

Jaclyn Ferguson

Ann Arbor, MI

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Education

University of Michigan

Ann Arbor, MI

B.S.E. in Computer Science

Graduated April 2022

- Relevant coursework: Data Structures and Algorithms, User Interface Development, Computer Security, Software Design for Accessibility, Computer Vision, Machine Learning

Experience

NASA Robotics Alliance Project

Houston, TX

Robotics Intern, Technical Intern

January 2024-Present

- Maintained the NASA RAP website using JavaScript, PHP and SQL
- Created and deployed a React based documentation website for the NASA Robonaut's Everybot, a low-resource FIRST Robotics Competition (FRC) robot
- Designed and manufactured the Everybot in addition to creation of the public CAD and Java robot code
- Built Accessible Modular Onshape CAD document for international FTC Everybot student use
- Developed an automated conversion from Google Docs to Markdown for ease of documentation contribution
- Volunteered time to create community swerve generator, which allowed the Everybot to automatically generate on top of the specified drivetrain
- Published hundreds of pages of technical documentation and several manuals that enabled over 2000 high schools to complete robots
- Provided support to hundreds of students struggling with logistical and/or technical difficulties in construction of their robots
- Delivered Data Collection and Analytics for FRC Robot/Drivetrain adoption rates to evaluate community health and necessity for future initiatives

Dixie Canner Co.

Remote

Controls Engineering Consultant

April 2025-June 2025

- Designed and implemented sequence for positive pressure mode of Vacuum Seamer machine via PLC controls, completed with safety precautions and Human-Machine Interface

FIRST Robotics in Michigan (FIM)

Bloomfield Hills

Engineering Staff

August 2022 - February 2023

- Directed, Produced, and Acted 31 hours of technical instruction video
- Managed parts and material logistics for strict video production schedule
- Developed resources for Arduino/Raspberry Pi based robots that taught students how to code robots

The Michigan Engineering Zone (MEZ)/ Z3M

Detroit, MI

Lead Robotics Coordinator

September 2018 - August 2022

- Assisted with the design, fabrication, troubleshooting of electrical issues and programming of autonomous and tele-operated modes in Java and C++ for over 60 robots
- Proposed and created a technical documentation team to produce guides and workshops for the fundamentals of programming, mechanical, and electrical skills
- Formed a team to improve the 2022 Everybot documentation, manufactured the Everybot and created a 100 page manual
- Founded a suborganization, Z3M, obtained funding for the project through grants and captained the club to complete a robot in three days

University of Michigan

Ann Arbor, MI

Research Assistant at Computational Human Artificial Intelligence (CHAI) Lab

May 2021 - July 2022

- Developed full stack web-based application used to assess and monitor impact of Parkinson's disease on patient cognitive impairment
- Designed study to evaluate application effectiveness alongside graduate students and professors
- Finished prototype which allowed users to provide a template and recorded reading to determine word level speaking errors
- Created Vue front end for clinicians to correct transcriptions and alignments for continual model improvement
- Fed Flask backend transcription data into DeepSpeech ASR and custom python algorithms to generate accurate transcriptions aligned with the templates

University of Michigan

Ann Arbor, MI

Research Assistant at Dynamic Project Management Lab

May 2021 - September 2021

- Utilized Unity's ML Agent to develop a VR machine learning environment used to train Kuka 5 axis robot arms for use in a busy construction setting

Personal Projects

Yet Another Generic Swerve Library (YAGSL)

Contributor

- Developed and executed a hardware-independent approach to mitigate skew in swerve drivetrains resulting from second-order kinematics
- Optimized motor controller configurations to triple robot's maximum angular velocity while maintaining control
- Worked on Python implementation of YAGSL to expand teams language options

FRC Design Library

Contributor

- Created configurable Onshape models for multiple swerve drive modules

Liftlabs

Lead Software Engineer

- Designed electrical layout of Teensy microcontroller based swerve robot utilizing cost effective electronics
- Created embedded software to control/monitor all motors and sensors
- Set up networking to both spoof FRC robot connection or act independently

Various FRC Teams

Mentor

- Led students to design and program complex robots with high levels of autonomy
- Utilized manufacturing techniques including 3D printing, manual machining, CNC routers, outsourced machining, and modification of off the shelf parts
- Designed code that allowed robots to aim and shoot projectiles into a small goal up to 25ft away
- Programmed several complex closed loop systems with motion profiling and superstructure collision avoidance
- Coached students during competition matches, leading a first year team to the world championship

Skills

Languages JavaScript (HTML, CSS, React, Vue.js), Java, Python (Flask, Pandas, NumPy, Pytorch), C++, C#

Tools Windows, Linux, git, GitHub, VS Code, Excel, LaTeX, Unity, Blender, Onshape, Solidworks, Fusion 360 (CAM)

Machinery CNC Router, 3D Printer, Lasers, Lathe, Manual Mill, Basic Preliminary Manual Machines
