



Francisco Miguel Castro-Macías

Curriculum Vitae

Personal information

Full name Francisco Miguel Castro Macías
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Nationality Spain
Birth date 13/06/1998
Links [Personal webpage](#), [Google Scholar](#), [GitHub](#)

Education

2023–2026 **PhD. in Computer Science**, *Probabilistic machine learning methods for weakly supervised and inverse problems. Applications in medicine*, University of Granada, Granada.
2021–2022 **Msc. in Data Science and Computer Engineering**, University of Granada, Granada, GPA: 9.68/10.0.
2017–2021 **Degree in Mathematics**, University of Granada, Granada, GPA: 9.008/10.0.
2017–2021 **Degree in Computer Engineering**, University of Granada, Granada, GPA: 9.077/10.0.
Specialty in Computing and Intelligent Systems

Positions

Jan. 2023 – **FPU PhD Student**, Department of Computer Science and Artificial Intelligence,
Jan. 2027 University of Granada, Granada.
Funded by an Formación Profesorado Universitario (FPU) research grant, awarded by Ministry of Universities of the Government of Spain.
Jul. 2022 – **Research assistant**, *Development and evaluation of methods for deblurring and color normalization of histological images*, Visual Information Processing (VIP) group, Department of Computer Science and Artificial Intelligence, University of Granada, Granada.
Dec. 2022

Internships

- March 2024 – **Northwestern University**, Department of Electrical and Computer Engineering,
June 2024 Northwestern University, Evanston, Illinois, United States.
I worked under the supervision of Prof. Aggelos K. Katsaggelos for three months as a visiting student.

Training courses

- July 2025 **London Geometry and Machine Learning (LOGML) Summer School**, Imperial College, London.
Member of the project led by Ruth Johnson: Representation learning and knowledge encoding with biomedical knowledge graphs.
- August 2022 **OxML Summer School: Health Track**, Mathematical Institute, University of Oxford, Oxford.
- April 2022 **Second training school Cloud Artificial Intelligence for Pathology (Clarify) project (EU funded)**, School of Computer Science and Telecommunications Engineering, University of Granada, Granada.

Grants

- Jan. 2023 – **Formación Profesorado Universitario (FPU)**, Department of Computer Science
Jan. 2027 and Artificial Intelligence, University of Granada, Granada, Awarded by the Ministry of Universities of the Government of Spain.
This grant funded my PhD studies.
- Aug. 2022 **Blas Cabrera Summer School**, Universidad Internacional Menéndez Pelayo, Awarded by the Ministry of Universities.
One-week stay at the Palacio de la Magdalena, Santander. Attendance at seminars and talks given by the country's most renowned researchers
- Sep. 2020 – **Research Initiation for Undergraduate Students, A federated learning model**
July 2021 *to predict COVID19 disease from chest x-rays images*, Department of Computer Science and Artificial Intelligence, University of Granada, Granada.
Extension of several deep learning models to the federated scenario. Theoretical and experimental study of various aggregators and data partitions. Under the supervision of Francisco Herrera Triguero and Siham Tabik Ouled Hrou.
- 2017 **English language immersion (Level C1)**, Universidad Internacional Menéndez Pelayo, Huesca.
- July 2015 **Campus Científicos de Verano (Summer Science Campus)**, *TIC-TAC Robot*, Escuela Técnica Superior de Ingeniería, Departament d'Enginyeria Elèctrica, Electrònica i Automàtica, Universitat Rovira i Virgili, Tarragona.
- Sep. 2014 – **Secondary School Innovation Research Initiation Project in Andalusia, Stellar**
May 2015 *Clusters*, Consejo Superior de Investigaciones Científicas, University of Granada, Granada.

Awards

- Nov. 2024 **Best Student Paper Award at 2024 IEEE International Conference on Image Processing (ICIP)**, *Bayesian Blind Image Deconvolution using a Hyperbolic-Secant prior*, [Link to the news](#).
- May 2022 **Best Final Degree Project in Computer Engineering**, School of Computer Science and Telecommunications Engineering, University of Granada, Granada.

Research

Publications

- 2025 **F. M. Castro-Macías**, F. Pérez-Bueno, M. Vega, R. Molina, A. K. Katsaggelos, *Deep Bayesian Blind Color Deconvolution using a Gaussian Scale Mixture Prior*, 2025 European Signal Processing Conference (EUSIPCO).
- 2025 **F. M. Castro-Macías**, P. Morales-Álvarez, Y. Wu, R. Molina, A. K. Katsaggelos, *Probabilistic smooth attention for deep Multiple Instance Learning in medical imaging*, Pattern Recognition.
- 2024 **F. M. Castro-Macías**, P. Morales-Álvarez, Y. Wu, R. Molina, A. K. Katsaggelos, *Sm-enhanced localization in Multiple Instance Learning for medical imaging classification*, 2024 Conference on Neural Information Processing Systems (NeurIPS).
- 2024 **F. M. Castro-Macías**, F. Pérez-Bueno, M. Vega, J. Mateos, R. Molina, A. K. Katsaggelos, *Bayesian Blind Image Deconvolution using a Hyperbolic-Secant prior*, 2024 IEEE International Conference on Image Processing (ICIP), **Best Student Paper Award**.
- 2024 **F. M. Castro-Macías**, F. Pérez-Bueno, M. Vega, J. Mateos, R. Molina, A. K. Katsaggelos, *Blind Color Deconvolution and Classification of Histological Images Using the Hyperbolic Secant Prior*, 2024 International Symposium on Biomedical Imaging (ISBI).
- 2024 **F. M. Castro-Macías**, P. Morales-Álvarez, Y. Wu, R. Molina, A. K. Katsaggelos, *Hyperbolic Secant representation of the logistic function: application to Probabilistic Multiple Instance Learning for CT intracranial hemorrhage detection*, Artificial Intelligence Journal.
- 2023 S. Yang, F. Pérez-Bueno, **F. M. Castro-Macías**, R. Molina, A. K. Katsaggelos, *BCD-Net: Stain Separation of Histological Images using Deep Variational Bayesian Blind Color Deconvolution*, Digital Signal Processing.
- 2023 Y. Wu, **F. M. Castro-Macías**, P. Morales-Álvarez, R. Molina, A. K. Katsaggelos, *Smooth Attention for Deep Multiple Instance Learning: Application to CT Intracranial Hemorrhage Detection*, 2023 International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI).
- 2023 S. Yang, F. Pérez-Bueno, **F. M. Castro-Macías**, R. Molina, A. K. Katsaggelos, *Deep Bayesian Blind Color Deconvolution of histological images*, 2023 IEEE International Conference on Image Processing (ICIP).

Teaching

Courses

- 2024 – 2025 **Development and Design of Information Systems**, Bachelor's Degree in Computer Engineering, University of Granada, Granada.
- 2023 – 2024 **Development and Design of Information Systems**, Bachelor's Degree in Computer Engineering, University of Granada, Granada.
- 2023 – 2024 **ICT in Healthcare and Research Methodology**, Bachelor's Degree in Nursing, University of Granada, Granada.
- 2022 – 2023 **Image feature extraction (assistant)**, Master's degree in Data Science and Computer Engineering, University of Granada, Granada.

Bachelor's and Master's Thesis

- 2023 – 2024 **Blind Image Deconvolution using Deep Learning**, Bachelor's degree in Computer Engineering, University of Granada, Granada.
Student: J. A. Torres Coca, Supervisors: R. Molina, F. M. Castro-Macías.
- 2023 – 2024 **Uncertainty Estimation in Blind Image Deconvolution using Bayesian Deep Image Prior**, Master's degree in Data Science and Computer Engineering, University of Granada, Granada.
Student: A. Pérez Lara, Supervisors: R. Molina, F. M. Castro-Macías.
- 2022 – 2023 **Deep Multiple Instance Learning. Application to Intracranial Hemorrhage Detection**, Master's degree in Data Science and Computer Engineering, University of Granada, Granada.
Student: E. Jiménez Mariscal, Supervisors: P. Morales-Álvarez, F. M. Castro-Macías.

Talks

- Feb. 2025 **Denoising energy matching**, Visual Information Processing seminar.
- Nov. 2024 **The challenges of artificial intelligence in medicine**, Siete Colinas High School, Granada.
- Sep. 2024 **The challenges of artificial intelligence in medicine**, European Researchers' Night, Granada.
- Sep. 2023 **The wisdom of crowds: Are many people smarter than one expert?**, European Researchers' Night, Granada.
- May 2023 **The Attention Mechanism**, Visual Information Processing seminar.
- May 2023 **Linearized Laplace Approximation for Deep Learning**, Visual Information Processing seminar.
- May 2022 **Artificial Intelligence from the inside**, Academia El Futuro SLU, Granada.
- Jan. 2022 **That so-called Artificial Intelligence**, Centro de Estudios Hermanos Naranjo, Granada.

News and media

- Feb. 2025 **"Precision aid for locating cancer and tumours"**, IDEAL (Granada local newspaper). [Link](#).

- Dec. 2024 **"Visiting PhD Student Wins Best Student Paper Award at 2024 IEEE ICIP Conference"**, Newsletter of the Department of Electrical and Computer Engineering, Northwestern University. [Link](#).
- Nov. 2024 **"Francisco M. Castro Macías, awarded at the IEEE International Conference on Image Processing"**, Newsletter of the University of Granada. [Link](#).

———— Languages

Spanish Mother tongue
English Fluent

———— Sport achievements (Weightlifting)

Bronze Trophy "Feria de Almería de Halterofilia", -61Kg, 2019, Almería
Gold Spanish University Weightlifting Championships, -61Kg, 2019, Murcia
Silver Senior Weightlifting Championship of Andalucía, -61Kg, 2019, Cádiz