DANIEL RODRIGUEZ CRIADO, PHD

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EDUCATION

Aston University, Birmingham   *2019–2023*
Ph.D. on Computer Science and Deep Learning

My doctoral thesis at Aston University explored the intersection of traditional deep learning approaches and Graph Neural Networks (GNNs) in sensorized environments. I focused on three key application areas: Human-Aware Navigation for robots, Human Pose Estimation, and Traffic Image Generation.

University of Malaga   *2015–2019*
MSc. on Electronic Systems for Smart Environments

Modules included:

- Artificial Intelligence: Artificial Vision, Smart Environments, Data Processing, Smart Cities

- Electronics: Sensor Networks, Design of PCBs, Interfaces and Communications, Embeded systems based on FPGAs, Microcontrollers, Microkernels.

- Management: Planning, Management and Project Development.

Master's final thesis titled: "Table Cleaner Robot TCBot using Hi-NW Light Technology for Disinfection".

University of Malaga   *2017–2019*
Master of Engineering, Industrial Engineering

Modules included:

- A* in "Electronic Systems in Industry"

- A* in "Control and Quality Management"

- A* in "Energy Technologies"

Master's final thesis titled: "Implementation and design of a processor architecture for detection of objects slippage over a tactile sensors array using a FPGA." Passed with honours.

University of Malaga   *2010–2015*
Bachelor in Industrial Technologies Engineering.

Specialized in automatic and electronic control, modules included:

- Honours in "Integrated Circuits"

- A* in "Computer Architecture"

- A* in "Power Electronic"

- A* in "Transducers and interface"

Bachelor final thesis titled: "Basic Quadcopter Design with Stabilization Control" Passed with honours.

INTERNSHIPS

Hong Kong University of Science and technology (HKUST), Hong Kong   *2017–2018*
EURASIACAT program

· During my internship, I spearheaded the design and development of a compact robot for disinfecting tables using a synergistic approach of blue and UV light. This innovative solution leverages the Hi-NW technology, a groundbreaking advancement developed by the CBE department of HKUST.

Vilnius Gediminas Technical University (VGTU), Vilna (Lithuania)   *2016*
Erasmus+ program

· This stay boosted my knowledge of the English language since it was the first time for me living in a foreign country.
· It allowed me to do a different culture immersion and even learn a bit of Lithuanian language and culture.
· Gave me the chance of studding electronic related subjects in a different language (English) such as: wind and photovoltaic energy systems, electronic converters and modern electrical engineering.

DIGITAL SKILLS

Programming Languages	Python, Bash scripting, C/C++, MATLAB, VHDL, Assembler
Web languages	Typescript/Javascript, HTML, CSS, PostCSS, PHP, SQL
Tools and frameworks	PyTorch, Qt, Numpy, Docker, Laravel, Astro
Op. Systems	Linux (Ubuntu and Parrot OS), Windows, Mac OS, Android
IDEs	Visual Studio Code, PyCharm, Jupyter notebooks

CARRIER OBJECTIVE

Eager to contribute to cutting-edge deep learning advancements, I seek a position in a dynamic organization that fosters continuous learning and professional growth. I am looking forward to joining a team that empowers me to contribute to the development of groundbreaking software enabling deep learning applications in diverse fields such as robotics, smart devices, home automation, self-driving cars, biochemistry and others. I am excited to collaborate with innovative technology, implement new algorithms, optimize solutions, and make a significant impact on the ML ecosystem, including engaging with partners and the broader ML community.

WORK EXPERIENCE

PhD research at Aston University, Birmingham (UK)   *10/2019–12/2023*
Research student

· Contributed to the development of cutting-edge applications utilizing Graph Neural Networks in conjunction with traditional Artificial Neural Networks.
· Pioneered research in Human-Aware Navigation for robots, Human Pose Estimation, and Traffic Image Generation, employing GNNs to achieve significant advancements.
· Authored and published papers in prominent conferences and journals, establishing a strong research portfolio in the aforementioned areas.
· Demonstrated exceptional communication and teamwork skills through collaboration with research scientists and presenting findings at international conferences.
· Cultivated problem-solving, time management, and adaptability skills, effectively managing multiple research projects simultaneously.
· Engaged in critical thinking by peer-reviewing scientific papers.

Google Summer of code, online   *06/2020–09/2020 and 06/2021–09/2021*
Mentor

· Developed skills as a team leader by spearheading a project in robotics and machine learning, guiding a team of diverse individuals worldwide.

Aston University, Birmingham (UK)   *09/2021–07/2022*
Laboratory Instructor

· Cultivated confidence as a communicator by delivering undergraduate-level courses with passion and clarity.
· Effectively taught courses in bash scripting, computer systems, web technologies, and machine learning, fostering student engagement and comprehension.

PUBLICATIONS

SNGNN2D-v2: a learning-based scenario-agnostic model for the generation of socially-aware cost maps in dynamic environments   2024
Rodriguez-Criado, Daniel, *Pilar Bachiller, and Luis J. Manso.*

Under submission to the International Journal of Social Robotics

Synthesizing Traffic Datasets using Graph Neural Networks.   2023
Rodriguez-Criado, Daniel, *Maria Chli, Luis J. Manso, and George Vogiatzis.*

26th IEEE International Conference on Intelligent Transportation Systems ITSC 2023. **(I presented the work in the conference)**

Multi-person 3D pose estimation from unlabelled data.   2022
Rodriguez-Criado, Daniel, *Pilar Bachiller, George Vogiatzis, and Luis J. Manso.*

Under submission to The Journal of Machine Learning Research (JMLR).

A graph neural network to model disruption in human-aware robot navigation   2022
Bachiller, Pilar, ***Rodriguez-Criado, Daniel,*** *Ronit R. Jorvekar, Pablo Bustos, Diego R. Faria, and Luis J. Manso.*

Multimedia Tools and Applications 81, no. 3.

Generation of human-aware navigation maps using graph neural networks.   2021
Rodriguez-Criado, Daniel, *Pilar Bachiller, and Luis J. Manso.*

In International Conference on Innovative Techniques and Applications of Artificial Intelligence. **(I presented the work in the conference) (Best student paper award)**.

toolkit to generate social navigation datasets   2021
Baghel, Rishabh, Aditya Kapoor, Pilar Bachiller, Ronit R. Jorvekar, ***Rodriguez-Criado, Daniel,*** *and Luis J. Manso.*

In Advances in Physical Agents II: Proceedings of the 21st International Workshop of Physical Agents (WAF). **(I presented the work in the conference) (Best paper award)**

Multi-camera torso pose estimation using graph neural networks.   2020
Rodriguez-Criado, Daniel, *Pilar Bachiller, Pablo Bustos, George Vogiatzis, and Luis J. Manso.*

In 2020 29th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN). **(I presented the work in the conference)**

TRAINING COURSES

Aston University *2022*
Fundamentals of Accelerated Computing with CUDA C/C++.

Coursera *2020*
Convolutional Neural Networks
Structuring Machine Learning Projects
Improving Deep Neural Networks
Neural Networks and Deep Learning
Machine Learning by University of Stanford

Polytechnic University of Madrid *2016*
Development in HTML5, CSS and JavaScript of web apps, android and IOS.

University of Malaga *2011*
Advanced course in GPUs. Programming and performance against the CPU
Basic course of graphic processors

PERSONAL SKILLS

Languages

Mother tongue	Spanish
Foreign languages	English — Full professional profency

Soft skills

· Teamwork.
· Problem solving.
· Communication.
· Adaptability.
· Critical thinking.
· Time management.
· Interpersonal.