

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**, Homería 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 2015–2019
University of Applied Sciences, Norway
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.