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 1314 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 Ardunio/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