



Miriam García Soto

Assistant Professor

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Summary

My name is Miriam García Soto. I received my degree in Mathematics from the Complutense University of Madrid in 2006. After working for a research project with Technical University of Madrid and Boeing company, I was awarded an Erasmus Mundus scholarship for an MSc on Mathematical Modelling in Engineering. I received my MSc degree in July 2012 with a grade of 104 over 110. Then, I started working at the IMDEA Software Institute in Spain as a research assistant under the supervision of Prof. Pavithra Prabhakar. I obtained an **FPI scholarship** BES-2013-065076 from the Spanish Ministry of Economy and Competitiveness (MINECO) for the development of a theoretical framework and a methodology for the verification of stability of hybrid systems and the implementation of the proposed theoretical results. This work was also funded by an **UE-MC-FP7** project. The thesis, defended on July 2017, deserved the **Summa Cum Laude** qualification, the **international doctor distinction** and the **extraordinary PhD award** from Technical University of Madrid (UPM). Moreover, the PhD thesis produced **7 peer-reviewed papers** (2 CORE ranking A*, 1 CORE ranking A and 1 invited paper) covering the theoretical results, the developed algorithmic techniques, the experiments illustrating such techniques and the description of a **software tool** called AVERIST.

During this period, I was also awarded a **mobility grant** EEBB-I-16-10569 from MINECO to Kansas State University for a period of 4 months. This research stay resulted into a paper (CORE ranking A) and the preparation for a series of lectures on “Verification Techniques for Hybrid Systems”, included in the International School on Tool-based Rigorous Engineering of Software Systems (STRESS), October 2016. I have also obtained 3 travel grants for attending international workshops and 2 grants for summer schools such as the internationally recognized Summer School Marktoberdorf.

In February 2018, I moved to the Institute of Science and Technology (IST) Austria as a post-doctoral researcher in the group of Prof. Thomas A. Henzinger, where I worked until the end of 2021. There, I **led a research project** focused on the formal synthesis of hybrid automata from time-series data. I **supervised** a student with a first PhD-year project and worked in collaboration with Dr. Christian Schilling. During this period, despite an 8 months maternity leave, I published **6 peer-review papers** in the IFAC journal of Nonlinear Analysis: Hybrid Systems (JCR Q1) and in top-tier conferences such as the International Conference on Computer-Aided Verification and the Real-Time Systems Symposium (CORE ranking A*). I also obtained two **seals of excellence** for project proposals under the Horizon 2020’s Marie Skłodowska-Curie actions call H2020-MSCA-IF-2018 and H2020-MSCA-IF-2020. At the beginning of 2022, I became an MSCA fellow at Universidad Complutense de Madrid under the program **UNA4CAREER** and later, on 2024, got an assistant professorship position.

During my academic life I have attended 9 international conferences, 5 international workshops and 4 international summer schools. I have participated in 5 research projects. All my publications have a low number of co-authors. My high international mobility and scientific production show my leadership and capabilities to perform independent research.

Research projects

1. **SynthHS**: Synthesis of hybrid systems from multimodal datasets.
UNA4CAREER-2020-1 (Ref. 847635). 15/04/2022-14/04/2025.
Main Researcher: Miriam García Soto, Universidad Complutense de Madrid.
2. **Formal methods for the design and analysis of complex systems**.
Wittgenstein award from Austrian Science Fund (FWF) (Ref. Z211). 01/01/2014-30/06/2021.
1.500.000 €. *Main Researcher*: Thomas A. Henzinger, IST Austria.
3. **RISCO**: Tecnologías Rigurosas para el Análisis y Verificación de Software Concurrente y Distribuido Sofisticado. Ministerio de Economía, Industria y Competitividad (Ref. TIN2015-71819-P).
Main Researcher: Pierre Ganty, IMDEA Software Institute.
4. **Strongsoft**: Sound Technologies for Reliable, Open, New Generation SOFTWARE.
MINECO (Ref. TIN2012-39391-01). 01/01/2013-30/06/2017.
Main Researcher: Gilles Barthe, IMDEA Software Institute.
5. **VeriStab**: Formal Verification of Stability of Embedded Control Systems.
UE-MC-FP7 (Ref. 631622). 01/03/2014-15/08/2015.
Main Researcher: Pavithra Prabhakar, IMDEA Software Institute.

R&D management and participation in scientific committees

1. **Artifact Evaluation Committee Member** of the 22nd International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), Jan 2021.
2. **Program Committee Member** of the international conferences EMSOFT 2025, ADHS 2024, FORMATS 2023, RTAS 2023, SPIN 2023, NSV 2022, CAV 2022, HSCC 2022, RTSS 2021, NSV 2021, VMCAI-AE 2021, HSCC 2019, DARS 2019-2018.
3. **Reviewer** in NAHS 2025, LCSS-CDC 2025, Automatica 2023, NFM 2016, CAV 2016, SCSC 2017, QEST 2017, FSTTCS 2017, FORMATS 2017, SEFM 2018, DSD 2018, CDC 2020-2018.

More info in <https://miriamgar.github.io/>