Richard Hladík

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A first-year PhD student at ETH Zurich, advised by Bernhard Haeupler. My research interests include graph theory, algorithms, and data structures, but I've been exploring other areas as well.

Education

Oct 2024–Now	PhD in Computer Science, **ETH Zürich**, advised by Bernhard Haeupler
Sept. 2021–Aug. 2024	MSc in Computer Science, **ETH Zürich** *GPA of 5.69 (out of 6.00)*
Sept. 2017–June 2021	Bc. in Computer Science, **Charles University**, Prague *perfect GPA (1.00) throughout the studies and 224 ECTS credits (out of 180 required)*

Achievements & Awards

2025 ETH medal for an outstanding Master's thesis
2024 Best Paper Award at FOCS'24
2021 ETH-D scholarship for excellent Master's students
2017 International Olympiad in Informatics – Silver medal
2016 International Olympiad in Informatics – Bronze medal

Selected Research Experience

Student Researcher (Nov. 2023–Apr. 2024) – *BARC, University of Copenhagen*, supervisor: Rasmus Pagh

- Multiple projects on differential privacy and instance optimality.

Research Project (Apr.–Oct. 2023) – *ETH Zürich*, supervisor: Bernhard Haeupler

- We proved that Dijkstra's algorithm is optimal on every graph topology, if used with the right kind of heap. The work receieved a Best Paper Award at FOCS 2024.

Student Researcher (Mar. 2020–Jun. 2021) – *Charles University, Prague*, supervisor: Martin Koutecký

- Designed combinatorial algorithms for the multicommodity flow problem and proved lower bounds on the fractionality of its linear program.

Other

Languages: Czech (native), English (C2), German (C1)

With friends, I manage a YouTube channel Polylog containing educational videos on algorithmic topics. The channel has about 100,000 subscribers and 6,000,000 views.

I used to help with the organization of competitions and educational camps for talented highschoolers: Czech Olympiad in Informatics (2018–2022), KSP (2017–2025, led the main category in 2018–2019; nowadays I still teach at camps), Kasiopea (2017–2019), CPSPC (2018–2019).

Publications & Preprints

[1] Richard Hladík and Jakub Tetek. Smooth sensitivity revisited: Towards optimality. In *6th Symposium on Foundations of Responsible Computing, FORC 2025, June 4-6, 2025, Stanford University, CA, USA*, volume 329 of *LIPIcs*, page 2:1–2:17. Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, 2025.

[2] Richard Hladík and Jakub Tetek. Near-universally-optimal differentially private minimum spanning trees. In *6th Symposium on Foundations of Responsible Computing, FORC 2025, June 4-6, 2025, Stanford University, CA, USA*, volume 329 of *LIPIcs*, page 6:1–6:19. Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, 2025.

[3] Richard Hladík. Fast and simple sorting using partial information. Diploma thesis. 2024.

[4] Bernhard Haeupler, Richard Hladík, John Iacono, Václav Rozhon, Robert E. Tarjan, and Jakub Tetek. Fast and simple sorting using partial information. In *Proceedings of the 2025 Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2025, New Orleans, LA, USA, January 12-15, 2025*, page 3953–3973. SIAM, 2025.

[5] Bernhard Haeupler, Richard Hladík, Václav Rozhon, Robert E. Tarjan, and Jakub Tetek. Bidirectional dijkstra's algorithm is instance-optimal. In *2025 Symposium on Simplicity in Algorithms, SOSA 2025, New Orleans, LA, USA, January 13-15, 2025*, page 202–215. SIAM, 2025.

[6] Bernhard Haeupler, Richard Hladík, Václav Rozhon, Robert E. Tarjan, and Jakub Tetek. Universal optimality of dijkstra via beyond-worst-case heaps. In *65th IEEE Annual Symposium on Foundations of Computer Science, FOCS 2024, Chicago, IL, USA, October 27-30, 2024*, page 2099–2130. IEEE, 2024. **Best Paper Award at FOCS'24**, featured in Wired.

[7] Richard Hladík. Combinatorial algorithms for flow problems. Bachelor's thesis. 2021.

[8] Richard Hladík, Anna Minaeva, and Zdeněk Hanzálek. On the complexity of a periodic scheduling problem with precedence relations. In *International Conference on Combinatorial Optimization and Applications*, page 107–124. Springer, 2020.