

# Marta Gomes da Cunha Couto

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Prosocial Dynamics Lab, Socially Intelligent Artificial Systems group  
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## Positions

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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

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## Education

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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

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## Scientific interests

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**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

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## Peer-reviewed publications

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- 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. Couto**<sup>1</sup> and S. Pal<sup>1</sup>. *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. <sup>1</sup>Joint first authors
- 2023 X. Wang<sup>1</sup>, **M. C. Couto**<sup>1</sup>, 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. <sup>1</sup>Joint first authors
- 2022 **M. C. Couto**, S. Gaiamo, 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.

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## Research stays

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

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## Conferences, workshops & talks

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

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## Teaching & Supervision

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01.2026	<b>Teaching assistance</b> Fairness, Accountability, Confidentiality and Transparency in AI course, Master's Artificial Intelligence, University of Amsterdam
10.2025	<b>Guest Lecture on “Data science in dynamic environments and strategic classification”</b> Fundamentals of Data Science course, Master's Information Studies, University of Amsterdam
07.2025	<b>Master's thesis assessor</b> – 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	<b>PhD student co-supervision</b> – 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	<b>Master's student supervision</b> – Christina Konstantinidou Thesis: “Strategic classification under different manipulation assumptions” Master's Information Studies, Informatics Institute, University of Amsterdam
10.2024	<b>Guest Lecture on “Strategic Classification”</b> Fundamentals of Data Science course, Master's Information Studies, University of Amsterdam
06-07.12.2022	<b>Lectures on evolutionary game theory</b> MSc Molecular Biology and Evolution, University of Kiel, Germany

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## Community service & Outreach

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10.2025	<b>EDAI (Evolutionary Dynamics in social, cooperative and hybrid AI) <a href="#">Workshop</a></b> ECAI (European Conference on Artificial Intelligence), Faculty of Engineering, University of Bologna, Italy Co-organizer & program committee
28-30.06.2023	<b>Aquavit</b> <b>Max Planck Institute for Evolutionary Biology, Plön, Germany</b> Yearly internal conference Co-organizer
23.02.2023	<b>Native Scientist outreach activity</b> “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	<b>Peer-reviewing for various journals</b> 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

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## Programming languages

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Mathematica, MATLAB, Python

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## Natural languages

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

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## Undergraduate activities

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