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:

2. Misinformation and Polarization: Between and Within Social Media Spaces

In recent years we have seen an increase of Social Polarization that threatens the functioning of traditional institutions, which have evolved to help society overcome some of its fundamental challenges. Nowadays, our institutions are seemingly inadequate to deal with the fast changing social attitudes that operate through social media platforms and that result in unexpected dynamics. Indeed, social polarization has been in part the consequence of such a new medium in which ideas, opinions, and world views are exchanged between individuals combined with the algorithmic inner workings of each platform to promote user retention. However, these platforms also leave individuals more exposed to the actions of ill-intended actors looking to shape social opinions (e.g., through the viral spread of misinformation).

In that sense, and although much research has been done about the social dynamics of users within platforms, little has been done to understand the dynamics of users between platforms. Do different platforms result in different degrees of polarization? Is there also polarization in terms of the audience of each platform? How is that better described? What top ics and types of misinformation spread more virally in each platform?

These are very broad questions that we look to start exploring in this project, by creating a curated dataset that can shed light on the dynamics within and between social media platforms, with a specific emphasis on the role of misinformation and the phenomena of social polarization.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

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