Uğur Arıkan

Operations Research (OR) Scientist / Practitioner

+49 171 3015770 # https://www.linkedin.com/in/uarikan/ # uarikan@outlook.com

Passionate and experienced in applying operations research, optimization and systems design techniques in real life problems. Keen on all stages of problem solving, from understanding and defining the problem to implementing the solution and evaluation. Benefiting from creative collaboration and continuous learning. Algorithms and programming languages enthusiast.

Professional Experience

Principal Operations Research Scientist, DHL Data & Analytics, 07-2023 – present

I have been working on and driving various optimization and Operations Research projects such as:

- Human-centric last-mile delivery with route generation algorithms utilizing OR, statistics and Machine Learning to combine valuable tacit knowledge of experienced couriers with optimization algorithms. This project has been selected as a finalist for Wagner Prize in 2022.
- Revenue maximization project for air capacity sales with large scale global network models.
- Scenario generation, optimization and analysis tool to support global air network design decisions.
- Container loading algorithms for trucks and air cargo with the objectives such as to minimize cost, increase utilization and minimize delays.
- Asynchronous optimization api for long running optimization problems to make it convenient and efficient to build, deploy and test optimization services for tactical and strategical decision making projects.
- Generic and efficient multi commodity network flow solver with flexible side constraints and adaptable solution approaches to support various network design projects.
- Generic and efficient traveling salesperson problem solver with flexible side constraints such as time windows or LIFO to be used as the core solver in various vehicle routing problems..

Senior Operations Research Scientist, Center of Excellence, DPDHL, 07-2020 – 06-2023

Data / Operations Research Scientist, Center of Excellence, DPDHL, 09-2018 – 06-2020

Postdoctoral Research Fellow, Engineering Systems and Design, Singapore University of Technology and Design, 11-2014 – 08-2018

- I had the opportunity to work closely with my supervisors Prof. Karthik Natarajan and Prof. Selin Damla Ahipaşaoğlu. Our research focused on discrete choice models and stochastic traffic equilibrium. We worked on to make use of robust optimization techniques to define and model the distributionally robust traffic equilibrium as a new convex optimization formulation which is provably efficiently solvable and has the flexibility of allowing for general marginal distributions. Having our research focus on transportation systems, I participated the MIT Transportation Networks and Smart Mobility: Methods and Solutions program lead by Prof. M. Ben-Akiva.

- I have been a lecturer of the Capstone course for four years where I taught and supervised real-life projects of senior students. I was very keen on this task particularly due to the multidisciplinary nature of the projects and collaboration both with students and industry.
- I feel very lucky for the opportunity to work with Prof. Peter Jackson on Arcadia with Capella. Systems Design is always a favorite topic for me. Additionally, working with Peter Jackson was pure fun. You may find here the tutorial we created.

Research Assistant, Department of Industrial Engineering, Middle East Technical University, 12-2010 – 10-2014

- I had been a teaching assistant for various courses such as Operations Research, Production & Service Information Systems, Stochastic Models, Revenue Management, Systems and Organizations.
- I was a part of the Systems Design committee with supervising and organizational tasks for the real-life systems design projects of the senior students.
- I took place in industrial OR projects such as the assembly line design project for car manufacturer Tofaş that simultaneously optimizes make-or-buy / outsourcing decisions of sub-components.

Project Assistant, Computer Center, Middle East Technical University, 10-2006 – 12-2010

During my graduate studies, I had taken place in various software projects at my university mostly focusing on process optimization for in-campus processes.

Academic Training

Doctor of Philosophy, Industrial Engineering Department, Middle East Technical University, 2009 – 2014

Title of Dissertation: Airline Disruption Management

Supervisors: Prof. Sinan Gürel and Prof. M. Selim Aktürk

Master of Science, Industrial Engineering Department, Middle East Technical University, 2006 – 2009

Title of Dissertation: Two-Sided Assembly Line Balancing: Models and Heuristics

Supervisors: Prof. Ömer Kırca

Bachelor of Science, Industrial Engineering Department, Middle East Technical University, 2002 – 2006

Areas of Interest

- Optimization
- Graph Theory & Network Flows
- Algorithms & Heuristic Search
- Multiobjective Decision Making
- Systems Thinking
- System Simulation
- Transportation Systems & Logistics
- Discrete Choice Models

Furthermore, interested in programming languages. Experienced and fluent in Rust and C#. Have experience in however less frequently used React, Typescript, C++, Go and Python. Interested in and investigating Zig, F#, OCaml and Nim.

Publications

- U. Arıkan, T. Kranz, B. C. Sal, S. Schmitt, J. Witt. Human-Centric Parcel Delivery at Deutsche Post with Operations Research and Machine Learning. INFORMS Journal on Applied Analytics, 2023. doi: 10.1287/inte.2023.0031.
- S. D. Ahipaşaoğlu, U. Arıkan, K. Natarajan. Distributionally robust Markovian traffic equilibrium. Transportation Science, 2019. doi: 10.1287/trsc.2019.0910.
- U. Arıkan, S. Gürel, M. S. Aktürk. Flight network-based approach for integrated airline recovery with cruise speed control. Transportation Science, 2017. doi: 10.1287/trsc.2016.0716.
- S. D. Ahipaşaoğlu, U. Arıkan, K. Natarajan. On the flexibility of using marginal distribution models in traffic equilibrium. Transportation Research Part B: Methodological, 91:130-158, 2016.
- U. Arıkan, S. Gürel, M. S. Aktürk. Integrated aircraft and passenger recovery with cruise time controllability. Annals of Operations Research, 236(2):295-317, 2016.

References

References availble upon request.

- https://orxfun.github.io/cv/
- https://orcid.org/0000-0002-6195-3169
- https://github.com/orxfun
- https://crates.io/users/orxfun
- https://www.nuget.org/profiles/orx.ugur.arikan