# Antonio Guillen-Perez

antonioalgaida.github.io

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Passionate **machine learning** and **AI research scientist** with +4 years of experience in **applied AI**, and **reinforcement learning**. During my **Ph.D.**, I have researched solving **real-world problems** such as **cooperative autonomous driving** using **multi-agent deep reinforcement learning**, pedestrian flow **forecasting** with predictive algorithms, and **health biomarker** analysis for throat cancer.

## SKILLS

### PROGRAMMING
Python, iPython Notebook
Java, C++

### ARTIFICIAL INTELLIGENCE
Machine Learning (Sklearn)
Deep Learning (Pytorch, Tensorflow)
Reinforcement Learning (Gym, MuJoCo)
AI Healthcare (healthcare.ai, PyHealth)
Graph Neural Networks (DGL, PyG)
Multi-Task / Multi-Modal Learning
Imbalanced Learning
Zero-Shot Learning
Meta Learning
Imitation Learning (IRL, LfO, LfD)
Time Series Forecasting
Natural Language Processing (BERT)

### DATA ANALYST
Data Wrangling (Numpy, Pandas)
Data Visualization (Matplotlib, Seaborn)
Model Interpretability (Captum)
Statistics (StatsModels, Scipy)
High-efficiency software (Dask, CUDA)
Data Debugging (A/B, Logging, Unittest)
Git and Github
Amazon Web Services

## COURSEWORK

**Deep Reinforcement Learning**
- Deep Reinforcement Learning - Nanodegree. Udacity
- Practical Reinforcement Learning. Coursera Course Certicates
- Practical Deep Reinforcement Learning for Coders v.1. fast.ai
**Computer Vision & Time Series**
- Time Series Forecasting. Udacity
- Sequences, Time Series, and Prediction. deeplearning.ai
- Convolution Neural Networks in TensorFlow. deeplearning.ai
- Deep Learning Specialization. deeplearning.ai

## LINKS

Github://**AntonioAlgaida**
LinkedIn://**antonioguillenperez**
Researchgate://**Antonio_Guillen-Perez**
Google Scholar://**Antonio Guillen-Perez**

## EXPERIENCE & EDUCATION

### PH.D. | COMPUTER SCIENCE, AUTONOMOUS VEHICLES, AND WIRELESS COMM.
Sep 2018 – Expected May 2022 | UPCT | Cartagena, Murcia, Spain
- **Multi-Agent** system trained by **Deep Reinforcement Learning** techniques to control **autonomous vehicles** at intersections in a **cooperative** way using 5G
- I achieved a system capable of effectively controlling **autonomous vehicles** in urban environments that **eliminated accidents** and reduced the **waiting time** by more than **94%** using **collective intelligence**, **learning from demonstration**, and **MADRL**

### PREDOCTORAL STAY | UNIVERSITY OF CALIFORNIA, DAVIS
Jul 2021 – Jan 2022 | Davis, CA, US
- Early detection of throat cancer by biomarker analysis using **NN** specialized in **signal processing** such as LSTM, **transformers**, and **attention mechanisms**
- I obtained an accuracy of over **90%** and I have opened a new **research path** for new platforms capable of **detecting** an infinite **number of diseases**

### ASSOCIATE PROFESSOR | DISTRIBUTED SYSTEMS AND SERVICES
Sep 2018 – Sep 2021 | UPCT | Cartagena, Murcia, Spain
- Introducing the students to the concepts of **distributed systems**, such as communication between **remote processes**, **synchronization**, **coordination** and **agreement** techniques, and finally, learning about the characteristics and operation of various types of distributed services

### DOLPHIN WAVE | ML AND DATA SCIENTIST
Feb 2018 – Sep 2018 | Murcia, Spain
- Build **ML predictive** models for mobility research of **people** in closed environments
- Develop a Deep Learning **Multivariate** Time Series Forecasting technique with **Transformers** for item demands
- Visualization of **univariate** and **multivariate** clusters of people mobility and their **prediction** for **business intelligence** tools

### MS. & BS. | ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING
Sep 2016 – Sep 2018 | Murcia, Spain
- Skills in electromagnetic, signal processing, communication systems (WiFi, Bluetooth, 5G, etc.), programming, circuit design, antennas, RADAR, and embedded systems.

## RELATED RESEARCH

### JOURNALS ARTICLES
- AIM5LA: A Latency-Aware Deep Reinforcement Learning-Based AIM for 5G Communication Networks, Sensors, doi:10.3390/s22062217.
- Learning from Oracle Demonstrations – A new approach to develop AIM control algorithms based on MADRL. Under Review. IEEE Access.
- Multi-Agent Deep Reinforcement Learning to Manage Connected Autonomous Vehicles at Tomorrow's Intersections. Under Review. IEEE TVT.

### CONFERENCE PROCEEDINGS
- RAIM: Reinforced Autonomous Intersection Management, In 34th Conference (NeurIPS) 2020 - Challenges of Real-World RL Workshop, Virtually.