Dominic Mazza

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Objective

Pursuing a career in robotics developing autonomous systems. Offering relevant experience in industry standard robotics tools and computer vision frameworks with an emphasis on team leadership, large project development, and the education of new engineers in the field.

Skills

Programming*: Python, C++, Rust*
Robotics and Computer Vision: *ROS, Pytorch, CARLA Simulator, CLOCs Sensor Fusion*
Project Management: *CI/CD, Kanban Boards, Agile Development*
Education & Training: *Tutorial Creation, Workshop Development*

Education

Bachelor of Engineering, Computer Science; Minor in Linguistics
Michigan State University, May 2023 - GPA: 3.66

Honors

Dean's List: *Fall 2020, Fall 2021, Spring 2022*
MSU Professorial Assistantship: *Fall 2019, Spring 2020, Fall 2020, Spring 2021*
MSU EnSURE Scholar: *Summer 2020*

Experience

MSU WAVES Lab
Student Researcher: *May 2021 – Present*

- Assisted in the development of the CLOCs sensor fusion technique between LiDAR and camera computer vision networks using Pytorch and Python.
- Extracted sensor fusion technique for modular deployment and developed skills in dependency analysis, compilation troubleshooting, and computer vision techniques.

MSU Autonomous Vehicle Club (AVC)
President: *08/2021 - Present*

- Leading multiple sub-teams of undergraduate researchers using CI/CD, Kanban boards, and communication platforms to ensure rapid development of software.
- Responsible for maintaining software for an autonomous system, using knowledge of ROS, C++, and Python for process improvement and to minimize technical debt accrued over the past years of the program.
- Facilitating workshops and developing tutorials in an effort to educate new organization members and kickstart their development in ROS on the autonomous vehicle.

Perception Team Lead, Professorial Assistant: *08/2020 – 06/2021*

- Developed a CPU-based computer vision pipeline using model optimizations and CPU libraries for 2D object detection in the AutoDrive competition.
- Led a team of undergraduate engineers in developing the computer vision pipeline by effectively dividing labor into manageable deliverables.

Professorial Assistant: *08/2019 – 05/2020*

- Developed skills in vehicle path planning, mapping, and object avoidance in an active development environment to aid in the AutoDrive competition.

MSU EnSURE
EnSURE Student Researcher: *05/2020 – 08/2020*
- Developed a working model of vehicle geometry, sensors, and transforms to simulate vehicle systems in the CARLA open-source simulator.
- Integrated vehicle's ROS system with the CARLA simulator for testing vehicle model and path-planning systems.

Projects

MSU Capstone Experience: *Fall 2022*
- Implemented ROS architecture for real-time fusion of stereo-image and LiDAR data for Lockheed Martin Space's Lunar Mobility Vehicle platform.
- Collaborated with senior engineers to divide work into discrete components for on-time delivery of enterprise software package.

Personal Organization Overhaul: *Summer 2022*
- Developed a Notion-based system to organize academic, professional, and personal information.
- Modified GTD schema for personal task management using Things 3 and configured API calls with Apple Shortcuts.

MNIST in Rust: *Summer 2022*
- Implemented linear algebra-based gradient descent algorithm using Rust's ndarray package for MNIST handwritten digits dataset detection.
- Strengthened programming skills by developing a system in an unfamiliar domain with an unfamiliar programming language.