MATTHEW TRAN

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EDUCATION

San Diego State University - B.S. in Computer Science   **August 2022 - May 2026**

EXPERIENCE

San Diego State University - Real-Time Embedded & Control Systems Laboratory   **February 2025 - Present**
Robotics Perception Intern
- Integrated YOLO model into an autonomous racing platform's RGB-D camera setup, enabling real-time vehicle localization and obstacle detection
- Developed and tested ROS2 nodes to process sensor data, utilizing Gazebo for simulation, and RViz for real-time visualization
- Improved vehicle's object detection by training the model using a custom dataset of **833** labeled images which achieved a mAP50-95 of **92%** and average latency of **85 ms** reducing crash rate

San Diego State University - AI4Business Laboratory   **September 2024 - Present**
Machine Learning Research Assistant
- Worked with a team to develop Automatic Pavement Distress Detection deep learning algorithms utilizing convolutional neural networks (CNNs)
- Processed over **1,000** images for pavement distress detection using a weakly supervised learning approach
- Leveraged high-performance remote servers to train distillation learning models using large pavement distress datasets

University of San Diego - Lavner Education   **June 2023 - Aug 2023**
Information Technology Intern
- Instructed cohorts of **10-13** students in the coding language LUA and other robotics courses
- Developed curriculums for streamlined teaching of students, ranging from computer science, robotics, and game development
- Collaborated with fellow interns resulting in efficient deployment of curriculums and helped to follow teaching protocols

SDSU BuildIt MakerSpace   **Aug 2022 - May 2023**
3D Printing Manager
- Provided **15+** students with hands-on training and access to soldering, 3D printing, and other equipment
- Provided guidance and training on the latest 3D printers, scanners, carving machines, and cutting machines

Tibon's Goju Ryu   **May 2015 - June 2018**
Class Instructing Assistant / Leader
- Instructed students of various ages in karate, organizing interactive events and activities to boost engagement
- Collaborated with peers to provide an exciting learning environment, and attended grassroots events developing new skills
- Aided in honing the motor skills of students ages ranging from 6 - 13 years of age

PROJECTS

Frontend Engineer | RepRepair Web Application   **October 2024**

React, Python, CSS, HTML, Javascript, Vite, Flask
- Created a full stack web application using React.js framework that allows users to input a video file that is analyzed using OpenCV
- Implemented AI-driven feedback using Google's Gemini API to provide actionable insights on workout form
- Integrated a user-friendly interface for personalized recommendations and injury prevention strategies

RELEVANT COURSEWORK

Object Oriented Programming, Data Structures and Algorithms, Computer Organization, Computer Architecture, Advanced Programming Languages, Applied Probability, Algorithms, Machine Learning

TECHNICAL SKILLS

Languages: Java, C++, Python, Javascript, HTML, CSS, SQL, R
Frameworks/Libraries: Flask, React, Node.JS, PyTorch
Tools / Technologies: Git, Linux, ROS2, Gazebo, RViz