Francisco Miguel Castro-Macías

Curriculum Vitae

▬▬▬ Personal information

Full name	Francisco Miguel Castro Macías
Email	francastro8b@gmail.com - fcastro@ugr.es
Nacionality	Spain
Birth date	13/06/1998

▬▬▬ Education

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

▬▬▬ Positions and grants

Jan. 2023 – Jan. 2027	**National grant: FPU Predoctoral Researcher**, Department of Computer Science and Artificial Intelligence, Universidad de Granada, Beneficiary of an Formación Profesorado Universitario (FPU) grant, by the Ministry of Universities of the Government of Spain.
Aug. 2022	**Grant: Blas Cabrera Summer School**, Universidad Internacional Menéndez Pelayo, Awarded by the Ministry of Universities to the best university students in Spain. One-week stay at the Palacio de la Magdalena, Santander. Attendance at seminars and talks given by the country's most renowned researchers.

Jul. 2022 – Dec. 2022	**Contract: Project-funded researcher**, *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, Universidad de Granada, Granada.
Sep. 2020 – July 2021	**Grant: Research Initiation for Undergraduate Students**, *A federated learning model to predict COVID19 disease from chest x-rays images*, Department of Computer Science and Artificial Intelligence, Universidad de 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 Hrour.
2017	**Grant: English language immersion (Level C1)**, Universidad Internacional Menéndez Pelayo, Huesca.
July 2015	**Grant: 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 – May 2015	**Grant: Secondary School Innovation Research Initiation Project in Andalusia**, *Stellar Clusters*, Consejo Superior de Investigaciones Científicas, Universidad de Granada, Granada.

Awards

May 2022	**Ex aequo award for the best Final Degree Project of the Degree in Computer Engineering**, Escuela Técnica Superior de Ingeniería Informática y de Telecomunicaciones, Universidad de Granada, Granada.

Research

Publications

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..
2023	**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*, Artifical Intelligence (in revision), International collaboration with Northwestern University (USA).
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 2023).

Training courses

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)**, Escuela Técnica Superior de Ingeniería Informática y de Telecomunicaciones, Universidad de Granada, Granada.

Teaching

Courses

2023 – 2024 **Development and Design of Information Systems**, Bachelor's Degree in Computer Engineering, Universidad de Granada, Granada.

2023 – 2024 **ICT in Healthcare and Research Methodology**, Bachelor's Degree in Nursing, Universidad de Granada, Granada.

2022 – 2023 **Image feature extraction (assistant)**, Master's degree in Data Science and Computer Engineering, Universidad de Granada, Granada.

Bachelor's and Master's Thesis

2023 – **Blind Image Deconvolution using Deep Learning**, Bachelor's degree in Computer Engineering, Universidad de Granada, Granada.
Student: J. A. Torres Coca, Supervisors: R. Molina, F. M. Castro-Macías.

2023 – **Uncertainty Estimation in Blind Image Deconvolution using Bayesian Deep Image Prior**, Master's degree in Data Science and Computer Engineering, Universidad de 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, Universidad de Granada, Granada.
Student: E. Jiménez Mariscal, Supervisors: P. Morales-Álvarez, F. M. Castro-Macías.

Outreach

Sep. 2023 **The wisdom of crowds: Are many people smarter than one expert?**, European Researchers' Night, Granada.

May 2022 **Speaker of the presentation "Artificial Intelligence from the inside"**, Academia El Futuro SLU, Granada.

May 2022 **Speaker of the presentation "That so-called Artificial Intelligence"**, Centro de Estudios Hermanos Naranjo, Granada.

Jan. 2022 **Speaker of the presentation "That so-called Artificial Intelligence"**, Centro de Estudios Hermanos Naranjo, Granada.

Languages

Spanish	Mother tongue
English	Advanced

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