Landon Bakken

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Education

University of Wisconsin Madison **Sep 2024 – Present**
Pursuing Bachelor of Computer Engineering *Madison, Wisconsin*

Madison Area Technical College **Sept 2022 – Jul 2023**
College-level coursework completed while in high school *Madison, Wisconsin*

Technical Skills

Languages: Simulink, Python, C#, Java, LC3 Assembly, C++, Verilog
Manufacturing: SLA, FDM, Laser cutting, Soldering
Development Tools: Git version control, VS Code, Kvaser, Unity
3D Design: Blender, Fusion
Concepts: Traction systems, PID controllers, CAN protocol

Projects

Machine Learning | *Python, Machine Learning, Polynomial Regression* **Dec 2024 - Jan 2025**
- huh

Multiplayer From Scratch | *Networking, C#, Unity, Documentation* **Nov 2023 - Dec 2024**
- Created a low latency, peer to peer multiplayer system in the Unity game engine that is extremly easy to use. Completly from scratch using the UDP, TCP, and HTTP network protocols. Created easy to follow documentation that allows for someone with little to no networking experience to make a multiplayer game.

3D Engine on a Calculator | *Low level programming, Extreme Optimization* **2021 - 2023**
- Created a 3D game engine on a TI 84+ CE using raycasting, a rendering method used by the early DOOM games

Experience

Wisconsin Racing **Sept 2024 – Present**
Control subteam member *Madison, WI*
- Used Python to process dyno data and tune engine cylinder phi, resulting in a 13.2% power increase.
- Built a dyno-based torque model in Python using linear regression to derive spark delay from the current RPM, throttle position, and desired torque reduction. This allows for precise and immediate torque cuts for traction control, smoother shifting, and more.
- Developed a driver-focused steering wheel with shift lights, a distraction-free display, and a lap timer with real-time estimated lap times and splits.
- Programmed ECU for the electric car using Simulink, adding in safety features such as a shutdown circuit, dyno mode, and accumulator relay. This was implemented along with a torque control system that combines traction systems, driver input, and safety systems.
- Managed multi-bus CAN communication by forwarding signals, and optimizing the database by reducing message count and increasing density.
- Implemented launch and traction control using a hybrid feedforward/feedback system, plus simple torque vectoring based on steering angle and other factors (rear wheel drive only)
- Created validation plots in Python, such as BSFC comparisons and oiling system performance during high-G cornering, to prove changes had a positive effect.
- Made an Assetto Corsa mod with an accurate version of our test track and a custom car using real-world setup values, providing a way for driver training to take place without needing a running car.

UW Makerspace **Sept 2024 – Present**
Technical Staff *Verona, WI*
- Helping other students use the tools at the Makerspace at UW Madison
- Includes 3D printers, laser cutters, soldering, textiles, wood shop tools

4H Camp **2022 – Present**
Counselor/Director/Staff *Dane County, WI*
- Keep a group of 7-10 middle school aged boys on time, having fun, and safe for 4 days as a councilor. Keep camp running smoothly by helping councilors and announcing important information as a camp director.
- 2 years of councilor, 1 year of camp director, and currently in the first year of being staff