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:

5. Science of Science – Academic Performance Indicators

As with many areas of our society and industry, academic institutions also resort to metrics to assess the quality of researchers, of their work, and of journals. Measures such as the number of citations, impact factors, SJR index, h-index, or i10 index have become core indicators used to determine grants or career progression but also the prestige of scientific journals and conferences. Moreover, the volume of publications has increased exponentially over the years. A straightforward implication of such growth is that citations (the fundamental currency of academic gravitas) are more abundant nowadays than before, and as such have less "value" (i.e., it is easier to obtain citations now than in the past). This simple idea of "Citation Inflation" is, however, not accounted for in all the metrics at use, but can have profound implications in the way we assess academic productivity across different fields. Indeed, the academic ecosystem is composed of many subfields (biology, economy, computer science, engineering, physics, etc …) that weakly interact (through citations) and that experienced growths at different rates (i.e., different inflation levels) meaning that citations from, say, economy might have a different value than citations from computer science. Again, this observation implies that, without a proper correction, it is not easy to compare the productivity of researchers from different fields.

The goal of this project is to leverage a dataset of academic publications and historical citations patterns — between papers and researchers — to estimate the true value of 1 citation unit across different academic fields. Drawing parallel with monetary theories and fundamentals, we look to reassess the impact of an inflationary correction in common academic metrics; identify which academic fields have more value; and provide a citation exchange chart to provide a fair comparison in terms of the academic productivity of researchers between different fields.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

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