Antonio Martin-Ozimek

antoniolmartino.com | LinkedIn | GitHub | Devpost

Education

The University of Alberta – Bilingual BSc in Computer Engineering, Co-op Class of 2025
Key Classes – Object Oriented, Tangible Computing, Computer Logic, Microprocessors, Databases
Skills – Python, C++, MATLAB, Arduino, HTML5, CSS, C, JavaScript, Unity Engine, C#, OpenCV, React, Tensorflow, NextJS, Keras, Google Colab, SQL, YOLOv8, ESP32, Embedded Systems Programming

Experience

HONDA Research Institute - ML Researcher May 2024 – December 2024

- Authored two papers on **human-robot-interactions** to **HRI2025**
- Implemented two generative models: an **Implicit Behavior Cloning** and a **Diffusion Behavior Cloning** model to generate non-verbal cues from **360-degree images** using **Tensorflow** and **PyTorch**
- Extracted **feature** data using **YOLOPose** and **Gaze360** to then be filtered using **pandas** for thresholding, normalization, and interpolation
- Tracked training results using **Tensorboard** and **WandB** for **MLOps** backbone

Enterprises Macay - ML Engineer May 2023 – September 2023

- Headed the implementation of a **CNN model** to synchronously detect moisture level in **infrared images** and catch contaminants in **RGB** images in quality control line
- Designed and implemented two models: a pre-trained **YOLO-v8 CNN** model fine-tuned on **IR images** and a **CNN** using **Keras** and **TensorFlow** trained from scratch on our data

University of Alberta - ML Researcher January 2023 – April 2023

- Developed **sensor fusion PID controller** that **combined YOLOv8 object tracking** from a live camera feed with live distance measurements from **ultrasonic sensors**
- Set up an **OPCUA standard client & server** for legacy Windows 7 systems to enable communication between **embedded controller** on the **server** and **client** on remote PC
- Implemented data processing with **scikit-learn** to facilitate **regression analysis** and **normalization** for model training and evaluation

Projects

Yolo Brawlers, HackED2025 (Winning Project) | Python, C++, Computer Vision, Pose Detection, ESP32

- Built and modified two robots to box each other using servos for controlling weaving and punching
- Implemented controller using **Yolov11** for pose detection from live data feed and defined control signal scheme for translating behaviours
- Debugged ESP32 implementation to fix errors while calibrating robots

Autonomous Driving Robot| Python, Docker, Duckietown, ROS2

- Developing an **intelligent agent** for an **autonomous driving** robot to complete **lane-following** and **localization** tasks using **ROS2** to maintain system

Personal Website |TypeScript, JavaScript, React, Next-Js

- Created a **mobile & desktop** friendly site using **React** and **NextJs** to implement a simple **dynamic front-end**
- **Deployed** my website using **Vercel** and **Github** for **CI/CD**

Journai, HackED2023| HTML5, Tailwind CSS, JavaScript, React, Firebase

- Collaborated with a team of 4 to develop a web app to **classify emotion** of journal entries
- Created a personalized data visualization page to show users a breakdown of emotional trends