Brandon E Martinez

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EDUCATION

BS in Computer Science, *University of Notre Dame* — Notre Dame, IN
Relevant Coursework: Data Structures, Systems Programming, Linear Algebra, Discrete Mathematics — May 2027

EXPERIENCE

Domer Rover — Notre Dame, IN
Autonomous Navigation Sub-Lead — January 2024

- Developed and tested **C++** image recognition programs for autonomous navigation, integrating machine learning algorithms (YOLO) on NVIDIA Jetson Nano hardware, contributing to system design and writing startup and launch scripts
- Configured and implemented GNSS and IMU publishing nodes in **ROS 2** Humble using **Python** (rclpy), facilitating sensor integration for autonomous navigation
- Implemented GPS and motor board communication needed for mathematical computations for Antenna rotation using deserialization methods on ROS-2 messages in Python
- Implemented camera calibration and ArUco marker detection using OpenCV 4.11+, leveraging pose estimation techniques for autonomous navigation.
- Facilitated project documentation, task assignments, and hardware test bench setups with Arduino, Raspberry Pi, and IMU/GPS breakout boards, contributing to a 15% improvement in SAR (Search and Rescue) evaluation scores.

PROJECTS

ND Data Club — Notre Dame, IN
P&G Project Analyst — August 2024

- Developed scalable machine learning models in Python, validating predictive accuracy through extensive testing with real-world datasets of over 20,000 reviews
- Developed prediction models in iPython environments, using **Jupyter** notebooks contributed to the early stages of building scalable **machine learning** models using tokenization methods of text
- Collaborated with the data club to build predictive models, utilizing Python libraries (Numpy, Pandas, and Scikit-learn) to forecast review ratings based on textual data

Personal Website — August 2024

- Programmed personal website using HTML and CSS for markup language and styling, and **JavaScript**
- Enhanced UI interactivity using React.js, SVG animations, GSAP (GreenSock), and ScrollMagic

Energy Analysis — February 2024

- Built a **MATLAB** program to process 15,000 global energy access data points using domain marching, accumulation, and object-oriented programming techniques
- Designed a MATLAB-based system for analyzing global energy data, integrating object-oriented programming and GUI development to streamline data visualization and trend analysis
- Showcased interactive visualizations, tables, and external function integration using MATLAB App Builder, uncovering energy sustainability trends

Robotic Football Club — Notre Dame, IN
Software Team Member — March 2024

- Collaborated across teams to test microcontrollers for robotic linemen using **Python** and Arduino IDE
- Assisted with debugging and calibration settings between program and controller software for robots
- Worked with other team members to begin planning for implementation of new controller inputs in driving and automated “pre-snap” lineup

TECHNICAL SKILLS

Languages: CSS, C/C++, HTML, JavaScript, MATLAB, Python, TypeScript
Frameworks/Tools: Darknet, Microsoft Office, React.js
Tools: Bourne Shell (sh), Docker, Git, JupyterLab, Vim, Unix/Linux