established a solid foundation for student learning by planning instructional activities, conducting exam preparation sessions, and providing personalized support outside the classroom

Server May 2023 – Aug. 2023
Midland Country Club *Midland, MI*

- **Promoted** from previous position as Expediter (July 2021 – Aug. 2022) due to demonstrated leadership, efficiency in operations, and consistent performance

Extracurricular Experiences

Navigation Subteam Aug. 2024 – Present
University of Michigan Autonomous Robotic Vehicle

- Develop and integrate autonomous navigation algorithms using **ROS (Robot Operating System)**, enabling real-time sensor fusion, path planning, and robot control for dynamic environments
- Implement advanced navigation algorithms, including **D* Lite and A***, to optimize real-time path planning and obstacle avoidance in dynamic environments

Sharded Paxos Database Apr. 2025
Personal Project

- Created a Library in GoLang that implements a traditional **Paxos** algorithim for obtaining distributed consensus while maintaining fault tolerance among multiple distributed systems
- Made extensive use of Go's channels and Go routines, as well as other idiomatic techniques to add concurrency via multi-threading to the library
- Used a sharded key-value database to ensure fault tolerance even upon failure of multiple machines and replica groups

Ray Tracer Dec. 2024
Personal Project

- Made use of the Rust programming language and some object-oriented programming concepts to create a highly detailed ray tracer
- Used advanced linear algebra to implement graphical concepts such as anti-aliasing, reflections, and refraction on or through objects of different simulated materials