



MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2024

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.
- Hartmann, D., Zagato, L., Gala, P., & Pinheiro, F. L. (2021). Why did some countries catch-up, while others got stuck in the middle? Stages of productive sophistication and smart industrial policies. *Structural Change and Economic Dynamics*, 58, 1-13.
- Hartmann, D., Bezerra, M., Lodolo, B., & Pinheiro, F. L. (2020). International trade, development traps, and the core-periphery structure of income inequality. *Economía*, 21(2), 255-278.
- 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.

PROJECT TITLE AND SHORT DESCRIPTION

Smart Strategic Diffusion on Networks of Related Activities.

The success of what we choose to do next is often conditional on what we know. For instance, the difficulty of learning a new skill is certainly conditional on our initial knowledge base. Arguably, it is certainly easier for

a Portuguese person to learn Spanish rather than Chinese as languages can be more/less similar in their structure. However, learning Spanish will certainly open different opportunities, perhaps more related, than Chinese. As such, choosing what to learn next is often a strategic decision that requires balancing the costs of learning with the benefits obtained. In this project, we will contribute to a recently growing literature on Knowledge Networks that have been empirically mapping the structures of relatedness between different types of activities — Industries, Occupations, Products, Academic Fields, etc. — given their overlap in related requirements. The goal is to find optimal learning diffusion strategies in such networks in a competitive environment but also, in the context of Economic Diversification, to offer a more comprehensive roadblock for diversification and inclusive economic growth in a competitive landscape.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Economic Sciences (ECO)

***Scientific Area where the project fits best** – Please select/indicate the scientific area according to the panel evaluation areas: Chemistry (CHE) • Social Sciences and Humanities (SOC) • Economic Sciences (ECO) • Information Science and Engineering (ENG) • Environment and Geosciences (ENV) • Life Sciences (LIF) • Mathematics (MAT) • Physics (PHY)