J. MARTIN SMIT

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Summary

AI researcher focused on conceptualising and modelling complex sociotechnical systems (e.g. the digital services economy, social networks), with an emphasis on identifying effective design decisions or policies that ensure fairness. Currently a PhD student in the Prosocial Dynamics Lab at the University of Amsterdam supervised by Fernando P. Santos.

Education

PhD, Artificial Intelligence – University of Amsterdam   2022–Present
Game-theoretical modelling of cooperation and fairness in sociotechnical systems.
Thesis supervisor: Dr. Fernando P. Santos

MSc with Merit, Mathematical Sciences – University of Oxford   2021–2022
Statistical machine learning, deep learning, optimisation, network theory
Thesis supervisor: Dr. Rafael Bailo

BSc (Hons) First Class, Mathematics and Statistics – University of Warwick   2017–2021
Intercalated year at ENSAI and Quantcube Technology

Experience

Consultant Data Scientist – West Midlands Combined Authority, United Kingdom   2021
Analysing telematics data of emergency services and presenting insights into
fleet efficiency, response times, environmental impact, and security risks.

Data Scientist – Quantcube Technology, France   2020
Constructed macroeconomic indicators for traders from naval GIS data. Identified
and optimized a bottleneck in a data pipeline run daily, providing a 3000% speed-up.

Open Source Contributions

Agents.jl – Various contributions, notably refactored internals for a 2x runtime optimisation.   2023
MultiMixer – Author, the package implements an N-dimensional MLP Mixer in JAX.   2022

Skills

Technologies: Git, Unix, Julia (SciML), Python (Equinox, Diffrax, JAX), SQL, R, MATLAB, BQN
Languages: English (Native), French (B2), Spanish (B2)

Technical Writing

Modern Julia Workflows
2024

Co-authored a set of articles that introduce Julia users of all levels to tools and techniques for writing, sharing, and optimising code. I wrote and edited the pages on "Writing" and "Optimization". This work was commended during the JuliaCon 2024 "State of Julia" Keynote talk and has been adapted into a section of the "Modern Financial Modeling" textbook.

Minimizing Julia's Latency
2023

I wrote this tutorial to address a pain-point to new Julia users: the JIT-induced delay in the initial execution of code. The video gives an overview of compilation in Julia and why this causes execution latency, before introducing methods to address the latency.

Selected Publications

- A. Olof-ors, **J. M. Smit**. 2026. "Simulated Affection, Engineered Trust: How Anthropomorphic AI Benefits Surveillance Capitalism". To be submitted to *FAccT 2026*.

- A. Romano*, **J. M. Smit***, C. De Dreu, F. P. Santos. 2026. "The Coevolution of Cooperation and Competition Within and Between Groups". To be submitted to *Nature*. (*joint first author)

- **J. M. Smit**, F. P. Santos. 2026. "Fairness Dynamics in Digital Economy Platforms with Biased Ratings". Under review at *Autonomous Agents and Multi-Agent Systems (AAMAS 2026)*.

- A. Silverio, C. Chezan, M. van Sprang, T. Cappendijk, **J. M. Smit**. 2025. "Understanding Multi-Agent LLM Cooperation in the GovSim Framework". 2025. *Transactions on Machine Learning Research*

- O. van Erven, K. Zafeirakis, J. Smidi, L. Buijs, **J. M. Smit**. "Cooperate or Collapse: Emergence of Sustainable Cooperation in a Society of LLM Agents". 2025. *Transactions on Machine Learning Research*

- D. Nagy, L. Yadala Chanchu, K. Bobek, X. Zhou, **J. M. Smit**. "Remembering to Be Fair Again: Reproducing Non-Markovian Fairness in Sequential Decision Making". 2025. *Transactions on Machine Learning Research*.

- **J. M. Smit**, F. P. Santos. 2024. "Cooperation and Fairness in Systems of Indirect Reciprocity". *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence (IJCAI 2024), Doctoral Consortium*

- **J. M. Smit**, F. P. Santos. 2024. "Learning Fair Cooperation in Mixed-Motive Games with Indirect Reciprocity". *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence (IJCAI 2024)*. **Spotlight presentation.**

- **J. M. Smit**, E. Plumb. 2021. "A Case Study of Agent-Based Models for Evolutionary Game Theory". *Social Simulation Conference 2021, Workshop on HPC Challenges in Social Simulation.*