Aras Selvi

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Education

Imperial College Business School, London, UK

Ph.D., Operations Research — 2025 (Expected)
    Advisor: Professor Wolfram Wiesemann
    Fellowship: The Alan Turing Institute (2022-23 Enrichment Placement Student)
    Ph.D. internship: JP Morgan AI Research (2023 Off-Cycle Research Associate)
    Research visit: Professor Aharon Ben-Tal (Technion – Israel Institute of Technology)

M.Res., Operations Research and Business Analytics (Distinction – highest possible award) — 2020
    Awards: Dean's List for Academic Excellence

Tilburg University, Tilburg, The Netherlands

M.Res., Operations Research (Koopmans Scholar, Cum Laude – highest possible award) — 2019

Ozyegin University, Istanbul, Turkey

B.Sc., Industrial Engineering (High Honor – highest possible award) — 2017
    Awards: Dean's List, ranked 2nd among 125 Faculty of Engineering graduates
    Exchange: Queensland University of Technology, Brisbane, Australia
    Minor: Computer Science (High Honor – highest possible award)

Research Interests

Topics: Data-driven decision making, decision making under uncertainty, ethical decision making via optimization
Methodologies: Optimization theory & algorithms, convex analysis, learning theory

Research Papers

Optimal Ethical Decision Making

Selvi, A., Liu, H., & Wiesemann, W. (2023). Differential privacy via distributionally robust optimization.
Major Revision. [Optimization Online], [arXiv]
    Winner of the 2023 ICBS Best Analytics & Operations Student Paper Award
    Honorable mention prize for the 2023 INFORMS Optimization Society Student Paper Award [Link]

Selvi, A., Tang, B., Kocyigit, C., Vayanos, P., & Wiesemann, W. (2024). Policy-making for housing allocation using stochastic dynamic programming. Working paper.

Robust Machine Learning

Belbasi, R, *Selvi, A.*, & Wiesemann, W. (2023). It's all in the mix: Wasserstein ML with mixed features. **Major Revision**. [Optimization Online], [arXiv]

Selvi, A. & JP Morgan AI Research collaborators. (2024). Distributionally and adversarially robust logistic regression via intersecting Wasserstein balls. **Under Review**.

Selvi, A., Belbasi, R, Haugh M., & Wiesemann, W. (2022). Wasserstein Logistic Regression with Mixed Features. **NeurIPS22**. [Optimization Online], [NeurIPS proceedings]

Nonconvex Optimization

Selvi, A., Ben-Tal, A., & Wiesemann, W. (2024). Maximizing the sum of maxima of convex functions. To be submitted in August 2024.

Selvi, A., Ben-Tal, A., Brekelmans, R., & Den Hertog, D. (2022). Convex maximization via adjustable robust optimization. **INFORMS Journal on Computing** 34(4):2091-2105. [Optimization Online]
    Winner of the 2021 INFORMS Computing Society Best Student Paper Award [Link]

Selvi, A., Den Hertog, D., & Wiesemann, W. (2023). A reformulation-linearization technique for optimization over simplices. **Mathematical Programming** 197(1):427-447. [Optimization Online], [Springer]

Roebers, L. M., *Selvi, A.*, & Vera, J. C. (2019). Using column generation to solve extensions to the Markowitz model. **The Engineering Economist**, 64(3):275-288. [arXiv], [Taylor & Francis]

Awards

Paper Awards

- **Honorable mention:** 2023 INFORMS Optimization Society Student Paper Award
- **Winner:** 2023 ICBS Operations and Analytics Best PhD Paper Award
- **Winner:** 2021 INFORMS Computing Society Best Student Paper Award
- **Honorable Mention:** 2019 INFORMS O.R. & Analytics Student Team Competition

PhD Awards

- **Winner (university-wide):** 2024 G-Research Imperial College London PhD competition, £5,000 prize
- **Fully funded attendance:** 2024 NUS Next-Gen Scholar's Symposium
- **Fully funded attendance:** 2024 Georgia Tech ISyE Junior Researcher Workshop
- **PhD Placement Award 2022:** 9-month placement at The Alan Turing Institute HQ in London, with a £1,500 financial allowance and £472.5 monthly stipends to support research
- **President's Address 2022:** Named by Imperial College London president for global contributions
- **Dean's Reception 2022:** Invite-only event by the Dean of Imperial College Business School

Research/Travel Grants

- **G-Research Quant PhD Grant:** £500 grant supporting international conference travel [May, 2023].
- **Sargent Centre PhD Financial Support 2024:** £1,500 grant supporting PhD-related costs.
- **Sargent Centre Research Travel Grant 2024:** £300 grant supporting international conference travel.
- **Sargent Centre Research Travel Grant 2023:** £450 grant supporting international conference travel.
- **SIAM 2023 Student Award:** registration and $800 travel support for SIAM Conference on Optimization
- **NeurIPS 2022 Scholar Award:** complimentary in-person registration and Hotel stay for attendance

Reviewer Awards

- **Outstanding Reviewer:** ICML 2022, ICLR 2022
- **Top Reviewer:** NeurIPS 2022

Pre-doctoral Awards

- **Dean's List:** Imperial College London, Ozyegin University
- **Undergraduate Scholarship:** Ozyegin University Performance Scholarship (awarded to three students)
- **Alumni Award:** one of the 20 alumni who made a notable contribution to Ozyegin University (2019)
- **Graduate Scholarship:** Tilburg University Koopmans Scholarship, ICBS PhD Funding

Invited Talks

Industry & Public Talks

- Legal & General (Virtual)	June, 2024
- Pint of Science 2023: Science festival - Quench your thirst for knowledge (London, UK)	May, 2023
- QuantumBlack - A McKinsey Company (London, UK)	June, 2022
- BCG GAMMA (London, UK)	May, 2022
- AI UK 2023 PitchFest Finalist Talks	March, 2023

Academic Talks

- Stochastic Programming Society Junior Session (Virtual)	April, 2024
- Georgia Tech ISyE Junior Researcher Workshop (Atlanta, USA)	April, 2024
- Socially Intelligent Artificial Systems Group, University of Amsterdam (Virtual)	March, 2024
- Imperial College London Computational Statistics and Machine Learning (London, UK)	February, 2024
- PGMO Days 2023: Robust Optimization and Applications (Paris, FR)	November, 2023
- INFORMS Annual Meeting (Phoenix, USA)	October, 2023
- University of Toronto Rotman Young Scholar seminar series (Virtual)	June, 2023
- SIAM Conference on Optimization 2023 (Seattle, USA)	May, 2023
- LBS Transatlantic Doctoral Conference: MSO track (London, UK)	May, 2023
- Robust Optimization Webinars (Virtual)	March, 2023
- AI UK 2023: Lightning Talks (with Dr Anastasia Borovykh) (London, UK)	March, 2023
- The Sargent Centre for Process Systems Engineering (London, UK)	November, 2022

- Alan Turing Institute #TuringConnections (London, UK)	November, 2022
- Imperial College Department of Computing Joint Optimization Seminars (London, UK)	October, 2022
- Imperial College Operations Research PhD Seminar (London, UK)	May, 2022
- INFORMS Computing Society Conference (Tampa, USA)	January, 2022
- Imperial-LBS-UCL Brown Bag Seminar Series (Virtual, UK)	January, 2021
- Robust Optimization Webinars (Virtual)	July, 2020
- INFORMS Business Analytics Conference (Austin, USA)	April, 2019

Chaired Sessions

- ISMP 2024, RO and ML minisymposium (Montréal, Canada)	July, 2024
- INFORMS Revenue Management & Pricing Conference (London, UK)	July, 2023

Attended Conferences

- Thirty-sixth Conference on Neural Information Processing Systems (New Orleans, USA)	December, 2022
- PhD Winter School: Data Science, Optimization and Operations Research (Zinal, CH)	January, 2022
- The Operational Research Society Annual Conference OR63 (Virtual)	September, 2021
- Tenth International Conference on Learning Representations (Virtual)	April, 2022
- Thirty-ninth International Conference on Machine Learning (Virtual)	July, 2022

Teaching Experiences

London School of Economics

Class teacher for a masters-level course (most recent student evaluations 4.8/5, n = 30)

- Algorithmic Techniques for ML (MSc Applied Mathematics, MSc Operations Research)	2020-2024

Imperial College London

Teaching assistant for masters and MBA courses

- Advanced Machine Learning (MSc Business Analytics)	2024
- Mathematics and Statistics (MSc Business Analytics, MSc Business Analytics online)	2020-2023
- Optimisation and Decision Models (MSc Business Analytics online)	2021-2023
- Fundamentals of Database Technologies (MSc Business Analytics online)	2021
- Machine Learning (MSc Business Analytics online)	2021
- Big Data, AI & Machine Learning (MBA full-time, executive, online, weekend)	2021-2023
- Data Structures and Algorithms with Python (MSc Fintech, MSc RMFE, MSc Business Analytics)	2021
- Centre for Process Systems Engineering Optimisation Course for Professionals	2020

Quantitative assistant for MSc Business Analytics admissions

- Interviewing a selection of candidates	2020-2021
- Preparing & evaluating quantitative interviews for candidates and	2020-2022

London Business School

Teaching assistant for masters and MBA courses

- Decision and Risk Analysis (MiM)	2022
- Data Visualisation and Story Telling (Master in Analytics and Management)	2022
- Data Science for Business Analytics and Management (Masters in Analytics and Management)	2020-2023
- Data Mining for Business Intelligence (MBA)	2021
- Applied Statistics (Masters in Analytics and Management)	2022
- Data Analytics for Managers (MBA & MiM)	2022
- Decision Analytics & Modelling (Masters in Analytics and Management)	2023
- Business Analytics (MiM, MBA)	2023

Emeritus

Subject matter expert for online certificate course

- ICBS Professional Certificate in Machine Learning and Artificial Intelligence	2021-2022

Tilburg University

Teaching assistant for masters and undergraduate courses

- Mathematics (BSc Social Sciences)	2019
- Decision Making for Business Analytics (MSc Business Analytics and Operations Reseach)	2018

Ozyegin University

Teaching assistant for undergraduate courses

- Operations Research I (BSc Industrial Engineering)	2017
- Productions Systems Analysis (BSc Industrial Engineering)	2017
- Physics 102 (All Engineering Undergraduates)	2016

Skills

Programming: Python, Julia, MATLAB, C++, R, Optimization Solvers, Machine Learning Packages, SQL, LaTeX
Language: Turkish (Native), Armenian (Native), English (Advanced), German (Beginner)

Memberships & Fellowships

- **Fellow:** Imperial Business Analytics, Data Science Institute (DSI)
- **Member:** Computational Optimisation Group at the Department of Computing (Imperial College London)
- **Board member (Past):** Graduate Student Society and MRes Education Committee of Tilburg University

Service

- **Journal Reviewer:** Operations Research (2), Management Science (2), Mathematical Programming, Manufacturing & Service Operations Management (2), SIAM Journal on Optimization, Automatica, INFORMS Journal on Computing (3), Mathematical Programming Computation, Computational Management Science, Optimization Letters, Operations Research Letters, European Journal of Operations Research
- **Conference Reviewer:** ICLR (2022 highlighted reviewer, 2023, 2024), NeurIPS (2021, 2022 Top Reviewer, 2023, 2024 [emergency]), AISTATS (2022, 2023), ICML (2022 outstanding reviewer, invited as a session chair, 2023, 2024), INFORMS Workshop on Data Science (2024)
- **Program Committee Member:** ACM FAccT Conference 2023 (Privacy & Security track)
- **Volunteer:** NeurIPS 2022 Outreach Programme
- **Volunteer (Past):** Robin Code Turkey, Dreams Academy Istanbul, Hour of Code, AI UK 2023
- **Academic Ambassador:** Imperial College Business School's PhD Programme

Industry Experience & Summer Internships

PhD Associate Intern, JP Morgan AI Research (London, UK)	Summer 2023
Academic mentor on Data Spark Programme: KPMG UK, Chatham House (London, UK)	2019-2021
Pro bono consultant on analytics, major nonprofit organisation (confidential due to NDA)	2021-2023
Intern, Coca-Cola Icecek HQ (Istanbul, Turkey)	Summer 2015-2016
Intern, Metro Cash & Carry (Istanbul, Turkey)	Summer 2016
Intern, Fiba Factoring (Istanbul, Turkey)	Summer 2014
Intern, Anchor Grup (Bucharest, Romania)	Spring 2014

Last updated July 18, 2024.