



Armando Collado-Villaverde

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ABOUT ME

My career as a researcher began with the completion of my Computer Engineering studies at the University of Alcalá in 2012, where I graduated as the top student in my class and received a special distinction award. For my final project, I started conducting research on automatic fall detection using a triaxial accelerometer on the wrist, which was later expanded to incorporate sound analysis.

Additionally, I completed a master's degree in Video Game Design and Development at the Polytechnic University of Madrid, after which I developed the video game *Massira*, which was published on PlayStation 4.

After working in the video game industry, I returned to the research field at the university, focusing my studies on neural networks, particularly on time series problems. Initially, I worked on a predictive maintenance project for the Spanish Navy. Following this, I pursued a Master's Degree in Science and Technology from Space at the University of Alcalá. This was my first introduction to Space Weather, and for my final project, I developed a Neural Network model to forecast the SYM-H index, which was also published in the *Space Weather* journal and marked the beginning of my PhD.

Later, I applied to the Open Space Innovation Platform (OSIP) initiative by the European Space Agency (ESA) to fund my PhD, focused on forecasting geomagnetic indices using neural networks. I successfully defended my PhD thesis in July 2025, focused on the development of Deep Learning models for forecasting geomagnetic indices. Throughout the project, I published several peer-reviewed articles and deployed real-time operational models using solar wind data from the ACE mission.

WORK EXPERIENCE

EUROPEAN SPACE AGENCY - EUROPEAN SPACE OPERATIONS CENTRE – DARMSTADT, GERMANY

DOCTORAL STAY – 04/2024 – 07/2024

UNIVERSITY OF ALCALÁ – ALCALÁ DE HENARES, SPAIN

PHD STUDENT – 11/11/2020 – CURRENT

UNIVERSITY OF ALCALÁ – ALCALÁ DE HENARES, SPAIN

UNIVERSITY RESEARCH ASSISTANT – 16/09/2018 – 15/09/2020

FROST MONKEY GAMES – MADRID, SPAIN

SOFTWARE DEVELOPER - UNITY – 06/2017 – 05/2019

Developed a video game using the Unity Engine, acting as the lead programmer. My responsibilities included working on gameplay mechanics, artificial intelligence, and integrating PlayStation system functionalities, quality assurance, shader development. Developed

EDUCATION AND TRAINING

2018 – 2020

MASTERS DEGREE IN SCIENCE AND TECHNOLOGY FROM SPACE University of Alcalá

Website <https://www.uah.es/en/estudios/Ciencia-y-Tecnologia-desde-el-Espacio/>

Website <https://www.gamesupm.com/>

- Successfully defended in July 2025
- Artificial Intelligence (AI) – Design and implementation of Deep Neural Networks (DNNs) for predictive modeling.
- Time Series Forecasting – Real-time forecasting of geomagnetic indices
- Space Weather Analysis – Understanding and predicting geomagnetic storms and their impact on Earth's magnetic field.
- Operational Deployment – Implementation of real-time forecasting systems with confidence interval predictions.
- Scientific Research and Communication – Conducting scientific research, writing academic papers, and presenting findings in the field of space weather forecasting.

Website <https://www.uah.es/en/estudios/Investigacion-Espacial-y-Astrobiologia-D443/> | **Level in EQF** EQF level 8 |

Thesis Deep Neural Networks for Geomagnetic Indices Forecasting

● **LANGUAGE SKILLS**

Mother tongue(s): **SPANISH**
Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C2	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **PUBLICATIONS**

2021
[Deep Neural Networks With Convolutional and LSTM Layers for SYM-H and ASY-H Forecasting.](#)

2024
[Classifying and bounding geomagnetic storms based on the SYM-H and ASY-H indices](#)

<https://doi.org/10.1007/s11069-023-06241-1>

2024
[A Framework for Evaluating Geomagnetic Indices Forecasting Models](#)

<https://doi.org/10.1029/2024SW003868>

● **PROJECTS**

30/11/2018 – 30/11/2020
Utilización de redes neuronales como método para mantenimiento basado en la condición en los buques de la Armada

2017 – 2020
Massira - PS4 Videogame

Lead programmer during the development

Link https://store.playstation.com/es-es/product/EP5099-CUSA14220_00-MASSIRA123456789

15/01/2022 – CURRENT

Deep Neural Networks for Geomagnetic Forecasting

European Space Agency (ESA) under the Open Space Innovation Platform (OSIP) program 3-17447 for the development of the PhD

● **HONOURS AND AWARDS**

2016

Best academic record Degree in Computer Science – University of Alcalá
