Fabian Spaeh

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Education

Ph.D. in Computer Science (GPA 3.9) Sep 2020 – May 2025
Boston University, Advised by Prof. Alina Ene Boston, MA

- Thesis "Efficient Algorithms for Online Resource Allocation and Submodular Maximization"
- NSF Travel Grant in 2024
- Teaching Fellow Excellence Award in 2022
- Dean's Fellowship in spring 2021

M.Sc. in Computer and Information Science (VEUK award, GPA 4.0) Apr 2018 – Apr 2020
University of Konstanz Konstanz, Germany

B.Sc. in Computer Science (VEUK award for academic excellence, GPA 3.9) Oct 2013 – Feb 2018
University of Konstanz Konstanz, Germany

Work Experience

Software Engineer, Machine Learning Modeling Jun 2025 – Present
Celonis, Inc. New York City, NY

Intern, Machine Learning Jun – Aug 2024
Celonis, Inc. Palo Alto, CA

Intern, Quantitative Researcher Jun – Aug 2023
TWT, Mathematics, Computer Graphics & Sustainability Engineering Munich, Germany

Intern, Data Science Jun – Aug 2020
German Federal Bank (Eurosystem), Division Monetary and Financial Statistics Frankfurt, Germany

Relevant Coursework

Boston University
Advanced Optimization Algorithms, Advanced Topics in CS Graph Analytics, Taming Big Data

University of Konstanz
Methods of Network Analysis, Randomized Algorithms, Mathematics for Data Science

Teaching

Boston University
Teaching Assistant

- Randomness in Computing, Graduate Class. Fall 2021 and Fall 2022
- Advanced Optimization Algorithms, Graduate Class. Spring 2022 and Fall 2023

University of Konstanz
Lab Instructor for Analysis and Linear Algebra, Discrete Mathematics and Logic, and Programming Course 2

Technical Skills

Proficient in Python (PyTorch, scikit-learn, SciPy), mathematical programming (GLPK, Gurobi, cvxpy), C#, C++, Java, JavaScript, SQL, and Haskell.

Publications and Manuscripts

[1] T. Haris, F. Spaeh, S. Dragazis, and C. Tsourakakis, "Estimating hitting times locally at scale." NeurIPS 2025.

[2] F. Spaeh and A. Miyauchi, "An asymptotically optimal approximation algorithm for multiobjective submodular maximization at scale." ICML 2025.

[3] F. Spaeh, T. Chen, C.-H. Chiang, B. Shen, and C. Yu, "Query suggestion for retrieval-augmented generation via dynamic few-shot learning at celonis." In submission.

[4] D. Ristache, F. Spaeh, and C. Tsourakakis, "Countering election sway: Strategic algorithms in friedkin-johnsen dynamics." In submission.

[5] D. Ristache, F. Spaeh, and C. Tsourakakis, "Wiser than the wisest of crowds: The Asch effect and polarization revisited." ECML PKDD 2024.

[6] F. Spaeh, K. Sotiropoulos, and C. Tsourakakis, "ULTRA-MC: A unified approach to learning mixtures of markov chains via hitting times." In submission.

[7] F. Spaeh and C. Tsourakakis, "Markovletics: Methods and a novel application for learning continuous-time markov chain mixtures." WWW 2024.

[8] F. Spaeh, A. Ene, and H. L. Nguyen, "Online and streaming algorithms for constrained k-submodular maximization." AAAI 2025.

[9] F. Spaeh and A. Ene, "Online ad allocation with predictions." NeurIPS 2023.

[10] F. Spaeh and C. Tsourakakis, "Learning mixtures of markov chains with quality guarantees." WWW 2023.

[11] F. Spaeh and S. Kosub, "Global evaluation for decision tree learning." arXiv, 2022.

[12] T. Hepp, F. Spaeh, A. Schönhals, P. Ehret, and B. Gipp, "Exploring potentials and challenges of blockchain-based public key infrastructures." IEEE INFOCOM Workshops, 2019.