

Lluís Danús

Personal information

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Education

- 2023 **Ph.D. in Complex Networks, *cum laude***, Rovira i Virgili University (URV).
- 2016 **M.Sc. in Photonics**, Polytechnic University of Catalonia (UPC) and ICFO.
- 2015 **B.Sc. in Applied and Theoretical Physics**, University of Barcelona (UB).

Training experience

2019-2023 **PhD student**, SEESLab - Rovira i Virgili University.

As part of my doctoral thesis, I've been developing and applying network science approaches to problems in Computational Social Science. More specifically, I studied geographical differences in collaboration networks among elite researchers and also gender inequalities in scientific departments and topic selection, both in the area known as Science of Science. Furthermore, I have also been working on mobility data adapting existing deep-learning algorithms to new scenarios and testing them against statistical physics based models

2016 **Researcher**, ICFO - The Institute of Photonic Sciences.

During my master thesis I was hired as a researcher in training at the Atomic Quantum Optics group at ICFO. My work consisted in the design and development of reliable photonic systems for the generation of narrowband quantum-entangled photons, that later were integrated in a quantum-information processing setup

Industry experience

2017-2019 **Full-stack web developer**, Accenture.

Web-based applications from server-side (backend) to client-side (frontend) development for the government of Catalonia. During the first year I performed assisting tasks in an ongoing project for the management of European funds for regional development (FEDER) incorporating new functionalities to the web application. In the second, I led the design and construction of another project for the government of Catalonia to manage the Social European Funds (FSE)

Publications

- 2023 Lluís Danús, Carles Muntaner, Alexander Krauss, Marta Sales-Pardo and Roger Guimerà. *Differences in collaboration structures and impact among prominent researchers in Europe and North America*. EPJ Data Sci. 12, 12 (2023)
- 2023 Alexander Krauss, Lluís Danús and Marta Sales-Pardo. *Early-career factors largely determine the future impact of prominent researchers: Evidence across eight scientific fields*. Sci. Rep. 13, 18794 (2023)

Publications under peer-review

- 2024 Lluís Danús, Robert H. Davis, Roger Guimerà and Marta Sales-Pardo. *Gender and the influence of research environment in topic selection of early-career faculty*
- 2024 Oriol Cabanas, Lluís Danús, Esteban Moro, Marta Sales-Pardo and Roger Guimerà. *Human mobility is well described by closed-form gravity-like models learned automatically from data*

Doctoral thesis

- 2023 Lluís Danús *Network and information-theoretic studies on the effects of research environment in scientific careers: geography, prominence and gender*. Tesis doctoral en xarxa, TDX

Conferences

- 2023 **Complexity Science meets Digital Humanism - Workshop**, CSH Vienna, Austria, Invited talk.
- 2022 **XI Complex networks and applications**, Palermo, Italy, Contributed talk.
- 2022 **Conference on Complex Systems (CCS)**, Palma, Spain, Contributed talk.
- 2022 **Computational Social Science - CCS satellite**, Palma, Spain, Contributed talk.
- 2022 **Complex Systems for the most vulnerable - CCS satellite**, Palma, Spain, Contributed talk.
- 2022 **IX Catalan conference on complex systems (Complexitat)**, Barcelona, Spain, Contributed talk.
- 2022 **VII COMSOTEC workshop**, Tarragona, Spain, Contributed talk.
- 2022 **NetSciX 2022**, Porto, Portugal, Contributed talk.
- 2021 **7th International Conference on Computational Social Science (IC2S2)**, Online, Contributed talk.
- 2021 **Conference of young researchers on statistical physics of Spain (FiSes Joven)**, Online, Contributed talk.
- 2020 **Conference on complex systems (CCS)**, Online, Lightning talk.
- 2020 **Computational Social Science - CCS satellite**, Online, Contributed talk.

Teaching

- 2019-2021 **Advanced Thermodynamics and Molecular Simulation**, Master in Chemical Engineering.
- 2019-2021 **Fundamental mathematics for engineers**, Mechanical engineering degree.
- 2019-2021 **Mathematics and statistics II**, Chemical engineering degree.
- 2019 **Advanced Control processes**, Master in Chemical Engineering.

Scholarships

- 2019-2022 **Beca Martí i Franquès**, Scholarship covering the an annual full-time salary and university fees. Financing: Rovira i Virgili University. Role: Doctoral trainee.

Service to the community

Article reviews PloS One, EPJ Data Science

Skills

Programming Python (PyTorch, geopandas, scikit-learn, etc.), Matlab/Octave, Java, Javascript, Angular, SQL, R, LabView

Academic Network science, Statistical physics, Bayesian Inference, Information theory, Topic modelling, Machine learning, Deep learning, Applied mathematics, Photonics

Languages

Catalan **Native**

Spanish **Native**

English **Advanced**

Italian **Basic**

Contact references

Dr. Marta Sales-Pardo

Dr. Roger Guimerà

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