

FRANCISCO RAMOS

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EDUCATION

University of California - Berkeley

August 2023 - May 2024

Master's, Computer Science

GPA: 3.98

- Coursework: Natural Language Processing, Deep Learning for Computer Vision, Machine Learning for Modeling Processes, Artificial Intelligence for Autonomy, Control of Unmanned Aerial Vehicles, Experiential Advanced Control Design

Politécnica de Madrid

September 2022 - July 2023

Master's, Mechatronics, Robotics and Automation Engineering

GPA: 4

- Project Manager: "Autonomous Unmanned Aerial Vehicle System: Drone for Autonomous Drone Racing Competition." 12 team members

Universidad de Sevilla

September 2018 - July 2022

Master's, Mechatronics, Robotics and Automation Engineering

GPA: 4

- Top 1% in ~ 300 students. - 13 honors (with distinction) for outstanding performance in different courses
- Awarded Best Final Project among ~ 600 candidates
- Final project: "Charge demand and renewable generation forecasting with Deep Learning: application to electric vehicle station optimization." Awarded with Honors

PROFESSIONAL EXPERIENCE

AI Racing Tech

Richmond, CA, USA

Software Engineer

August 2023 - Present

- Researched Autonomous Racing, focusing on software, hardware, and simulation tools promoting ai-racing competitions.
- Implemented End-to-End Self Driving car with Behavior Cloning using Neural Networks and Reinforcement Learning.
- Established Simulation Environments within the Carla platform, featuring sensor integration and control implementations.
- Fastened ROS2 communication -80% by optimizing message transmission with TCP, UDP and message serialization techniques.

University of California - Berkeley

Berkeley, CA, USA

Graduate LLM Researcher

August 2023 - February 2024

- Enhancing LLM training optimization algorithms through the application of generalization metrics and correlational analysis.
- Developing methods for effective LLM evaluation in the absence of access to training or test data.

Advanced Center for Aerospace Technologies

Spain

Computer Vision Engineer

February 2022 - February 2023

- Utilized High Altitude Platform Station (HAPS) and Computer Vision techniques to apply photogrammetry for crop monitoring, enhancing crop management efficiency and analysis accuracy, providing +5 different tools and use cases.
- Incorporated Object Detection algorithms into unmanned aerial vehicles (UAVs) to enhance aerial safety by enabling effective, detect and avoid algorithms achieving +70% accuracy.
- Evaluated +10 state-of-the-art object detection models with Transformers, selecting the most efficient one resulting in a 15% decrease in inference time on embedded systems.
- Utilized unsupervised learning models for the implementation and training of an Anomaly Detection system in road inspections.
- Publication: Benchmark on real-time long-range aircraft detection for safe RPAS operations. DOI: 10.1007/978-3-031-21062-4_28

University of Seville

Seville, Spain

Machine Learning Engineer

August 2021 - August 2022

- Developed an integrated system simulator for an Electric Vehicle (EV) charging station supplemented with renewable energies.
- Enhanced operational efficiency through the utilization of Time-Series deep learning models to forecast both the charging load and energy production, thus facilitating management optimization.
- Publications: Optimized Operation of an Electric Vehicle Charging Station with Photovoltaic Support and Vehicle-to-Grid Implementation. DOI:10.1007/978-3-031-10047-5_62 / DOI:10.17979

PROJECTS & OUTSIDE EXPERIENCE

University of California - Berkeley

Berkeley, CA, USA

- Development of Advanced Generative Model Incorporating Neural N-grams and LSTM Networks
- Optimization of Large Language Models for Text-to-SQL Conversion Using Transformer Architectures
- Neural Machine Translation System with baseline encoder-decoder architecture and attention mechanism, achieving 37.6 BLEU.
- Advanced Image Synthesis through the Implementation of Diffusion Probabilistic Models
- Application of Vision Transformers Architecture for Enhanced Image Classification on the CIFAR-10 Dataset

SKILLS

Skills: Python, C/C++, Deep Learning, Natural Language Processing (NLP), Computer Vision, Reinforcement Learning, Pytorch, Tensorflow, Ros, Transformers, Machine Translation, Difussion, Text Generation, Statistics, Bayesian Methods, Docker, Git, MATLAB, SQL, Java, JavaScript, Spark, Kubernetes, Django, HTML/CSS, LLM, Azure, Databricks, Development Operations (DevOps), Data Science, Data Structures & Algorithms, OpenCV, NumPy, TCP/IP