Antonio Guillen-Perez

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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**

EXPERIENCE & EDUCATION

PH.D. | Computer Science, Autonomous Vehicles, and Wireless Comm.
Sep 2018 – Expected Feb 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
- 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.
- Pedestrian characterization in urban environments combining WiFi and AI. International Journal of Sensor Networks, 18.

CONFERENCE PROCEEDINGS
- RAIM: Reinforced Autonomous Intersection Management - AIM based on Multi-Agent Deep Reinforcement Learning, In 34th Conference (NeurIPS) 2020 - Challenges of Real-World RL Workshop, Virtually.