



MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2025
EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa, Lisbon, Portugal

RESEARCH GROUP AND URL

Data Science Research Stream: <https://magic.novaims.unl.pt/en/about-us/research-lines/>

SUPERVISOR (NAME AND E-MAIL)

Flávio Luís Portas Pinheiro (fpinheiro@novaims.unl.pt)

SHORT CV OF THE SUPERVISOR

Flavio L. Pinheiro is an Assistant Professor in Data Science at NOVA IMS – Universidade Nova de Lisboa. He holds a PhD in Physics from the Universidade do Minho (2016) and was a Postdoctoral Associate at the MIT Media Lab (2016-2018). His research applies data, network, and complexity sciences methods to study topics that include information diffusion and social contagion processes, strategic decision-making, local and global network patterns in education, and economic diversification and sophistication patterns. His interdisciplinary work has been published in top-tier journals and conference proceedings in various disciplines, such as Nature Communications, Research Policy, Regional Studies, EPJ Data Science, Physical Review Letters, PLOS Computational Biology, Theoretical Computer Science, Journal of the Royal Society Interface, Structural Change and Economic Dynamics, International Conference on Autonomous Agents and Multiagent Systems, Proceedings of the European Conference on Artificial Life. Moreover, he has experience in applied research projects and consultancies, including work for the World Bank on smart and inclusive economic diversification in several developing economies, for the OECD on promoting improved frameworks for public procurement contracts, and participation in the Bank of International Settlements conference in joint work with the Bank of Portugal.

5 SELECTED PUBLICATIONS

- **Pinheiro, F. L.**, Hartmann, D., Boschma, R., & Hidalgo, C. A. (2022). The time and frequency of unrelated diversification. *Research Policy*, 51(8), 104323.
- **Pinheiro, F. L.**, Balland, P. A., Boschma, R., & Hartmann, D. (2022). The dark side of the geography of innovation: relatedness, complexity and regional inequality in Europe. *Regional Studies*, 1-16.
- Alshamsi, Aamena, **Flávio L. Pinheiro**, and Cesar A. Hidalgo. "Optimal diversification strategies in the networks of related products and of related research areas." *Nature communications* 9.1 (2018): 1328.
- **Pinheiro, Flávio L.**, Francisco C. Santos, and Jorge M. Pacheco. "Linking individual and collective behavior in adaptive social networks." *Physical review letters* 116.12 (2016): 128702.
- Vasconcelos, Vítor V., Simon A. Levin, and **Flávio L. Pinheiro**. "Consensus and polarization in competing complex contagion processes." *Journal of the Royal Society Interface* 16.155 (2019): 20190196.

PROJECT TITLE AND SHORT DESCRIPTION

I am looking to supervise projects in areas related with applied Network and Data Science methods to the study of Economic and Social systems. Below I describe one project example:

4. Coordination and Cooperation in Heterogeneous Networked Multiagent Systems

With the increasing importance and deployment of intelligent autonomous systems, such as LLMs, it is crucial to understand their utility and impact to the functionality of social systems. Indeed, humans will participate more and more in environments that mix artificial with real agents. In that sense, I am interested in supervising projects that look to use LLMs in the context of interacting multi agent systems and understand what the consequences to the dynamics of social systems are: opinion dynamics, cooperative games, coordination, misinformation propagation. This research has two possible outcomes: one is to provide a better understanding of the dynamics of such heterogeneous systems; a second is to elaborate on leveraging LLM based agents to deploy social interventions.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Social Sciences and Humanities (SOC) • Economic Sciences (ECO) • Information Science and Engineering (ENG) • Mathematics (MAT) • Physics (PHY)