

Marta Gomes da Cunha Couto

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Prosocial Dynamics Lab, Socially Intelligent Artificial Systems group
Lab42, Science Park 900, 1098 XH Amsterdam

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Positions

04.2024 – present **Postdoctoral researcher**
Prosocial Dynamics Lab, Socially Intelligent Artificial Systems group
Informatics Institute, University of Amsterdam (The Netherlands)

05.2019 – 11.2019 **Junior Researcher**
INESC-ID, Instituto Superior Técnico, University of Lisbon (Portugal)
Fellowship by Foundation for Science and Technology Portugal

Education

09.2020 – 03.2024 **PhD candidate in Mathematics**
Max Planck Institute for Evolutionary Biology (Plön, Germany)
University of Lübeck (Lübeck, Germany)
Doctoral project: "Mathematical models of cooperation among heterogeneous individuals"
Distinction: *Magna cum laude*

09.2016 – 11.2018 **MSc in Engineering Physics**
Instituto Superior Técnico, Department of Physics (Lisbon, Portugal)
Overall classification: 17/20
Dissertation: "Evolution of Cooperation through Graduated Punishment"
Distinction: Academic Excellence Diploma by Instituto Superior Técnico 2017/2018

09.2012 – 03.2016 **BSc in Physics**
Faculty of Sciences of the University of Porto,
Department of Physics and Astronomy (Porto, Portugal)
Classification: 15/20, class C in ECTS

Scientific interests

Topics: social behaviour, social dilemmas, evolution of cooperation, inequality, learning in games, evolution of institutions, strategic classification

Tools: game theory, evolutionary game theory, evolutionary dynamics, dynamical systems, adaptive dynamics, stochastic processes, agent-based simulations

Peer-reviewed publications

- 2025 **M. C. Couto**, F. Barsotti, F. P. Santos. *Population size effects on strategic classification dynamics*. The 25th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), 2025.
- 2023 **M. C. Couto¹** and S. Pal¹. *Introspection dynamics in asymmetric multiplayer games*. Dynamic Games and Applications, <https://doi.org/10.1007/s13235-023-00525-8>, 2023. Topical collection “Evolutionary Games and Applications” edited by Christian Hilbe, Maria Kleshnina and Katerina Stanková. ¹Joint first authors
- 2023 X. Wang¹, **M. C. Couto¹**, N. Wang, X. An, B. Chen, Y. Dong, C. Hilbe, and B. Zhang. *Cooperation and coordination in heterogeneous populations*. Philosophical Transactions of the Royal Society B: Biological Sciences, 378(1876), 1–30, 2023. Theme issue “Half a century of evolutionary games: a synthesis of theory, application and future directions” compiled and edited by Xiang-Yi Li Richter and Jussi Lehtonen. ¹Joint first authors
- 2022 **M. C. Couto**, S. Giaimo, and C. Hilbe. *Introspection dynamics: A simple model of counterfactual learning in asymmetric games*. New Journal of Physics, 10.1088/1367-2630/ac6f76, 2022.
- 2020 **M. C. Couto**, J. M. Pacheco, and F. C. Santos. *Governance of risky public goods under graduated punishment*. Journal of Theoretical Biology, 505:110423, 2020.

Research stays

09.2023-10.2023 **Socially Intelligent Artificial Systems group**, Informatics Institute of the University of Amsterdam

Conferences, workshops & talks

10.2025	EDAI (Evolutionary Dynamics in social, cooperative and hybrid AI) Workshop ECAI (European Conference on Artificial Intelligence), Faculty of Engineering, University of Bologna, Italy Co-organizer & program committee
05.2025	DIEP Seminars Dutch Institute for Emergent Phenomena, Institute for Advance Studies, University of Amsterdam Invited talk: "Evolution of boundedly rational learning in games"
03.2025	2nd Joint CCSS-UvA Workshop on Computational Social Science and Intelligent Systems University of Amsterdam, co-organized with Kobe University Invited talk: "Strategic Classification Dynamics"
12.2024	Data Science Community Conference ING, Amsterdam Invited poster: "Dynamics of Strategic Classification: How to prevent algorithms from being fooled?"
11.2024	Institute talk Max Planck Institute for Evolutionary Biology, Plön Invited talk: "The Dynamics of Strategic Classification"
10.2024	AI4Fintech seminar series University of Amsterdam Invited talk: "The Dynamics of Strategic Classification"
07.2024	Mathematical Models in Ecology and Evolution University of Vienna, Austria Talk: "The evolution of boundedly rational learning in games"
07.2024	International Conference on Social Dilemmas Leiden University, The Netherlands Full talk: "The evolution of boundedly rational learning in games"
08.2023	Learning, Evolution and Games (LEG) Conference Business School of the University of Amsterdam, The Netherlands Talk: "Introspection dynamics: properties, applications, and connections to other learning models."
05.2023	Ecology and Evolution seminars: Half a century of evolutionary games (online) Royal Society Publishing Talk: "Cooperation and coordination in heterogeneous populations"
07.2022	International Symposium on Dynamic Games and Applications Faculty of Sciences of the University of Porto, Porto, Portugal Full talk: "Introspection dynamics: A simple model of counterfactual learning in asymmetric games"
07.2022	International Conference on Social Dilemmas University of Copenhagen, Copenhagen, Denmark Poster: "Introspection dynamics: A simple model of counterfactual learning in asymmetric games"
06.2022	Workshop The Future of Game Theory in Biology Max Planck Institute for Evolutionary Biology, Plön, Germany Participant
05.2022	Toulouse Summer School in Quantitative Social Sciences Institute for Advance Study in Toulouse (IAST), Toulouse, France Funded by IAST and the Toulouse School of Economics Participant of Part 1: The evolution of human sociality
04.2022	Conference of European Human Behaviour and Evolution Association (EHBEA) Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany (online) Full talk: "Introspection dynamics: A simple model of counterfactual learning in asymmetric games"
06.2021	Aquavit Max Planck Institute for Evolutionary Biology, Plön, Germany Yearly internal conference Poster: "Introspection dynamics in asymmetric games" (best poster winner)

Teaching & Supervision

01.2026	Teaching assistance Fairness, Accountability, Confidentiality and Transparency in AI course, Master's Artificial Intelligence, University of Amsterdam
10.2025	Guest Lecture on “Data science in dynamic environments and strategic classification” Fundamentals of Data Science course, Master's Information Studies, University of Amsterdam
07.2025	Master's thesis assessor – Joana Costa e Silva (supervised by Dr Vítor Vasconcelos) Thesis: “Hierarchically Embedded Markov Chains: Refining the accuracy of small mutation approximations” Master's Computational Science, Informatics Institute, University of Amsterdam
03.2025 – present	PhD student co-supervision – Roman Chiva Gil (co-supervised with Dr Fernando Santos) Thesis: “Reputation as a new route to cooperation in multi-agent reinforcement learning” Prosocial Dynamics Lab, Socially Intelligent Artificial Systems group Informatics Institute, University of Amsterdam
02.2025 – 07.2025	Master's student supervision – Christina Konstantinidou Thesis: “Strategic classification under different manipulation assumptions” Master's Information Studies, Informatics Institute, University of Amsterdam
10.2024	Guest Lecture on “Strategic Classification” Fundamentals of Data Science course, Master's Information Studies, University of Amsterdam
06-07.12.2022	Lectures on evolutionary game theory MSc Molecular Biology and Evolution, University of Kiel, Germany

Community service & Outreach

10.2025	EDAI (Evolutionary Dynamics in social, cooperative and hybrid AI) Workshop ECAI (European Conference on Artificial Intelligence), Faculty of Engineering, University of Bologna, Italy Co-organizer & program committee
28-30.06.2023	Aquavit Max Planck Institute for Evolutionary Biology, Plön, Germany Yearly internal conference Co-organizer
23.02.2023	Native Scientist outreach activity “Climate games: How do people cooperate when there's a risk of future losses?” Workshop aimed at promoting science and language education among high school students Hamburg, Germany
2020 – present	Peer-reviewing for various journals Journal of Evolutionary Economics, PLOS ONE, Nature Sustainability, Physical Review E, Adaptive Behavior, New Journal of Physics, PLOS Neglected Tropical Diseases, Chaos, Dynamic Games and Applications, Nature Communications, Physical Review Research, Scientific Reports, Theory in Biosciences, Nature Computational Science, Journal of the Royal Society Interface

Programming languages

Mathematica, MATLAB, Python

Natural languages

Portuguese (native), English (advanced – *Cambridge English: Advanced* certificate level C1 in CEFR),
Spanish (basic), French (basic), Dutch (A2), German (A1)

Undergraduate activities

02.2015	Winter Kindergarten of Theoretical Physics Lądek-Zdrój, Poland International students conference on Statistical Physics and Condensed Matter Physics
2012 – 2015	Board of European Students of Technology (BEST) Member of the Porto local group Fundraising, communication with companies, teamwork, organization of international engineering competitions, organization of international seasonal courses