

Software Engineer with a wide scope of experience in low and high level programming ranging from robotics and embedded systems up to AI, web development and data science.

# VETRI VIJAY

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My best tools and skills:

- C/C++: Embedded, ROS2
- Python: Pandas, TF, sci-kit
- Web Dev: React, Java, AWS
- Teaching & Collaboration

**Experience** | Not Listed: FRC 226 Robotics Programmer, FTC 14657 Mentor, Taekwondo Instructor & Black Belt

- **Junior Software Developer** | [Amazon](#), Detroit MI (June 2023 – April 2024)
  - Developed features in large codebases for Amazon's Seller Central Homepage with React and Java Spring.
  - Added a screenshot upload feature to the feedback form in Seller Central using the full stack and AWS resources.
  - Implemented large backend refactors for inefficient data structures, frontend styling changes and React components.
  - Tool used: AWS S3, Lambda, API Gateway, Java, Spring, React, Brazil CLI, Git, Agile project management.
- **Software Engineering Intern** | [NASA Marshall Space Flight Center](#), AL (Jan 2023 – May 2023)
  - Developed a ROS2 node for live hazard mapping using LiDAR data from an Ouster sensor on a moving rover.
  - Integrated node with the team's hazard avoidance system in Kudan/Nav2 for fully autonomous hazard avoidance.
  - Tools used: C++, point cloud library (PCL), Open3D, simultaneous localization & mapping (SLAM), Linux.
- **Data Science & ML Intern** | [Magna International](#), Troy MI (May 2022 – Aug 2022)
  - Demonstrated a Proof-Of-Concept for moving machine learning models to edge microcontrollers.
    - Researched various offerings of cloud and edge ML platforms, alongside deployment boards.
    - Deployed a ~95% accuracy Convolutional-NN model on a microcontroller for binary image classification.
    - Presented the research, training, and deployment process for implementation in a production environment.
  - Developed object-oriented code for seasonal trend decomposition and anomaly detection in time series data.
  - Utilized SQL in BigQuery to convert raw sensor data in GCP into a useable CSV file for data analysis.
- **Teaching Assistant** | [College of Engineering](#), Michigan State University (Jan 2022 – Present)
  - Taught CSE 232 in C++ instructors with an 8.9/10 average rating from student feedback. Key responsibilities:
    - Hosting lab sections for hands-on development of C++ code and algorithms.
    - Providing office hours for one-on-one guidance through assignments and answering conceptual questions.
    - Managing attendance and grades in a class of ~460 students with D2L and Coding Rooms educational tools.
    - Communicating with fellow instructors about common student concerns, pacing, and assignment difficulty.
  - Concepts: STL, pointers & references, generic algorithms, object-oriented programming, memory management.
- **Software Lead** | [Solar Racing Team](#), Michigan State University (Sep 2021 – Present)
  - Developed Arduino (C++) code for PCB boards using electrical schematics and integrated using a CAN bus.
  - Taught 3 new team members Arduino software, demonstrated functionality, and passed on coding practices.
  - Completely redesigned the team's WordPress site, increasing site views by 86%. Regularly updated.
  - Created a Discord bot to track team member attendance to meetings in a CSV file using Python and Discord's API.

**Education** | Relevant Coursework: Data Structures & Algorithms, Calculus 1-4, Statistics, Linear Algebra, Discrete Math

- **Michigan State University** | B.S in Computer Science | 3.6/4.0 (Sep 2020 – Expected May 2024)
- **Troy High School** | High School Diploma (Sep 2016 – May 2020)

## Technical Skills

- Python
- Machine Learning
- Statistical Analysis
- Data Visualization
- SQL
- C/C++
- Embedded Systems
- Robot Operating System
- ARM64 Assembly
- Linux (Ubuntu, Pi OS)
- React, Next.js
- Java, Spring
- Version Control
- Visual Basic
- LabView

## Soft Skills

- Leadership
- Innovation
- Critical Thinking
- Teamwork
- Time Management