

## CURRICULUM VITAE

### Part A. PERSONAL INFORMATION

|         |            |
|---------|------------|
| CV date | 04/09/2026 |
|---------|------------|

|                                            |                                                                |               |                                                                                 |
|--------------------------------------------|----------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|
| First name                                 | Miguel Ángel                                                   |               |                                                                                 |
| Family name                                | Fernández Torres                                               |               |                                                                                 |
| Gender                                     | Male                                                           | Date of Birth | 16/08/1991                                                                      |
| ID number                                  | 47232052B                                                      |               |                                                                                 |
| e-mail                                     | <a href="mailto:migferna@ing.uc3m.es">migferna@ing.uc3m.es</a> | URL Web       | <a href="https://miguelangelft.github.io/">https://miguelangelft.github.io/</a> |
| Open Researcher and Contributor ID (ORCID) | 0000-0002-0801-199X                                            |               |                                                                                 |

#### A.1. Current position

|                   |                                                                                                                |              |                 |
|-------------------|----------------------------------------------------------------------------------------------------------------|--------------|-----------------|
| Position          | Assistant Professor                                                                                            |              |                 |
| Initial date      | 09/09/2024                                                                                                     |              |                 |
| Institution       | Universidad Carlos III de Madrid (UC3M)                                                                        |              |                 |
| Department/Center | Signal Theory and Communications, Escuela Politécnica Superior (EPS)                                           |              |                 |
| Country           | Spain                                                                                                          | Phone Number | (+34) 690699452 |
| Key words         | Computer vision, machine learning, explainable artificial intelligence, image and video processing, multimedia |              |                 |

#### A.2. Previous professional status

| Period                  | Position / Institution / Country                                |
|-------------------------|-----------------------------------------------------------------|
| 01/11/2020 – 08/09/2024 | Postdoctoral Researcher / Universitat de València / Spain       |
| 01/10/2018 – 31/10/2020 | Teaching Assistant / UC3M / Spain                               |
| 01/10/2014 – 30/09/2018 | Research Assistant (FPU Grant) / UC3M / Spain                   |
| 01/09/2013 – 30/09/2014 | M.S. Scholarship Holder / UC3M / Spain                          |
| 02/01/2012 – 28/02/2013 | Informant, Leganés Service Point / UC3M / Spain                 |
| 01/09/2009 – 30/05/2010 | Scholarship Holder / Instituto de Física Aplicada, CSIC / Spain |

#### A.3. Education

| Degree / Master / PhD                        | University / Country                     | Year |
|----------------------------------------------|------------------------------------------|------|
| PhD in Multimedia and Communications         | Universidad Carlos III de Madrid / Spain | 2019 |
| Master in Multimedia and Communications      | Universidad Carlos III de Madrid / Spain | 2014 |
| BSc Degree in Audiovisual System Engineering | Universidad Carlos III de Madrid / Spain | 2013 |

### Part B. CV SUMMARY

**Miguel-Ángel Fernández-Torres** is currently **Assistant Professor at Universidad Carlos III de Madrid** (Dept. of Signal Theory and Communications, DSTC) and member of the Audiovisual Intelligence Group (AIG). He is also member of the European Laboratory for Learning and Intelligent Systems (**ELLIS**) and co-leads the Working Group on Data at the Global Initiative on Resilience to Natural Hazards through Artificial Intelligence (AI) Solutions (**GI-AI4R**) at the International Telecommunication Union (**ITU**) of the United Nations (**UN**). His current research within the area of **Artificial Intelligence for Earth and Climate Sciences** involves the design and understanding of deep generative models for anomaly and extreme event detection. His main research interests also include computer vision, remote sensing, machine/deep learning, image and video processing, explainable AI, and visual attention modeling.

Miguel-Ángel Fernández-Torres received the Audiovisual Systems Engineering degree, the Master degree in Multimedia and Communications, and the Ph.D. degree in Multimedia and Communications from Universidad Carlos III de Madrid (**UC3M**), Spain, in 2013, 2014, and 2019, respectively. He has been a postdoctoral researcher at the Image and Signal Processing Group, Universitat de València (**UVEG**), Spain, between 2020 and 2024. He also has been Visiting Researcher at the Visual Perception Laboratory of **Purdue University**, West Lafayette, Indiana, USA, in 2016, Beyond Fellow at the International Future Lab AI4EO, Technische Universität München (**TUM**), Munich, Germany, in 2022, and Visiting Researcher at the Department of Artificial Intelligence at Fraunhofer Institute for Telecommunications (**HHI**), Berlin, Germany, in 2025.



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Miguel-Ángel got the **Grant from the Spanish Ministry of Education's University Faculty Training (FPU) programme** in 2013, the **Award for Excellence in the Bachelor's Degree in Audiovisual System Engineering (UC3M)** in the Academic Course 2012/2013, the **Excellence Award of the UC3M Social Council** in 2012, and the **Excellence Scholarship at Community of Madrid** in the Academic Course 2009/2010.

Regarding the research activity, he has published **23 papers in JCR journals (17 Q1)** and **14 peer-reviewed papers in conferences**. He has a **h-index of 16 in Google Scholar (1124 cites, 532 in 2026)**, **9 in Scopus (582 cites, 322 in 2026)**, and **8 in Web of Science (485 cites, 248 in 2026)**. He has been **invited speaker at more than 10 international seminars**, **Local Chair** at the International Conference on Artificial Intelligence and Statistics (**AISTATS**) between 2022 and 2024, and **led the Organization Committee** of the Explainable AI for Computer Vision (**XAI4CV**) workshop at the Conference on Computer Vision and Pattern Recognition (**CVPR**) 2026. He has also participated in **4 innovation teaching projects** at UVEG.

His **main research contributions** are:

- Design and implementation of **Computer-Aided Diagnosis (CAD) systems for medical image applications**, including melanoma detection and brain tumor classification.
- Development of **hierarchical models for spatio-temporal visual attention modeling and understanding**, applied to anomaly detection and autonomous driving scenarios.
- Design of **novel deep learning models and strategies for extreme event detection and understanding** using Earth observations, climate data, and satellite imagery, including wildfires, droughts, and heatwaves.
- Development of **generative networks for spatio-temporal gap filling of satellite reflectances**.
- Creation of **multisensory (climate data, satellite imagery, etc.) databases** for compound extreme events and agriculture monitoring.

He has participated in **9 projects (including 5 EU projects, where he has been WP co-leader)** and a contract with an infrastructure company (**ALVAC S.A.**). He has served as reviewer in more than **10 JCR journals (e.g., Nature, IEEE TCSVT/TGRS, Elsevier ISPRS)**, **10 prestigious international conferences (e.g., CVPR, ECCV, NeurIPS, ICML, AISTATS)**, and has evaluated innovation grants and projects (e.g., Spanish State Research Agency, Alexander von Humboldt-Stiftung, Einstein Foundation Berlin). He has been recognized as **Outstanding Reviewer at the European Conference on Computer Vision (ECCV) 2024**.

Miguel Ángel has supervised **4 Master and 8 Bachelor Thesis**, 6 of them with maximum honors. He has supervised two PhD theses and is currently supervising two more.

## Part C. CONTRIBUTIONS

### C.1. Publications

1. **Scientific paper**. Gustau Camps Valls; Alberto Carrassi; Francisco de Melo Viríssimo; et al; Veronika Eyring; **(5/20) Miguel-Ángel Fernández-Torres**. 2026. Bridging the weather and climate divide with artificial intelligence. Nature Communications. Nature. IF: 18,1. **Q1 (8/140) Multidisciplinary Sciences (2025)**.
2. **Scientific paper**. Rodrigo Almeida; Noelia Otero; **(3/4) Miguel-Ángel Fernández-Torres**; Jackie Ma. 2026. On the Predictive Skill of Artificial Intelligence-based Weather Models for Extreme Events using Uncertainty Quantification. Artificial Intelligence for the Earth Systems. AMS. IF: 4,5. **Q2 (81/210) Computer Science, Artificial Intelligence (2025)**.
3. **Scientific paper**. Aytaç Paçal; Birgit Hassler; Katja Weigel; **(4/6) Miguel-Ángel Fernández-Torres**; Gustau Camps-Valls; Veronika Eyring. 2026. A multivariate analysis of atmospheric drivers for Western European heatwaves. Earth System Dynamics. Copernicus Publications. IF: 6,3. **Q1 (24/259) Geosciences, Multidisciplinary (2025)**.
4. **Scientific paper**. Arif R Albayrak; Monique M Kuglitsch; Jürg Luterbacher; et al.; **(11/15) Miguel-Ángel Fernández-Torres**. 2026. Converting Raw Data Into Actionable Information: A topical review of artificial intelligence, machine learning, and digital twins in disaster management. IEEE Geoscience and Remote Sensing Magazine. IEEE. IF: 13,7. **Q1 (1/66) Remote Sensing (2025)**.
5. **Scientific paper**. Guido Ascenso; Matteo Giuliani; Jorge Pérez-Aracil; et al.; Andrea Castelletti; **(8/17) Miguel Ángel Fernández Torres**. 2026. The maturation of AI in drought science: A review of trends, pitfalls, and priorities. Water Resources Research. AGU. IF: 6,3. **Q1 (2/21) Limnology (2025)**.



6. **Scientific paper.** Adrian Höhl; Stella Ofori-Ampofo; **(3/5) Miguel-Ángel Fernández-Torres**, Ridvan Salih Kuz; Xiao Xiang Zhu (2026). A large-scale, multitask, multisensory dataset for climate-aware crop monitoring in the US from 2018–2022. *Nature Scientific Data*, 13(1), 72. **IF: 7,2. Q1 (17/140) Multidisciplinary Sciences (2025).**
7. **Scientific paper.** Óscar J. Pellicer-Valero; **(2/5) Miguel-Ángel Fernández-Torres**; Chaonan Ji; Miguel Mahecha; Gustau Camps Valls. 2025. Explainable earth surface forecasting under extreme events. *Earth's Future*. AGU. **IF: 8,5. Q1 (14/259) Geosciences, Multidisciplinary.**
8. **Scientific paper.** Mengxue Zhang; **(2/4) Miguel-Ángel Fernández-Torres**; Kai Hendric Cohrs; Gustau Camps Valls. 2025. Calibration and uncertainty quantification for deep learning-based drought detection. *International Journal of Applied Earth Observation and Geoinformation*. Elsevier. **IF: 8,2. Q1 (7/66) Remote Sensing.**
9. **Scientific paper.** Gustau Camps Valls; **(2/25) Miguel-Ángel Fernández-Torres**; Kai Hendric Cohrs; et al; Tristan Williams. 2025. Artificial Intelligence for Modeling and Understanding Extreme Weather and Climate Events. *Nature Communications*. Nature. **IF: 18,1. Q1 (8/140) Multidisciplinary Sciences.**
10. **Scientific paper.** Jesper Dramsch; Monique Kuglitsch; **(3/14) Miguel-Ángel Fernández-Torres**; et al; Arthur Hraest Essenfelder. 2025. Explainability can foster trust in artificial intelligence in geoscience. *Nature Geoscience*. Nature. **IF: 20,6. Q1 (2/259) Geosciences, Multidisciplinary.**
11. **Scientific paper.** Chaonan Ji; Tonio Fincke; Vitus Benson; et al; Miguel Mahecha; **(5/15) Miguel-Ángel Fernández-Torres**. 2025. DeepExtremeCubes: Earth system spatio-temporal data for assessing compound heatwave and drought impacts. *Nature Scientific Data*. Nature. **IF: 7,2. Q1 (17/140) Multidisciplinary Science.**
12. **Scientific paper.** Maria Gonzalez Calabuig; **(2/3) Miguel-Ángel Fernández-Torres**; Gustau Camps Valls. 2025. Generative Networks for Spatio-Temporal Gap Filling of Sentinel-2 Reflectances. *ISPRS Journal of Photogrammetry and Remote Sensing*. Elsevier. ISSN 1872-8235. **IF: 12,9. Q1 (5/259) Geosciences, Multidisciplinary.**
13. **Scientific paper.** Jordi Cortés Andrés; **(2/3) Miguel-Ángel Fernández-Torres**; Gustau Camps Valls. 2024. Deep Learning with Noisy Labels for Spatio-Temporal Drought Detection. *IEEE Transactions on Geoscience and Remote Sensing*. IEEE. 62. **IF: 8,6. Q1 (25/368) Engineering, Electrical & Electronic.**
14. **Scientific paper.** Adrian Höhl; Ivica Obadic; **(3/8) Miguel-Ángel Fernández-Torres**; Hiba Najjar; Dario Augusto Borges Oliveira; Zeynep Akata; Andreas Dengel; Xiao Xiang Zhu. 2024. Opening the Black Box: A systematic review on explainable artificial intelligence in remote sensing. *IEEE Geoscience and Remote Sensing Magazine*. 12-4, pp.261-304. **IF: 16,4. Q1 (1/65) Remote Sensing.**
15. **Scientific paper.** Tamara Happe; Jasper Wijnands; **(3/6) Miguel-Ángel Fernández-Torres**; Paolo Scussolini; Laura Muntjewerf; Dim Coumou. 2024. Detecting Spatiotemporal Dynamics of Western European Heatwaves Using Deep Learning. *Artificial Intelligence for the Earth Systems*. AMS. **IF: 4,5. Q2 (81/210) Computer Science, Artificial Intelligence.**
16. **Scientific paper.** Mengxue Zhang; **(2/3) Miguel-Ángel Fernández-Torres**; Gustau Camps Valls. 2024. Domain knowledge-driven variational recurrent networks for drought monitoring. *Remote Sensing of Environment*. Elsevier. 311, pp.114252. **IF: 11,4. Q1 (3/65) Remote Sensing.**
17. **Scientific paper.** Maria Gonzalez Calabuig; Jordi Cortés Andrés; Tristan Keith Ellis Williams; Mengxue Zhang; Oscar Jose Pellicer Valero; **(6/7) Miguel-Ángel Fernández-Torres**; Gustau Camps Valls. 2024. The AIDE Toolbox: Artificial intelligence for disentangling extreme events. *IEEE Geoscience and Remote Sensing Magazine*. IEEE. 12-2, pp.113-118. **IF: 16,4. Q1 (1/65) Remote Sensing.**
18. **Scientific paper.** Valero Laparra; Adrián Pérez-Suay; María Piles; et al.; **(7/8) Miguel-Ángel Fernández-Torres**. Assessing the Impact of Using Short Videos for Teaching at Higher Education: Empirical evidence from log-files in a Learning Management System. 2023. *IEEE Revista Iberoamericana de Tecnologías del Aprendizaje*. IEEE. **IF: 1,0. Q4 (144/170) Computer Science, Interdisciplinary Applications.**
19. **Scientific paper.** Spyros Kondylatos; Ioannis Prapas; Michele Ronco; Ioannis Papoutsis; Gustau Camps Valls; María Piles; **(7/8) Miguel-Ángel Fernández-Torres**; Nuno Carvalhais. 2022. Wildfire Danger Prediction and Understanding with Deep Learning. *Geophysical Research Letters*. AGU. **IF: 5,2. Q1 (24/202) Geosciences, Multidisciplinary.**

20. **Scientific paper.** Javier Martínez-Cebrián; **(2/3) Miguel-Ángel Fernández-Torres;** Fernando Díaz De María. 2020. Interpretable global-local dynamics for the prediction of eye fixations in autonomous driving scenarios. IEEE Access. IEEE. IF: **3,367. Q1 (75/319) Engineering, Electrical & Electronic.**
21. **Scientific paper.** **(1/3) Miguel-Ángel Fernández-Torres;** Iván González Díaz; Fernando Díaz De María. 2019. Probabilistic Topic Model for Context-Driven Visual Attention Understanding. IEEE Transactions on Circuits and Systems for Video Technology. IEEE. IF: **4,685. Q1 (43/273) Eng., Electrical & Electronic.**
22. **Scientific paper.** Fernando Fernández Martínez; Alejandro Hernández García; **(3/6) Miguel-Ángel Fernández-Torres;** Iván González Díaz; Álvaro García Faura; Fernando Díaz de María. 2018. Exploiting visual saliency for assessing the impact of car commercials upon viewers. Multimedia Tools and Applications. Springer US. IF: **2,101. Q2 (40/107) Computer Science, Software Engineering.**
23. **Scientific paper.** Javier López Labraca; **(2/5) Miguel-Ángel Fernández-Torres;** Iván González Díaz; Fernando Díaz de María; Ángel Pizarro. 2018. Enriched dermoscopic-structure-based cad system for melanoma diagnosis. Multimedia Tools and Applications. Springer US. IF: **2,101. Q2 (40/107) Computer Science, Software Engineering.**

## C.2. Conferences and meetings

1. **Poster.** Mengxue Zhang; Kai Hendrik Cohrs; **Miguel-Ángel Fernández-Torres;** Esther Rodrigo-Bonet; Gustau Camps Valls. The Risks of Imperfect Knowledge: Reliability Trade-Offs in Physics-Aware Neural Networks for Climate Projections. Proceedings of the ICANN 2026: 35th International Conference on Artificial Neural Networks, Padua, Italy, September 14–17, 2026.
2. **Poster.** Rodrigo Almeida; Noelia Otero; **Miguel-Ángel Fernández-Torres;** Jackie Ma. Can Artificial Intelligence Global Weather Forecasting Models Capture Extreme Events? A Case Study of the 2022 Pakistan Floods. NeurIPS 2025 Workshop Tackling Climate Change with Machine Learning. 39th Conference on Neural Information Processing Systems. 2025. San Diego, CA, USA. 02-07/12/2025.
3. **Oral presentation.** Adrian Höhl; Ivica Obadic; **Miguel-Ángel Fernández-Torres;** Dario Oliveira; Xiaoxiang Zhu. Recent Trends Challenges and Limitations of Explainable AI in Remote Sensing. Explainable AI for Computer Vision (XAI4CV) Workshop. Computer Vision and Pattern Recognition (CVPR) 2024. 18/06/2024. Seattle, WA, USA. Conference.
4. **Poster.** Jose E Adsuara Fuster; Adrián Pérez-Suay; et al.; **Miguel Ángel Fernández-Torres.** 2023. Motivation and Acceptation Model para herramientas tecnológicas en el ámbito universitario. En Editorial Universitat Politècnica de València, In-Red 2023 - IX Congreso Nacional de Innovación Educativa y Docencia en Red.
5. **Poster.** Mengxue Zhang; **Miguel-Ángel Fernández-Torres;** Gustau Camps Valls. Hybrid Recurrent Neural Network for Drought Monitoring. NeurIPS 2022 Workshop Tackling Climate Change with Machine Learning. 36th Conference on Neural Information Processing Systems. 2022. Online.
6. **Poster.** Gherardo Varando; **Miguel-Ángel Fernández-Torres;** Jordi Muñoz Marí; Gustau Camps Valls. Learning Causal Representations with Granger PCA. Workshop on Causal Representation Learning. Association for Uncertainty in AI (UAI). 2022. 05/08/2022. Eindhoven, The Netherlands.
7. **Poster.** Adrián Pérez Suay; Steven Van Vaerenbergh; Maria Piles; et al.; **Miguel-Ángel Fernández-Torres.** 2022. Learning about Student Performance from Moodle logs in a Higher Education Context. 2022 XII International Conference on Virtual Campus (JICV). IEEE.
8. **Poster.** Valero Laparra; Maria Piles; Adrián Pérez-Suay; et al.; **Miguel-Ángel Fernández-Torres.** 2022. Assessing the impact of using short videos for teaching at university level. 2022 XII International Conference on Virtual Campus (JICV). IEEE.
9. **Poster.** José Adsuara; Roberto Fernández; Luis Gómez-Chova; et al.; Miguel-Ángel Fernández-Torres. 2022. Herramientas y recursos de motivación online para actividades en clase. En Editorial Universitat Politècnica de València, In-Red 2022 - VIII Congreso Nacional de Innovación Educativa y Docencia en Red.
10. **Poster.** Ana Ruescas; Roberto Fernandez-Morán; María Moreno-Llácer; **Miguel-Ángel Fernández-Torres;** et al. 2022. Fomento del razonamiento crítico mediante la evaluación cruzada: estudio de casos en asignaturas de ciencias. En Editorial Universitat Politècnica de València, In-Red 2022 - VIII Congreso Nacional de Innovación Educativa y Docencia en Red.
11. **Poster.** Ioannis Prapas; Spyros Kondylatos; Ioannis Papoutsis; Gustau Camps Valls; Michele Ronco; **Miguel-Ángel Fernández-Torres;** Maria Piles Guillem; Nuno Carvalhais. Deep Learning

Methods for Daily Wildfire Danger Forecasting. AI for Humanitarian Assistance and Disaster Response at the 35th Conference on Neural Information Processing Systems (NeurIPS 2021). 35th Conference on Neural Information Processing Systems (NeurIPS 2021). 2021. 06-14/12/2021. Online. Conference.

12. **Poster.** Gherardo Varando; **Miguel-Ángel Fernández-Torres**; Gustau Camps Valls. Learning Granger Causal Feature Representations. ICML 2021 Workshop Tackling Climate Change with Machine Learning. 38th International Conference on Machine Learning (ICML). 18-24/07/2021. Online.
13. **Oral presentation.** **Miguel-Ángel Fernández-Torres**; Iván González Díaz; Fernando Díaz De María. A probabilistic topic approach for context-aware visual attention modeling. 14<sup>th</sup> International Workshop on Content-Based Multimedia Indexing (CBMI). 15-17/06/2016. Bucharest, Romania.
14. **Poster.** Tomás Martínez-Cortés; **Miguel-Ángel Fernández-Torres**; Amaya Jimenez-Moreno; Iván Gonzalez-Diaz; Fernando Diaz-de-Maria; Juan Adán Guzman-De-Villoria; Pilar Fernandez. A Bayesian model for brain tumor classification using clinical-based features. IEEE International Conference on Image Processing (ICIP), 2014. 27-30/10/2014. Paris, France.

### C.3. Research projects and contracts

1. **Project.** CLOSER: Closing the LOop: Attribution of complex climate disaSTERs to climatic and to policy changes. HORIZON-RIA. PI: Paolo Scussolini (VU Amsterdam). 01/09/2026-31/08/2030. 5.975.312 €. Role: **PI at UC3M**.
2. **Project.** SEED: Spatiotemporal Explainable Geospatial Artificial Intelligence for Extreme Events and Their Drivers. UC3M Fundings for Research Activities. PI: **Miguel-Ángel Fernández-Torres** (UC3M). 18/12/2025-17/12/2026. 10.000€.
3. **Project.** IDEALCV-CM - Improved Deep Learning for Computer Vision. Regional Research Project. Comunidad de Madrid. TEC-2024/COM-322. PI: Marcelo Bertalmío (Consejo Superior de Investigaciones Científicas). 01/01/2025-31/12/2028. 1.026.000 €. Role: Researcher at UC3M.
4. **Project.** 101130544, Copernicus Foundation Models for a Thinking Earth (ThinkingEarth). HORIZON-EUSPA-2022-SPACE. PI: Ioannis Papoutsis (National Technical University of Athens). 01/01/2024-31/12/2026. 2.999.875 €. Role: Researcher at UVEG.
5. **Project.** Understanding and Modelling the Earth System with Machine Learning (USMILE). EUROPEAN RESEARCH COUNCIL (ERC). 855187. PI: Veronika Eyring (German Aerospace Center). 01/09/2020-31/08/2026. 9.847.988 €. Role: Researcher at UVEG.
6. **Project.** Extreme Events: Artificial Intelligence for Detection and Attribution (XAIDA). HORIZON 2020. 101003469. PIs: Robert Vautard (Institut Pierre-Simon Laplace) and Dim Coumou (Vrije Universiteit Amsterdam). 01/09/2021-31/12/2025. 5.999.241,75 €. Role: Researcher at UVEG.
7. **Project.** ESA AI4Science Multi-Hazards, Compounds and Cascade events: Deep Extremes. EUROPEAN SPATIAL AGENCY. PI: Miguel Mahecha (Universität Leipzig). 01/02/2022-01/02/2024. 400.000 €. Role: Co-coordinator at UVEG.
8. **Project.** Saliencia y Atención: rePresentación, Interpretación y EmergeNcia. National Research Project. TEC2017-84395-P. PIs: Ascensión Gallardo Antolín and Carmen Peláez Moreno (Universidad Carlos III de Madrid). 01/01/2018-31/12/2020. 173.030 €. Role: Team Member.
9. **Project.** Saliencia y Atención: Multimodalidad, Context-Awareness, Auto-Adaptación y Bioinspiración. PIs: Ascensión Gallardo Antolín and Carmen Peláez Moreno. (Universidad Carlos III de Madrid). 01/01/2015-31/12/2017. 186.582€. Role: Team Member.

### C.4. Participation in technology/knowledge transfer activities

1. **Contract.** Detección de hitos cilíndricos o de arista para un sistema automatizado de conservación y mantenimiento de carreteras. ALVAC S.A. PI: Fernando Díaz De María (UC3M). 01/10/2018-31/03/2020. 90.000€. Role: Researcher.

### C.5. Organization of conferences and workshops

1. Special Session on Multimodal Data Fusion and Visual Artificial Intelligence for Earth Observation at EUVIP 2026. Organizer.
2. Session on Machine Learning in Weather and Climate at EMS Annual Meeting 2026. Convener.
3. The 5<sup>th</sup> Workshop on Explainable AI for Computer Vision (XAI4CV). Primary Organizer. CVPR 2026.
4. The 4<sup>th</sup> Workshop on XAI4CV. Organization Committee. CVPR 2025.



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5. 25<sup>th</sup>-27<sup>th</sup> International Conference on AI and Statistics (AISTATS) 2022-24. Local/Volunteer Chair.

### C.6. Supervision of doctoral theses

1. **Doctoral thesis.** Deep Learning and Multimodal Data Fusion for the Assessment of Complex Climate Disaster Impacts. Xue Feng. Universidad Carlos III de Madrid. Expected completion date: 06/2029.
2. **Doctoral thesis.** Evaluation Frameworks for Deep Learning in Earth Science. Maria Gonzalez-Calabuig. Universitat de València. Expected completion date: 10/2026.
3. **Doctoral thesis.** Hybrid Probabilistic Deep Learning for Drought Monitoring. Mengxue Zhang. Universitat de València. Completion date: 07/07/2026.
4. **Doctoral thesis.** Regularization in Machine Learning: Advances for Earth Sciences. Jordi Cortés-Andrés. Universitat de València. Completion date: 16/10/2025.

### C.7. Courses and seminars given, participation in international forums

1. **Summer school.** Visual and Artificial Intelligence (VIA) Madrid Summer School. UC3M, Madrid, Spain. 15/06/2026-17/06/2026.
2. **Summer school.** ELLIS Summer School: AI for Earth and Climate Sciences. ELLIS Unit Jena, Jena, Germany. 01/09/2025-05/09/2025.
3. **Summer school.** Artificial Intelligence for Detection and Attribution of Climate Extremes. International Centre for Theoretical Physics (ICTP), Trieste, Italy. 20/06/2022-01/07/2022.
4. **Training session.** HANDS-ON-TRAINING – Advanced Artificial Intelligence for Extreme Event Analysis: Hands-on with the AIDE Toolbox. Living Planet Symposium 2025. European Spatial Agency (ESA). 22/06/2025.
5. **Training session.** Webinar – The AIDE Toolbox: Artificial Intelligence for Disentangling Extreme Events. XAIDA H2020 European Project. 09/04/2024.
6. **Seminar.** Artificial Intelligence for Modeling and Understanding Extreme Weather and Climate Events. Fraunhofer Institute for Telecommunications HHI, Berlin, Germany. 07/04/2025.
7. **Seminar.** Extreme Event Monitoring, Everywhere, All at Once: Challenges and Strategies. Department of Astrophysics, University of Zurich, Zurich, Switzerland. 08/12/2023.
8. **Forum.** EU Science for Preparedness Conference – Session 3A: Artificial Intelligence for Disaster Risk Management. Copernicus Emergency Management Service. Turin, Italy. 05/11/2025.
9. **Forum.** IWMI Webinar: Harnessing AI for Smarter Early Warning Systems. International Water Management Institute (IWMI). 26/08/2025.
10. **Forum.** LEAP Wallerstein Panel on AI + Extreme Weather Preparedness: “AI for Decision-Support + Policy”. LEAP. 25/04/2025.

### C.8. Scientific, technical and/or assessment committees

- WG-Data co-leader – ITU-UN Global Initiative on Resilience to Natural Hazards through AI Solutions. 01/09/2024 – present.
- H2020 XAIDA Promotion Committee. 01/09/2021 – 31/12/2025.
- ITU-UN Focus Group on AI for Natural Disaster Management. 01/07/2021-31/08/2024.

### C.9. Prizes, mentions and distinctions

- Associate Professor (Civil Servant) Certification. ANECA. 23/07/2026.
- CNEAI Six-year research evaluation. National Agency for Quality Assessment and Accreditation of Spain (ANECA). 01/01/2025. Period: 2014-2020.
- Five-year teaching evaluation. UC3M School of Engineering. Period: 10/2014-10/2029.
- SaxFDM Open Science Data Award 2025 for the DeepExtremeCubes database.
- Outstanding Reviewer at European Conference on Computer Vision (ECCV) 2024.
- European Laboratory for Learning and Intelligent Systems (ELLIS) Member, since 2022. ELLIS Unit Madrid Faculty Member, since 2026.
- Grant from the Spanish Ministry of Education's University Faculty Training (FPU) programme, 2013.
- Award for Excellence, Bachelor's Degree in Audiovisual System Engineering, UC3M, 2012/2013.
- Excellence Award of the Social Council, 8 best records in EPS, UC3M, 2012.
- Excellence Scholarship, Community of Madrid, Academic Course 2009/2010.
- Award for Best University Entrance Records (9.74/10-points, third position), EPS, UC3M, 2009.



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#### **C.10. Academic service roles**

- Representative of the University Senate, UC3M. 17/06/2026 – present.
- Permanent Member of the Academic Commission of the Bachelor in Sound and Image Engineering, UC3M. 03/03/2025 – present.
- Participation in the Tutoring Program for Undergraduate Students at UC3M. Academic Courses 2017/2018, 2019/2020, and 2025/2026.
- Participation in the Secondary School Activities Program at UC3M. Academic Course 2025/2026.

#### **C.11. Evaluation and revision of R&D projects and articles**

- **Reviewer in journals.** Nature Communications; Nature Scientific Data; Engineering Applications of Artificial Intelligence (Elsevier); Nature Communications Earth & Environment; IEEE Transactions on Artificial Intelligence; IEEE Transactions on Geoscience and Remote Sensing; ACM Transactions on Multimedia Computing, Communications and Applications; ISPRS Journal of Photogrammetry and Remote Sensing (Elsevier); Nature npj Climate and Atmospheric Science; Environmental Data Science (Cambridge University Press); IEEE Geoscience and Remote Sensing Letters, Journal of Real-Time Image Processing (Springer); IEEE Transactions on Circuits and Systems for Video Technology.
- **Reviewer in international conferences and workshops.** Computer Vision and Pattern Recognition (CVPR), International Conference on Artificial Intelligence and Statistics (AISTATS), Annual Conference on Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), European Conference on Computer Vision (ECCV), Explainable AI for Computer Vision (XAI4CV) Workshop at CVPR, EarthVision Workshop at CVPR, Tackling Climate Change with Machine Learning Workshop.
- **Reviewer of project and book proposals.** Spanish State Research Agency, Alexander von Humboldt-Stiftung/Foundation, Einstein Foundation Berlin, NordForsk, Climate Change AI Innovation Grants, CRC Press - Taylor and Francis Group.

#### **D. Stays in public or private R&D centres**

1. Fraunhofer Institute for Telecommunications. Department of Artificial Intelligence. Germany. Berlin. 31/05/2025-07/09/2025. 3 months – 8 days. Post-doctoral.
2. Technische Universität München. International Future AI4EO Lab. Germany. Munich. 01/07/2022-07/10/2022. 3 months - 7 days. Post-doctoral.
3. Purdue University. Visual Perception Laboratory. United States of America. West Lafayette. Indiana. 18/08/2016-22/12/2016. 4 months – 4 days. Doctorate.

#### **E. Active International Collaborations**

- Prof. Wojciech Samek, Dr. Jackie Ma, Dr. Monique Kuglitsch, and Dr. Noelia Otero at Fraunhofer Heinrich Hertz Institute (HHI), Berlin, Germany.
- Prof. Gustau Camps-Valls, from the Image and Signal Processing (ISP) Group at Universitat de València, Valencia, Spain.
- Prof. Xiaoxiang Zhu, director of the Center of Excellence in Machine Learning for Earth Observation (ML4Earth) at Technische Universität München, Munich, Germany.
- Prof. Miguel Mahecha, from the Remote Sensing Centre for Earth System Research (RSC4Earth) at Universität Leipzig (UL), Leipzig, Germany.
- Prof. Dim Coumou and Prof. Paolo Scussolini, supervisor of the Climate Extremes Team at the Department of Water & Climate Risk, Institute for Environmental Studies (IVM), Vrije Universiteit Amsterdam (VU), Amsterdam, The Netherlands.
- Dr. Arif Albayrak, Senior Research Engineer at Goddard Space Flight Center (GSFC), Biospheric Sciences Laboratory, University of Maryland, Baltimore County (UMBC).