


Alexandros Tsigonias-Dimitriadis

CONTACT INFORMATION

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SUMMARY

Researcher and ECB Graduate Programme Participant currently working on implementing GenAI use cases for Banking Supervision. I have a strong background in Computer Science and Applied Mathematics and a proven track record of applying tools from a wide range of disciplines, including algorithms, optimization, machine learning, statistics, and economics in both practical and research contexts. My research has been published in leading conferences and journals across operations research, economics and computation, and algorithms.

EMPLOYMENT

European Central Bank, Germany

Graduate Programme Participant

Sept. 2024 -

- Information Systems: Building AI/ML-driven business applications to improve the work of ECB's supervisors.
- Risk Management: Contributed to the design of a framework for AI Risk Management, to the redesign of the root causes framework and to reporting/process automation.
- Selected among 15 out of ≈ 1500 applicants to take up two one-year assignments in two business areas and a research project to submit at the end of the second year. 1st year assignment in *Risk Management*; 2nd year in *Information Systems/Software Engineering*.

Data Scientist

July 2024 - August 2024

PhD Trainee in Data Science & Analytics

July 2023 - June 2024

- Worked with a variety of datasets and statistical methods and designed metrics to inform and evaluate the impact of the ECB's communication to general and specialized audiences. Carried out and supervised a research project focusing on central banking communication, using tools from computational social science.
- Worked on software/data engineering tasks, such as on the data architecture of the team and implementing a tag management system from scratch.

Universidad de Chile, Chile

Aug. 2022 - July 2023

Postdoctoral Researcher, Department of Industrial Engineering

Information and Computation in Market Design (ICMD) Group

- Worked on resource allocation problems arising in online markets and platforms. Topics included fairness considerations in recommendation systems, optimization aspects of political apportionment, sequential decision-making and pricing.
- Collaborated with researchers from academia and industry (Google, Meta). Was invited by the Algorithms & Optimization team of Google Research Zurich for in-person collaboration.

EDUCATION

Technical University of Munich, Germany

Sept. 2018 - July 2022

Ph.D. in Mathematics, TUM School of Computation, Information and Technology

Completed an interdisciplinary PhD program with specialization in *Operations Research*.

Thesis: Lotteries, Prophets, and Pandora's Box: A New Take on Classic Problems in Mechanism Design and Online Selection

Advisor: Prof. Andreas S. Schulz

National Technical University of Athens, Greece

Oct. 2012 - June 2018

Diploma (BSc & MEng) in Electrical and Computer Engineering

	GPA: 8.88/10 (top 7%) Major in Computer Science, Minor in Mathematics & Computer Networks <i>Thesis:</i> Analysis of Opinion Formation Dynamics using Convex Optimization Techniques <i>Advisor:</i> Prof. Dimitris Fotakis	
	Technical University of Munich, Germany Erasmus semester, Department of Electrical and Computer Engineering	Apr. - Sept. 2016
RESEARCH VISITS & INTERNSHIPS	Google Research , Switzerland ▪ Hosted by Dr. Paul Duetting in the Algorithms & Optimization team and worked on market algorithms. ▪ Designed algorithms for a stochastic matching problem with applications in pricing.	May - July 2023
	Sapienza Università di Roma , Italy <i>Host:</i> Prof. Stefano Leonardi	Mar. 2022
	Universidad de Chile, Chile <i>Host:</i> Prof. José Correa	Nov. - Dec. 2019
AWARDS & SCHOLARSHIPS	COST Action STSM Grant Funding from the COST Action for research visit at the Sapienza University of Rome	2022
	DFG-AdONE start-up funding Funding from the German Research Foundation (DFG) for talented early career researchers	2021-22
	IGSSE PhD Scholarship	2018-21
CODING & SOFTWARE	Programming: Python, R, JavaScript, SQL, Bash, C/C++, Matlab Software and Platforms: Pytorch, Gurobi, Git, HuggingFace, \LaTeX , AWS Bedrock, Azure AI	
RESEARCH (Authors are listed alphabetically, [C]: Conference, [J]: Journal)	<i>Online Policies for Content Recommendation with Fairness Constraints</i> José Correa, Émile Naquin, Nicolás Stier-Moses, Alexandros Tsigonias-Dimitriadis, Victor Verdugo [C]: <i>Submitted</i>	2025
	<i>New Combinatorial Insights for Monotone Apportionment</i> Javier Cembrano, José Correa, Ulrike Schmidt-Kraepelin, Alexandros Tsigonias-Dimitriadis, Victor Verdugo [J]: Mathematics of Operations Research , forthcoming [C]: <i>2025 ACM-SIAM Symposium on Discrete Algorithms (SODA'25)</i>	2025 2025
	<i>Prophet Secretary Against the Online Optimal</i> Paul Dütting, Evangelia Gergatsouli, Rojin Rezvan, Yifeng Teng, Alexandros Tsigonias-Dimitriadis [J]: Mathematics of Operations Research , forthcoming [C]: <i>24th ACM Conference on Economics and Computation (EC'23)</i>	2025 2023
	<i>Prophet Inequalities via the Expected Competitive Ratio</i> Tomer Ezra, Stefano Leonardi, Rebecca Reiffenhäuser, Matteo Russo, Alexandros Tsigonias-Dimitriadis [J]: <i>ACM Transactions on Economics and Computation (ACM TEAC)</i> [C]: <i>19th Conference on Web and Internet Economics (WINE'23)</i>	2025 2023

	<i>The Secretary Problem with Independent Sampling</i> José Correa, Andrés Cristi, Laurent Feuilloley, Tim Oosterwijk, Alexandros Tsionias-Dimitriadis [J]: Management Science 2024 [C]: <i>2021 ACM-SIAM Symposium on Discrete Algorithms (SODA'21)</i> 2021
	<i>Preference Elicitation in Combinatorial Auctions: An Improved Approach using Reinforcement Learning</i> Eleni Batziou, Giorgos Bouritsas, Alexandros Tsionias-Dimitriadis <i>Manuscript, available upon request</i> 2023
	<i>Robust Revenue Maximization Under Minimal Statistical Information</i> Yiannis Giannakopoulos, Diogo Poças, Alexandros Tsionias-Dimitriadis [J]: <i>ACM Transactions on Economics and Computation (ACM TEAC)</i> 2022 [C]: <i>16th Conference on Web and Internet Economics (WINE'20)</i> 2020
PROFESSIONAL SERVICE	<i>Conference & Journal reviewing:</i> NeurIPS'25, NeurIPS'23, ICML'23, Math. Programming <i>Conference subreviewing:</i> COLT'23, IPCO'23, SODA'23, SAGT'22, EC'22 Volunteer, STOC 2022 Organizer of the AdONE research group retreat 2020
TEACHING & SUPERVISION	European Central Bank & Barcelona School of Economics <i>Co-supervisor</i> , Master thesis in Data Science Spring 2024 Technical University of Munich, Germany <i>Teaching Assistant</i> , Special Topics in Algorithmic Game Theory Spring 2019 <i>Co-supervisor</i> of two Master theses in the Department of Mathematics National Technical University of Athens, Greece <i>Teaching Assistant</i> , Algorithms and Complexity Fall 2017 Private Tutor, Athens, Greece 2013 - 2016 Mathematics and Physics for high school students
LANGUAGES	English (fluent), Greek (native), Spanish (fluent), German (advanced), French (basic)