Muhammad Fadli Arsani

San Diego, CA | LinkedIn | mfarsani@ucsd.edu

EDUCATION

University of California San Diego **San Diego, CA**
B.S Electrical Engineering - Machine Learning & Controls (GPA: 3.80) *Graduation Date: June 2024*

- Relevant courses: Deep Learning in Computer Vision, Controls Theory, Linear & Non-Linear Optimization, Robotics, Python For Data Analysis, Machine Learning, Signals & Systems, C++ OOP Programming, Data Structures & Algorithms, C Programming, Intro To Autonomous Vehicles, Circuits Theories, Probability & Statistics, Calculus (I, II, III), Linear Algebra, Physics, Differential Equation.
- Organizations/Awards: **Warren College Honors Society**, awarded **Provost Honors** every quarter.

WORK EXPERIENCE

Software Engineer Intern **San Diego, CA**
Jacobs School Of Engineering UC San Diego - Robotics Lab *July 2022 – September 2022*

- **Trained a working RL policy** for the **Unitree A1** robot on **GPU clusters** using **MLOps tools** like **Kubernetes**, and **WANDB** to track the progress during training.
- **Modified** our terrains in the **NVIDIA Isaac Gym simulation**, allowing the **robot to adapt to more challenging terrains.**
- **Collected real-world data** with the **Unitree A1** robot to **bridge the gap** between **Sim2Real** and uncertainties in the real world.
- **Implemented Xbox controller python script** that **reads the controller inputs** to be processed by a **Joystick controller middleware** that controls the **Unitree A1** robot for collecting **real-world data**.
- Read the news and the paper.

PROJECTS

3D Autonomous Mobile Robot Navigation *Current*
Python, PyBullet, etc.

- Built an **open-source** implementations and 3D visualizations of baseline **robotics algorithms** for **localization**, **mapping**, and **control** using **PyBullet real-time physics simulation**.
- Implemented various robotics algorithms from scratch like **Particle Filter Localization, SLAM, etc**.
- Designed and programmed the **navigation environment/gym** to test the algorithms.

Jetson-Nano-Powered Self-Driving RC Car *Spring 2021*
C++, Python, ROS, Jetson Nano, Brushless DC Motor, etc.

- Wrote a **ROS package**, utilizing **OpenCV** library for **lane switching** and **line detection**.
- Implemented a **Python module** which handles **sending of messages**, namely: **car speed**, **emergency stop**, **steering**, **throttle**, to the **ESP32**.
- Built a **ROS client** for the **ESP32** using the module mentioned above, **enabling communication by subscribing to ROS topics** responsible for steering and throttle changes.
- Deployed **Deep Learning Models** on the **Jetson-Nano** attached to the RC Car for autonomous driving.

Smart Wearable *Fall 2021*
C, Python, ESP32, OLED Display, Accelerometer, etc.

- Used **photoplethysmography** method and applied **Digital Signal Processing** to **measure and filter user's heart rate** in **real-time** via a **photodetector**.
- Trained the filtered data via **Gaussian Mixture Models (GMM)**, and validated with **Leave-One-Subject-Out-Validation (LOSOV)** method to **improve accuracy**.
- Provides **live weather forecast** and **time & date display**, achieved through **OpenWeather Map API**.

SKILLS

Skills: Python, PyTorch, C, C++, Embedded Programming, Electrical systems testing, Oscilloscope, Power supply, Kubernetes, WANDB, 3Ubuntu (main computer), ROS/ROS2, MLOps tools, SOC/microcontrollers, MATLAB