

# Daniel P. Szabo

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## Selected Publications

- Bérczi, Kristóf, Tamás Király, and Daniel P. Szabo. "Multiway cuts with a choice of representatives." *Discrete Applied Mathematics* 379 (2026): 827-839.
- Cai, Jin-Yi, and Daniel P. Szabo. "Bounded Degree Nonnegative Counting CSP." *ACM Transactions on Computation Theory* 16, no. 2 (2024): 1-18.
- Kruse, Jacob, Song Gao, Yuhan Ji, Daniel P. Szabo, and Kenneth R. Mayer. "Bringing spatial interaction measures into multi-criteria assessment of redistricting plans using interactive web mapping." *Cartography and Geographic Information Science* 51, no. 4 (2024): 513-532.

## Pending Review

- Bérczi, Kristóf, Karthekeyan Chandrasekaran, Tamás Király, and Daniel P. Szabo. " $\{s, t\}$ -Separating Principal Partition Sequence of Submodular Functions." arXiv preprint arXiv:2510.25664 (2025).
- Bérczi, Kristóf, Karthekeyan Chandrasekaran, Tamás Király, and Daniel P. Szabo. "Approximating Submodular Matroid-Constrained Partitioning." arXiv preprint arXiv:2506.19507 (2025).
- Cai, Jin-Yi, Jacob Kruse, Kenneth Mayer, and Daniel P. Szabo. "A Uniformly Random Solution to Algorithmic Redistricting." arXiv preprint arXiv:2402.13868 (2024).

## Education

### PhD in Applied Mathematics

Eötvös Loránd University, 2022-2026 (Expected)  
Department of Operations Research

### MSc in Computer Science

University of Wisconsin-Madison, 2020-2022

### BSc in Computer Science and Mathematics

University of Wisconsin-Madison, 2017-2020

## Experience

### Medve Matek Volunteer

Jan 2023 – Present

MÖK (Mathematics Connects Union)

- Helped create and maintain problem sets for grade school math competitions, and taught topics such as combinatorial optimization and combinatorics at summer camps.

### Peer Mentor

Jan 2023 – Present

Budapest Semesters in Mathematics

- Helped with assignments and mentor students in the directed reading program, where promising undergraduate students can acquire real research experience.

### Teaching Assistant

Sep 2024 – Present

Eötvös Loránd University

- Held practicum, created and graded assignments and exams for courses operations research I and II.

### Research Assistant

May 2020 – May 2022

University of Wisconsin-Madison

- Worked with Dr. Jin-Yi Cai on algorithmic redistricting and computational counting complexity

### Tutor, Peer Mentor and Grader

Sep 2019 – May 2020

University of Wisconsin-Madison

- Peer mentor for CS577 Algorithms, grader and tutor for Math475 Combinatorics, tutor for Math632 Stochastic Processes

## Conferences, Grants, Awards

- Academic Excellence Scholarship recipient (2017-2020)
- Hungarian Diaspora Scholarship (2022-2026)
- MFCS 2022, 2024
- IPCO 2023
- Hungarian Doctoral Students Union member