Mohamed Amine Oulahyane

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Overview

Dedicated and motivated aspiring computer scientist with a focus on software development and artificial intelligence. Driven by a genuine enthusiasm for technology and excellence, I excel in collaborative settings, actively seeking leadership opportunities and valuing teamwork to achieve collective goals. Committed to making a positive social impact through ongoing projects, I bring adaptability, quick learning, and meaningful contributions to every endeavor. Ready to explore and innovate, I aim to push the boundaries of technology and collaboration.

Education

University Of California Irvine

Irvine, CA

- Associate Degree in Computer Science
- Expected Graduation year: 2027

Skills & Technologies:

- C, C++, C#, Python, JavaScript, React, HTML, CSS
- TensorFlow, PyTorch, Flask, Node js, Unreal Engine, Hugging Face, Langchain (LangSmith), OpenAi, Cursor

Research Experience

F1TENTH Autonomous Racing Research – Self-Driving Car Platform   Summer 2025
(ROS2 Foxy, Docker, Python, C++, RViz, Gazebo)

- **Autonomous Vehicle Development:** Designed and implemented core algorithms enabling autonomous navigation and wall-following for a 1/10th-scale race car.
- **Sensor Integration & Simulation:** Utilized LiDAR data and sensor fusion within ROS2 for precise environmental perception and obstacle detection in both physical and simulated environments.
- **ROS2 System Architecture:** Developed modular ROS2 nodes for control, safety, and mapping, ensuring reliable inter-process communication and scalability.
- **Simulation & Visualization:** Employed RViz and Gazebo to simulate real-world race environments, testing and tuning path-planning and PID control systems.
- **Research Presentation:** Collaborated with Cal Poly Pomona researchers and presented results at Citrus College, highlighting real-time decision-making and AI-driven control strategies.

Project Experience

FinAid: Personal Financial Assistant - AI-Powered Financial Management Platform   Jan 2025
(Python, Next.js, Django, & GPT Technology)

- **AI-Based Financial Analysis:** Built machine learning pipelines to analyze and categorize user bank statements, delivering real-time spending insights.
- **Natural Language Interaction:** Integrated advanced NLP models (LLMs, GPT) to let users query their finances conversationally and receive personalized advice.
- **Full-Stack Development:** Engineered scalable backend services in Django and a responsive Next.js frontend for a seamless cross-device experience.
- **User Experience Optimization:** Applied user feedback to refine UX/UI flow, improving usability and engagement.

Pac-Man AI Video Game - Expertise in deep learning and reinforcement learning.   Jan 2024
(Python & TensorFlow)

- **CNNs & LSTMs:** Used CNNs for visual processing and LSTMs for strategic decision-making, enhancing AI efficiency.
- **A3C Algorithm:** Implemented A3C in the Gymnasium environment for robust and parallel training of AI agents.
- **Unity & TensorFlow Integration:** Combined Unity for game development with TensorFlow for neural network operations.
- **Performance Optimization:** Conducted extensive training and hyperparameter tuning for optimal AI performance.
- **AI Visualization:** Created real-time visualizations of AI decisions to showcase strategy and engagement.

Autonomous Car Racing Simulation - Real-Time Stock Monitoring & Analysis   Jul 2024
(Python & TensorFlow)

- **Computer Vision:** Applied convolutional neural networks (CNNs) for real-time image processing and path detection.
- **Reinforcement Learning:** Implemented Proximal Policy Optimization (PPO) to train an agent capable of autonomous racing on complex tracks.
- **Simulation Testing:** Designed and ran large-scale racing simulations to evaluate AI performance and optimize decision-making strategies.
- **Performance Tuning:** Improved efficiency through hyperparameter optimization and iterative model refinement for enhanced control and speed.

Languages

- English   - Proficient
- French   - native speaker
- Arabic   - native speaker
- Spanish   - personal interest