Curriculum Vitae

Name:	A. Fernández Rodríguez MSc.
First Name:	Amelia
Date of Birth:	19 June 1997
Nationality:	Spanish
Main Disciplines:	Remote Sensing, Software Development, Geospatial Analysis, Early Warning Systems, Capacity Building, Frontend Applications and Data Dissemination
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Key Qualifications

Amelia Fernández-Rodríguez MSc. holds a BSc. In Telecommunications Systems Engineering and a MSc. In Telecommunications Engineering from Polytechnical University of Cartagena, Spain. Her strong academic foundation and passion for telecommunications have driven her to address real-world challenges.

During her studies, Amelia focused on using remote sensing technologies to tackle Climate Change and Earth Observation issues. She excels in geospatial analysis, turning complex spatial data into actionable insights, and has developed tools to improve forecasting for sustainable water management and climate adaptation.

Beyond her technical skills, Amelia is committed to sharing knowledge. She has designed and delivered training programs in countries like Zambia and Pakistan, working with organizations such as NUFFIC (Netherlands) and the UN's Food and Agriculture Organization (FAO).

Educational Background

2024 – 2025	**Introduction to Water and Climate** Delft University of Technology. Online MOOC course
2019 – 2021	**MSc. Master of Engineering, Telecommunications Engineering**, Polytechnical University of Cartagena. Exchange semester as Erasmus student at Ghent, Belgium. Thesis: *When the network operator becomes a utility company: accounting for energy cost in wireless network design*.
2015 – 2019	**Bachelor of Science in Telecommunications Engineering**, Polytechnical University of Cartagena. Thesis: *Use of Deep Learning Techniques to detect trees from satellite images*.

Professional Experience

2021 – present	Geodata Scientist, FutureWater, Cartagena, Spain
2019	Collaborator – Polytechnical University of Cartagena

Overseas Experience

2020	Erasmus student at Ghent University, Belgium. Department of Information Technology. WAVES department: wireless, acoustics, environment & expert systems.

Selection of Assignments and Projects

2025 – 2026	**Drought Forecasting Model for Somalia/Somaliland** Client: World Food Programme Position: remote sensing expert, modeller. Development of a robust drought forecasting model based on machine learning, establishing consensus on early action triggers, and ensuring long-term sustainability through knowledge transfer and contingency planning.
2023 – 2026	**Megadroughts in Europe's Watertowers – From Process Understanding to Strategies for Management and Adaptation.** Addressing the knowledge gaps around the hydro-climatic causes of extreme droughts and their impact on the water balance of Europe's mountain water towers. Client: Water4AllPartnership Position: remote sensing expert, modeller. Integration of snow drought indicators into a drought early warning system (DEWS). Development of a methodological prototype for quantifying impacts and identifying tipping points for water security in snow-dependent downstream catchments
2023 – 2025	**RoSPro: Roadside Spring Protection to Improve Water Security in Nepal** Protecting roadside springs to improve water security and resilience of communities in Nepal. Client: Partners for Water Position: data scientist and software developer. Designer and developer of an online and interactive Decision Support System to improve decision making of local stakeholders.
2024 - 2025	**SPHY QGIS Plugin for Hydrological Modelling** Migration and upgrade of the graphical user interfaces available for the SPHY hydrological model on QGIS. Inclusion of new functionalities, such as glacier files processing. https://github.com/FutureWater/SphyPlugin
2022 – 2026	**MAGDA: Meteorological Assimilation from Galileo and Drones for Agriculture.** Providing weather forecasts and irrigation advisories in an integrated system for the agricultural sector. Client: European Commission Position: remote sensing analyst. Design and implementation of an operational irrigation advice, integrating in situ sensors data and enhanced meteorological forecasts.
2022 – 2026	**SOS-Water**: **Water Resources System Safe Operating Space in a Changing Climate and Society**: improving upon existing Earth Observation technologies for monitoring the performance of water systems. Client: European Commission Position: modeller, data analyst. Local Implementation of pyWaPOR algorithm (FAO) in the Jucar River Basin (Spain) to evaluate productivity of dominant croplands.

2021 – 2024 **InfoSequia-4CAST**: Forecasting and Quantifying Risks of Crop and Water Supply Failures using Machine Learning and Remote Sensing. Development of a drought and early warning system capable of retrieving multi-source indices to monitor the drought status of a given region at the district level. In addition, the system uses Machine Learning techniques to forecast water supply and crop yield failures up to six months ahead.
Client: European Space Agency (ESA) (Incubed Programme)
Position: software developer

2022 – 2023 **Capacity Building on Water Accounting in Pakistan**: designer of the remote sensing module, where participants learnt how to gather and analyze data from Google Earth Engine in order to implement Water Accounting at different spatial scales.
Client: FAO Pakistan
Location: Islamabad, Pakistan
Postition: Google Earth Engine Trainer

2022 **Tailor-made Training on Geo-spatial Data Skills Development in Zambia:** use of Google Earth Engine to assess trends in land use, management, degradation and hotspots for intervention.
Client: NUFFIC
Location: Lusaka (Zambia)
Position: Google Earth Engine Trainer

2021-2022 **Transforming Weather Water data into value-added Information services for sustainable Growth in Africa** (**TWIGA**): development of a framework capable of providing meteorological indexes at Inkomati Basin (Mozambique) in order to prevent the worst effects of drought.
Client: European Commission (RIA project, H2020 Programme).
Position: remote sensing expert

Selection of Technical Reports and Other Publications

ORCID Research: https://orcid.org/0009-0000-1704-7145

2025 Lagasio, M.; Barindelli, S.; Chitu, Z.; Contreras, S.; Fernández-Rodríguez, A.; de Klerk, M.; Fumagalli, A.; Gatti, A.; Hammerschmidt, L.; Haskovic, D.; et al. Integrating Advanced Sensor Technologies for Enhanced Agricultural Weather Forecasts and Irrigation Advisories: The MAGDA Project Approach. Remote Sens. 2025, 17, 1855. https://doi.org/10.3390/rs17111855

2024 Fernández-Rodríguez, A., S. Contreras, G. Simons. Satellite-based Water Productivity of dominant croplands in the Jucar River Basin (Spain) by local implementation of WaPOR algorithm. 2024.Technical report.

2024 Verschuren, L., A. Fernández, M. de Klerk, S. Contreras, E. Aparicio Medrano. 2023. MAGDA: Water Balance Simulations. Deliverable 6.1. Technical report Meteorological Assimilation from Galileo and drones for agriculture (MAGDA) project.

2024 Contreras, S., G.W.H. Simons, A. Fernández-Rodríguez. 2024. Infosequia-4CAST: Towards an Operational Satellite-based Drought Early Warning and Forecasting

	System for Quantifying Risks of Crop and Water Supply Failures. ESA-Incubed Project Final Report (FREP)
2023	Contreras, S., A. Fernández. 2023. G3P-GDI InfoSequia Integration and Evaluation Report, Deliverable 5.6. Technical Report. Global Gravity-based Groundwater Product (G3P) Project

Language Skills

Spanish:	Native speaker
English:	Fluent in writing and speech

Computer Skills

Programming:	Python (advanced), R (intermediate), Matlab (Basic), Java (Basic), SQL (basic)
GIS / Remote Sensing:	QGIS, Google Earth Engine, GeoServer, PcRaster, Geoserver
Modelling:	SPHY. GRASS
Version control:	Github, Bitbucket
Management tools:	JIRA, Confluence
Front-end tools:	RShiny, MapStore, Flask, Streamlit