Moneer Hijaz

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Education

University of Texas at Austin — Austin, TX
Bachelor of Science in Computer Science — *Aug. 2024 – May 2028*

Relevant Coursework: Software Engineering, Operating Systems, Computer Organization and Architecture, Data Structures, Algorithms and Complexity, Discrete Math, Matrices and Matrix Calculations, Probability and Statistics

Technical Experience

Software Lead — Aug. 2026 – Present
Intelligent Ground Vehicle Competition 2027 — *Austin, TX*

- Lead software work for the team's autonomous ground vehicle, using ROS 2 for perception, localization, planning, and control
- Work with OpenCV, cameras, 2D LiDAR, and IMU data to support autonomous navigation
- Develop and test navigation features for lane following and obstacle avoidance

Lead Programmer — Aug. 2025 – Dec. 2025
IEEE RAS Robotathon 2025 — *Austin, TX*

- Honors: 1st Place, Most Creative Code
- Integrated and calibrated sensors while collaborating with the mechanical and electrical teams to diagnose hardware issues
- Implemented Bang-bang control for accurate line following under noisy sensor conditions
- Designed a control pipeline integrating IR, line-array, and color sensors with motor drivers and Bluetooth communication for autonomous navigation

Lead Programmer — March 2025
ECLAIR Makeathon 2025 — *Austin, TX*

- Honors: 1st Place
- Engineered the only robot to complete the full course within the 48-hour competition window
- Integrated multiple IR sensors and implemented PID control for precise and high-speed course navigation

Projects

Multi-threaded Operating System | *C++, ASM, Systems Programming* — Jan. 2026 – Feb. 2026

- Implemented cooperative and preemptive multi-threaded context switching
- Built synchronization primitives including semaphores and condition variables for safe concurrent execution; debugged scheduling behavior with GDB
- Implemented smart pointers supporting strong, weak, and unique ownership semantics

CPU Emulator | *C, Systems Programming* — Nov. 2025 – Dec. 2025

- Implemented a 5-stage pipelined CPU emulator with instruction and data caching, achieving 4x the execution speed of Simple Sequential Execution
- Implemented an LRU cache to improve memory access latency and cache efficiency
- Implemented pipelining and data forwarding to reduce stalls and bubbles

Self-Hosted Containerized Server | *Docker, Linux, Nginx, Networking, YAML* — May 2025 – Present

- Architected a self-managed home server environment using Debian Linux to host personal services and websites
- Deployed 20+ containerized applications utilizing Docker and Docker Compose with YAML for configuration management
- Configured Nginx as a reverse proxy for multiple services
- Utilized Cloudflare for secure DNS and traffic routing, managing SSL/TLS encryption for all services

Technical Skills

Languages: C, C++, Python, Java
Robotics & Embedded: ROS 2, Arduino, Sensor Integration, PID Control, Autonomous Navigation
Systems & Tools: Linux, Docker, Git, GDB, Networking, Nginx, Cloudflare, SSH