

Stratis Tsirtsis

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RESEARCH INTERESTS

Developing **machine learning** methods to support human decision making,
based on **causal inference**, **game theory**, and **optimization**.

EDUCATION	Ph.D. in Computer Science 9/2019 - 1/2025 (expected) Max Planck Institute for Software Systems (MPI-SWS) & University of Kaiserslautern-Landau (RPTU) , Kaiserslautern, Germany <i>Thesis:</i> Strategic and Counterfactual Reasoning in AI-assisted Decision Making <i>Advisor:</i> Manuel Gomez-Rodriguez
	Diploma in Electrical & Computer Engineering 9/2013 - 3/2019 National Technical University of Athens , Athens, Greece, <i>Thesis:</i> Recommender Systems for Orienteering Problems <i>Advisor:</i> Dimitris Fotakis
RESEARCH VISITS	Stanford University, Department of Psychology 3/2023 - 6/2023 Hosted by Tobias Gerstenberg, Causality in Cognition Lab
PROFESSIONAL EXPERIENCE	AI Research Scientist Intern 8/2023 - 11/2023 Meta AI (FAIR) , Paris, France
	Doctoral Researcher 9/2019 - Now Max Planck Institute for Software Systems , Kaiserslautern, Germany
	Research Engineering Intern 9/2018 - 11/2018 National Centre for Scientific Research “Demokritos” , Athens, Greece

PUBLICATIONS Journals

(*): equal contribution

(A): alphabetical ordering

- Optimal Decision Making Under Strategic Behavior**
Management Science, February 2024
Stratis Tsirtsis*, Behzad Tabibian*, Moein Khajehnejad*, Adish Singla, Bernhard Schölkopf and Manuel Gomez-Rodriguez
- Quantifying the Effects of Contact Tracing, Testing, and Containment Measures in the Presence of Infection Hotspots**
ACM Transactions on Spatial Algorithms and Systems (TSAS), April 2022
Lars Lorch, Heiner Kremer, William Trouleau, **Stratis Tsirtsis**, Aron Szanto, Bernhard Schölkopf and Manuel Gomez-Rodriguez
- Pooled Testing of Traced Contacts Under Superspreading Dynamics**
PLOS Computational Biology, March 2022
Stratis Tsirtsis, Abir De, Lars Lorch and Manuel Gomez-Rodriguez

Conference Proceedings (archival)

The conferences listed below are all considered archival. Publications in computer science undergo a highly selective peer review process, with acceptance rates ranging from 20% to 25%.

1. **Towards a Computational Model of Responsibility Judgments in Sequential Human-AI Collaboration**
45th Annual Conference of the Cognitive Science Society (CogSci 2024)
Selected for oral presentation (top 19% of submissions)
Stratis Tsirtsis, Manuel Gomez-Rodriguez and Tobias Gerstenberg
2. **Finding Counterfactually Optimal Action Sequences in Continuous State Spaces**
37th Conference on Neural Information Processing Systems (NeurIPS 2023)
Stratis Tsirtsis and Manuel Gomez-Rodriguez
3. **On the Within-Group Fairness of Screening Classifiers**
40th International Conference on Machine Learning (ICML 2023)
Nastaran Okati, Stratis Tsirtsis and Manuel Gomez-Rodriguez
4. **Counterfactual Explanations in Sequential Decision Making Under Uncertainty**
35th Conference on Neural Information Processing Systems (NeurIPS 2021)
Stratis Tsirtsis, Abir De and Manuel Gomez-Rodriguez
5. **Bridging Machine Learning and Mechanism Design towards Algorithmic Fairness**
4th ACM Conference on Fairness, Accountability, and Transparency (FAccT 2021)
(A) Jessie Finocchiaro, Roland Maio, Faidra Monachou, Gourab K Patro, Manish Raghavan, Ana-Andreea Stoica and Stratis Tsirtsis
6. **Decisions, Counterfactual Explanations and Strategic Behavior**
34th Conference on Neural Information Processing Systems (NeurIPS 2020)
Stratis Tsirtsis and Manuel Gomez-Rodriguez

Workshops (non-archival)

1. **Counterfactual Token Generation in Large Language Models**
38th Conference on Neural Information Processing Systems (NeurIPS 2024): Workshop on Causality and Large Models
Ivi Chatzi*, Nina Corvelo Benz*, Eleni Straitouri*, Stratis Tsirtsis*, and Manuel Gomez-Rodriguez
2. **Towards a Computational Model of Responsibility Judgments in Sequential Human-AI Collaboration**
ACM Conference on Human Factors in Computing Systems (CHI 2024): Workshop on Theory of Mind in Human-AI Interaction
Stratis Tsirtsis, Manuel Gomez-Rodriguez and Tobias Gerstenberg
3. **On the Within-Group Fairness of Screening Classifiers**
2nd ACM SIGKDD Workshop on Ethical Artificial Intelligence: Methods and Applications (EAI-KDD 2023)
Nastaran Okati, Stratis Tsirtsis and Manuel Gomez-Rodriguez
4. **Finding Counterfactually Optimal Action Sequences in Continuous State Spaces**
40th International Conference on Machine Learning (ICML 2023): Workshop on Counterfactuals in Minds and Machines
Stratis Tsirtsis and Manuel Gomez-Rodriguez

	<p>5. Counterfactual Explanations in Sequential Decision Making Under Uncertainty <i>38th International Conference on Machine Learning (ICML 2021): Workshop on Interpretable Machine Learning in Healthcare</i> Stratis Tsirtsis, Abir De and Manuel Gomez-Rodriguez</p> <p>6. Decisions, Counterfactual Explanations and Strategic Behavior <i>4th Workshop on Mechanism Design for Social Good (MD4SG 2020)</i> Stratis Tsirtsis and Manuel Gomez-Rodriguez</p> <p>7. Fairness and Discrimination in Mechanism Design and Machine Learning <i>AI for Social Good Workshop (AI4SG 2020)</i> (A) Jessie Finocchiaro, Roland Maio, Faidra Monachou, Gourab K Patro, Manish Raghavan, Ana-Andreea Stoica and Stratis Tsirtsis</p>
TEACHING	<p>Teaching Assistant Winter Semesters 2022 - 2024 University of Kaiserslautern-Landau (RPTU), Kaiserslautern, Germany <i>Seminar: Human-Centric Machine Learning</i> (Instructor: Manuel Gomez-Rodriguez)</p> <p>Teaching Assistant Summer Semester 2022 Saarland University, Saarbrücken, Germany <i>Course: Machine Learning</i> (Instructor: Mario Fritz)</p>
SCIENTIFIC COMMUNITY ACTIVITIES	<p><u>Workshop organizing</u></p> <hr/> <p>ICML Workshop on Counterfactuals in Minds and Machines, 7/2023 Hawaii, USA Co-organized with Nina Corvelo Benz, Ricardo Dominguez-Olmedo, Manuel Gomez-Rodriguez, Amir-Hossein Karimi, Thorsten Joachims, Isabel Valera and Sarah Wu</p> <p>ICML Workshop on Algorithmic Recourse, Virtual 7/2021 Co-organized with Manuel Gomez-Rodriguez, Amir-Hossein Karimi, Himabindu Lakkaraju, Ana Lucic and Isabel Valera</p> <p>ELLIS Human-Centric Machine Learning Workshop, Virtual 5/2021 Co-organized with Plamen Angelov, Umang Bhatt, Manuel Gomez-Rodriguez, Himabindu Lakkaraju, Nuria Oliver and Adrian Weller</p> <p><u>Reviewing</u></p> <hr/> <p>TMLR, NeurIPS (2021-2022, 2024), ICML (2022-2024), ACM Computing Surveys, UAI 2023, EAAMO 2022, FAccT 2022, AISTATS 2022, WSDM 2022, KDD 2021</p>
INVITED TALKS	<p>2nd Causal Data Science Meetup, Athens (Greece) 11/2024 Athena Research Center, Athens (Greece) 11/2023 Columbia University, New York City (USA) 7/2023 Harvard University, Cambridge MA (USA) 7/2023 CAMBI workshop at Bocconi University, Milan (Italy) 12/2022 Stanford University, Virtual 3/2022</p>
COMMUNITY SERVICE	<p>MPI-SWS, PhD Student Representative 11/2021 - 2/2023 TEDxNTUA, Organizing Team 6/2017 - 3/2018 CanSat in Greece, Co-founder, Organizing Committee 11/2015 - 4/2017</p>
LANGUAGES	<p>English (fluent), German (basic), French (basic), Greek (native)</p>