Fernando **Macías**
Computer Scientist, Post-doctoral Researcher, Ph.D.

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Fernando Macías is a post-doctoral researcher in the areas of Software Engineering and Computer Science. His work includes creative thinking, study of technical publications, tool prototyping and dissemination of research.

In recent years, Fernando has earned a PhD after extensive research, including the development of the open-source tool MultEcore and the publication of a PhD dissertation. More recently, he is involved in transferring research results regarding formal verification to both the aerospace industry and blockchain ecosystems.

Fernando holds a PhD in Informatics from the University of Oslo, Norway, and an MSc, Major and BSc from the University of Extremadura, Spain. He has lived in three countries and speaks English, Spanish and Norwegian.

Experience

Post-doc Researcher, IMDEA Software Institute, Madrid, Spain — 2019–
Research on the state of the art and of the practice of embedded and distributed software systems, with special focus on test generation, model-based testing, symbolic execution, formal verification and blockchain monitoring.

Part-time Lecturer, Dep. of Information Systems Eng., University of Extremadura, Spain — 2019

R&D Engineer, Homeria Open Solutions, Spain — 2019

Guest Researcher, Dep. of Computer Science, Universidad Autónoma de Madrid, Spain — 2017

PhD Research Fellow, Dep. of Software Engineering and Computing, Western Norway University of Applied Sciences, Norway — 2015–2019
75% research on formal aspects of model-driven engineering. Development of MultEcore, a framework for multi-level modelling and multilevel model transformation founded on graph theory and category theory. 25% teaching, carrying out lab sessions and evaluating in courses at the Master level.

Lecturer, EITIE Plan for Innovation and Entrepreneurship, University of Extremadura, Spain — 2013

Research Fellow, Quercus Software Engineering Group, University of Extremadura, Spain — 2013–2015

Projects

Offchain Tezos RV, verification of high-level temporal properties on the Tezos blockchain — 2022–

MFoC, techniques to improve the testing and verification of new-generation satellite systems — 2019–2022

MultEcore, a tool for multilevel modelling and multilevel model transformation in EMF — 2015–2019

MLM Rearchitecting, a tool for automatic rearchitecting of models into multilevel models — 2017–2018

RV+MM, an approach to integrate runtime verification techniques into modelling processes — 2016–2019

MoTES, a model transformation testing approach based in contracts — 2013–2021

MIGRARIA, a model-driven reverse engineering & modernisation process of legacy web apps — 2013–2015

Education

Philosophiae Doctor (PhD), Department of Informatics, University of Oslo, Norway — 2019

Master of Science (MSc), D. of Information Systems Eng., University of Extremadura, Spain — 2014
Master's research thesis distinction.

Science Major, Dep. of Information Systems Engineering, University of Extremadura, Spain — 2013
Ten-month Erasmus scholarship in the Otto-Friedrich-Universität Bamberg, Germany. Senior research thesis distinction.

Bachelor of Science (BSc), D. of Information Systems Eng., University of Extremadura, Spain — 2011

Languages

Mother tongue: **Spanish**, Fluent: **English**, Basic: **Norwegian**

Publications

30+ publications in peer-reviewed conferences and journals.