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

VETRI VIJAY

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My best tools and skills:
- C/C++: Robotics, ROS2
- Python: Pandas, TF, sci-kit
- Arduino, STM32 & Linux
- Teaching & Collaboration

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

- **Software Engineering Intern | NASA Marshall Space Flight Center, AL (Jan 2023 – Present)**
  - Concepts: Robot Operating System (ROS), LiDAR mapping, autonomous hazard detection and guidance.
- **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.
  - Tested data collection capability of an in-house developed sensor board using MQTT protocol and Python.
  - Utilized SQL in BigQuery to convert raw sensor data in GCP into a useable CSV file for data analysis.
- **Teaching Assistant | Michigan State University College of Engineering (Jan 2022 – Present)**
  - Taught CSE 232 in C++ alongside a team of instructors. 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, alongside maintaining instructor-student relations.
    - 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.
  - Received an 8.9/10 average rating on student feedback over 2 semesters.
  - Concepts: STL, pointers & references, generic algorithms, object-oriented practices, memory management.
- **Software Lead | Michigan State University Solar Racing Team (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.
- **Software Engineering Intern | DM3D Technologies, Auburn Hills MI (Jun 2020 – Aug 2020)**
  - Collaborated with machine designers to develop software which cut down the time required to complete the following tasks involving Direct-Metal-Deposition (DMD) additive manufacturing:
    - Monitoring and displaying live data feeds from operating machinery with statistical inferences.
    - Collecting data from post-production parts and generating reports of specific parameters.
    - Inspecting DMD printed parts through a specialized visual application to replace time-consuming alternatives.

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

- **Michigan State University** | B.S in Computer Science | 3.7/4.0 (**Sep 2020 – May 2024)**
- **Troy High School** | High School Diploma | Class of 2020 **(Sep 2016 – May 2020)**

Technical Skills

- Python
- Machine Learning
- Statistical Analysis
- Data Visualization
- BigQuery/SQL
- C/C++
- Embedded Systems
- Robot Operating System
- ARM64 Assembly
- LabView
- Visual Basic .NET
- Version Control
- HTML/CSS/JS
- Java
- CAN Bus

Soft Skills

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