Danish Kashaev

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Personal Information

Name: Danish Kashaev
Nationality: Swiss
Place of residence: Amsterdam, Netherlands
Date of birth: 03.04.1997
Marital Status: Single

Education

PhD Student | ***Networks and Optimization*** — Nov. 2021 – Present
Centrum Wiskunde & Informatica | *Supervision: Guido Schäfer, Daniel Dadush* — Amsterdam, Netherlands

Master of Science | ***Mathematics (5.8/6, cum laude)*** — Aug. 2018 – April 2021
ETH Zurich — Zurich, Switzerland

Bachelor of Science | ***Mathematics (5.6/6, cum laude)*** — Aug. 2015 – May 2018
University of Geneva — Geneva, Switzerland

Gymnasial Matura (Bilingual English) | ***Best Mathematics GPA award*** — Aug. 2011 – May 2015
Collège et Ecole de Commerce André-Chavanne — Geneva, Switzerland

Work Experience

Teaching Assistant: Mathematical Optimization — September 2020 – December 2020
ETH Zurich, Institute for Operations Research — Zurich, Switzerland

- Led a two-hour weekly exercise class for the 11 ECTS course Mathematical Optimization
- Graded homework assignments
- Grading of the exam

Algorithm Developer (Part Time) — January 2021 – November 2021
Aspaara Algorithmic Solutions — Zurich, Switzerland

- Developed algorithms for applied optimization problems: assignment, scheduling, mixed integer programming
- Implementation of the algorithms in Python

Teaching Assistant: Algorithmic Game Theory — September 2023 – December 2023
University of Amsterdam — Amsterdam, The Netherlands

- Led a two-hour weekly exercise class for the course Algorithmic Game Theory
- Graded homework assignments

Theses

Master's Thesis

- ETH Zurich, Institute for Operations Research
- Title: *An Optimal Monotone Contention Resolution Scheme for Uniform and Partition Matroids*

PhD Thesis

- Univerity of Amsterdam, Institute for Logic, Language and Computation
- Title: *Approximation via Duality in Offline, Online and Strategic Settings*

Projects and Research

A Simple Optimal Contention Resolution Scheme for Uniform Matroids

- Co-author: Richard Santiago
- Journal version in *Theoretical Computer Science 2023*
- ArXiv version: *https://arxiv.org/abs/2105.11992*

A Nearly Optimal Randomized Algorithm for Explorable Heap Selection

- Co-authors: Sander Borst, Daniel Dadush, Sophie Huiberts
- Journal version in *Mathematical Programming 2024*
- Conference version in *IPCO 2023*
- ArXiv version: *https://arxiv.org/abs/2210.05982*

Round and Bipartize for Vertex Cover Approximation

- Co-author: Guido Schäfer
- Conference version in *APPROX 2023*
- ArXiv version: *https://arxiv.org/abs/2211.01699*

Online Matching on 3-Uniform Hypergraphs

- Co-authors: Sander Borst, Zhuan Khye Koh
- Journal version submitted to *Mathematical Programming*
- Conference version in *IPCO 2025*
- ArXiv version: *https://arxiv.org/abs/2402.13227*

Selfish, Local and Online Scheduling via Vector Fitting

- Conference version in *SODA 2026*
- ArXiv version: *https://arxiv.org/abs/2505.10082*

Improved Online Load Balancing in the Two-Norm

- Co-author: Sander Borst
- ArXiv version: *https://arxiv.org/abs/2511.03345*

Attended Workshops and Conferences

Workshop on Algorithms with Predictions
2022, Ecole Polytechnique Fédérale de Lausanne

International Conference on Integer Programming and Combinatorial Optimization
2022, TU Eindhoven

LNMB Conference on Mathematics of Operations Research
2023, Soesteberg

International Conference on Approximation Algorithms for Combinatorial Optimization Problems
2023, Georgia Institute of Technology

Aussois Workshop on Combinatorial Optimization
2024, Aussois

Fulkerson 100 Workshop
2024, University of Waterloo

International Symposium on Mathematical Programming
2024, Montréal

Cargèse Workshop on Combinatorial Optimization
2024, Cargèse

Summer School on Synergies of Combinatorics and Theoretical Computer Science
2024, Ecole Polytechnique Fédérale de Lausanne

Highlights of Algorithms
2025, ETH Zurich

International Conference on Integer Programming and Combinatorial Optimization
2025, Johns Hopkins University

Satellite Workshop: Learning Augmented Algorithms
2025, CWI Amsterdam

SKILLS

Languages
French (native), Tatar (native), English (fluent, TOEFL: 113/120), Russian (fluent), Dutch (B2-C1)

Programming
Python, R, MATLAB, C++, Mathematica

Document Creation
LaTex