

ÍRIS DAMIÃO

CONTACT INFO

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ABOUT ME

I am a third-year computer science PhD student at the Social Physics and Complexity (SPAC) Group, in Lisbon. My research focuses on algorithmic biases, particularly those of search engines and LLMs, and how these technologies shape today's informational ecosystem. One key question that I try to answer is how/whether they reinforce beliefs and perspectives around controversial and sensitive topics. To address this, I developed a robust "army" of bots: a scalable tool that allows the systematic audit of search engines and LLMs in a privacy-protective way.

Before joining SPAC, during my MSc thesis, I explored experimental decision making and human behavior, which sparked my interest in the relationships between the world and human behavior. Thus, I combine expertise in web scraping, tracking and privacy, machine learning, and text analysis, with a strong commitment to promoting fairness in technology and advancing science outreach.

EDUCATION

PhD in Computer Science **Sep 2022 - Present**

Instituto Superior Técnico, Lisbon University | Lisbon, Portugal

- I am a member of the Social Physics and Complexity Group (SPAC), working on the EU funded project - Fake News and Real People project.
- Research Topics: Algorithmic Fairness and Biases, Misinformation.
- Thesis topic: Search Engine Bias, supervised by Dr. Joana Gonçalves-Sá and Prof. Nuno Santos.
- Relevant Courses (Grades: 19/20): Statistical Learning, Advanced Topics in Cybersecurity, Privacy and Anonymity.

MSc in Biomedical Engineering **Sep 2017 - Jan 2021**

Faculty of Sciences, Lisbon University | Lisbon, Portugal

(Specialization in Neurosciences)

- Grade: (17.57/20)
- Relevant Topics: *Criticality and Complex Systems, Dynamical Systems, Biostatistics, Modeling and Simulation in Medicine.*

BA in Biomedical Sciences **Sep 2013 - Jul 2016**

Faculty of Sciences, Lisbon University | Lisbon, Portugal

- Grade: (16.49/20) - Top 3.
- Relevant Topics: *Numerical Methods, Differential and Integral Calculus I, II, and III, Linear Algebra, Programming, Control and Architecture of Instrumentation Systems.*

RESEARCH EXPERIENCE

Research Assistant

Sep 2021 - Oct 2022

SPAC - Social Physics and Complexity Lab | LIP, Lisbon, Portugal

- **Tracking - Misinformation Project:** Collaborated on an ERC-funded project that aims to understand the drivers behind disinformation spreading. Contributed to the creation of a large fake news data base, developed scrapers to collect fact checkers' articles. *Selenium, OpenWPM, Python, SQL, Statistical Analysis*

Master Thesis Student

Sep 2018 - Sep 2020

Circuit Dynamics and Computation - Renart Lab | Champalimaud Foundation - Centre for the Unknown, Lisbon, Portugal

- Grade: (20/20) Top 1%
- **Weber's Law Project:** Adaptation of a decision-making experiment performed in rodents to human subjects. Coding of the auditory stimuli, coding of the experimental design and set of events. Collection of the behavioral results of several subjects and preliminary analysis of the same.
- **Movement - Decision Confidence Correlation Project:** Development of the experimental design, coding of the experiment and auditory stimuli. Collection of human behavioral data and analysis of the same (Statistical Analysis, Correlation analysis, performance of GLMs) using MatLab.

Research Intern (Full Time)

Jul 2016 - Sep 2016

Maastricht Brain Imaging Center, Department of Cognitive Neuroscience | Maastricht University, Maastricht, Netherlands

- Grade: (19/20)
- Assisted in the programming of the stimulus presentation and behavioural data processing using Python. Additionally, I was responsible for the preprocessing of the fMRI data and the performance of a preliminary general linear model analysis using the Brain Voyager Software.

TEACHING EXPERIENCE

Math Mentor under an Education Grant from Portugal's leading private foundation

Nov 2020 - Jul 2021

GAP - Gulbenkian Aprendizagem Project, Calouste Gulbenkian Foundation | Lisbon, Portugal

- Provided mathematics tutoring and study techniques to children most affected by the COVID-19 pandemic, particularly those from socio-economically disadvantaged backgrounds.

Teaching Assistant - Physics for Health Sciences Lab

Jan 2019 - Jul 2020

Faculty of Sciences, Lisbon University | Lisbon, Portugal

- Explaining the theory behind different experiments in the field of physics to 1st-year undergraduate students of Health Sciences courses.
- Guidance during lab practical classes where I was the only instructor in the classroom.
- Responsible for the correction and evaluation of the lab reports.
- **Students evaluation:** 4.5/5

Teaching Assistant - Physics for Biologists

Jan 2019 - Jul 2020

Faculty of Sciences, Lisbon University | Lisbon, Portugal

- Responsible for teaching two 1st-year Undergraduate practical classes, exploring relevant physical concepts for biology.
- **Students evaluation:** 4.5/5

TRAINING

Women in Network Science Collabathon

May 1 - 5 2023

Northeastern University, Organized by Alice Schwarze, Brooke Foucault-Welles, Xie He

- Selected to participate in the competitive 2023 WINS Collabathon, which aimed to bring together women and non-binary individuals from around the world—groups often underrepresented in their fields— to foster collaboration, meaningful discussions, and the creation of a safe and inclusive environment in Network Science.
- Improved my coding skills and knowledge on network science through collaboration with peers and talks from leading researchers in the field.

Summer School SICSS-Aachen-Graz

Jul 18 - 30 2022

Hosted by Jana Lasser, David Lazer and Ivan Smirnov

- Engaged in talks and contributed to the development of a team project, significantly advancing my expertise in computational social science techniques and preparing me for my PhD.

HONORS AND AWARDS

Awards

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| • Merit Award of Faculty of Sciences
Lisbon University (Top 3) | 2014/2015 |
| • Merit Award of Faculty of Sciences
Lisbon University (Top 3) | 2013/2014 |

Scholarships

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| • PhD Research Studentship awarded by the
Portuguese Science and Technology Foundation (FCT) | 2022 - 2026 |
| • Competitive MSc Student Fellowship
by Champalimaud Foundation | 2019 - 2020 |

PUBLICATIONS

Articles

- (Under peer-review)** Damião, I., J. Reis, P. Almeida, N. Santos, and J. Gonçalves-Sá (2025). "Digital Gatekeeping: An Audit of Search Engine Results shows tailoring of queries on the Israel-Palestine Conflict". In: *Proceedings of The Web Conference (WWW '25)*, ACM 22.
- Pardo-Vazquez, J.L., J.R. Castiñeiras-de Saa, M. Valente, **Damião, I.**, T. Costa, I.V. Vicente, A. G. Mendonça, Z. F. Mainen, and A. Renart (2019). "The mechanistic foundation of Weber's law". In: *Nature Neuroscience* 22, pp. 1493-1502. doi: <https://doi.org/10.1038/s41593-019-0439-7>.

ORAL PRESENTATIONS

Conference on Complex Systems (CCS), 2024

Sep, 2024

Exeter, England

- Presented the work *Search-engine personalization and filter bubbles: evidence from searches related to an ongoing conflict*

Workshop on the Interpretation, Verification and Modeling of Information, CCS, 2024

Sep, 2024

Exeter, England

- Presented the work *Auditing Search Engine Bias and Information Quality during the 2024 European Elections*

Conference on Complex Systems (CCS), 2022

Sep, 2022

Palma de Mallorca, Spain

- Presented the work "Doing the Research": Differential Tracking in Disinformation Websites and its Impact on Search Engine Results and Third-Party Content

OUTREACH

Exhibition Conceptualization and Development: "How to navigate in a world of disinformation?"

Jun - Ago 2023

Social Physics and Complexity Lab | Lisbon, Portugal

- I lead the conceptual development of an interactive exhibit, exposing key findings of our group research on the misinformation topic.

SKILLS

● ● ●	Python, Selenium
● ● ○	SQL, GIT
● ○ ○	R, Java

REFERENCES

Dr. Joana Gonçalves-Sá	PI at LIP SPAC Coordinator PhD supervisor joanagsa@lip.pt
Prof. Nuno Santos	Associate Professor from the Department of Computer Science and Engineering (DEI) at Instituto Superior Técnico (IST), University of Lisbon Senior Researcher at INESC-ID PhD co-supervisor nuno.m.santos@tecnico.ulisboa.pt
Dr. Alfonso Renart	Group Leader at Champalimaud Foundation, Centre for the Unknown Master thesis supervisor alfonso.renart@neuro.fchampalimaud.org
Dr. Nuno Matela	Associate Professor of Physics Department at Faculty of Sciences, University of Lisbon Coordinator of the Bachelor's degree in Biomedical Engineering and Biophysics My previous Professor nmatela@ciencias.ulisboa.pt