Richard Hladík

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A recent graduate of the Computer Science MSc programme at ETH Zürich. I'm passionate about graph theory, algorithms, and data structures, but I've been exploring other areas as well. I love tackling interesting problems and pushing the boundaries of human knowledge, especially in a group of similarly passionate people.

Education

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)

Work & 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 **designed a heap** with a certain beyond-worst-case property and **proved that Dijkstra's algorithm** using any heap with this property **is universally optimal** (as fast as possible on every graph topology).

Software Engineering Intern (Sep. 2022–Feb. 2023) – *Daedalean, Zürich*

- **Designed** and **implemented algorithms** for matching model detections with air traffic data based on their movement patterns, thus **scaling up** model evaluation without human annotation.

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

- **Designed** new combinatorial **algorithms** for the multicommodity flow problem (MCF), polynomial with respect to a certain parametrization.
- **Showed exponential lower bounds** on the circuits of the MCF linear program and on its fractionality.

Student Researcher (June 2018–Dec. 2020) – *Czech Technical University, Prague*, supervisor: Zdeněk Hanzálek

- **Proved NP-hardness** of a new periodic scheduling problem and **developed** several **heuristics** for it.

Teaching & Extracurricular Activities

2018–2022 *Czech Olympiad in Informatics* & *Czech IOI Selection Camp* – I proposed and prepared problems, graded solutions and generally helped with the organization.

2017–2023 *KSP* – an algorithmic seminar for Czech highschoolers; **main organizer of the main category** in 2018–2019, managing 10–20 organizers. Co-organised educational camps and **gave lectures**.

2019–2020 TA of Programming for advanced students; *Charles University* (Spring & Fall 2019, Spring 2020).

Achievements & Awards

2021 **ETH-D scholarship** for excellent Master's students (≈ 90 out of 2500 students awarded each year)

2021 ACM-ICPC World Finals 2020 – unofficial participation due to COVID

2018 **ACM-ICPC World Finals** – 56th place out of 140 teams

2017 International Olympiad in Informatics (**IOI**) – **Silver medal**, 69th place out of 304 participants

2016 International Olympiad in Informatics (IOI) – Bronze medal, 154th place out of 308 participants

Publications & Preprints

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

[2] Richard Hladík and Jakub Tětek. Smooth sensitivity revisited: Towards optimality. *ArXiv*, abs/2407.05067, 2024.

[3] Richard Hladík and Jakub Tětek. Near-universally-optimal differentially private minimum spanning trees. *ArXiv*, abs/2404.15035, 2024.

[4] Bernhard Haeupler, Richard Hladík, John Iacono, Vaclav Rozhon, Robert Tarjan, and Jakub Tětek. Fast and simple sorting using partial information. *ArXiv*, abs/2404.04552, 2024.

[5] Bernhard Haeupler, Richard Hladík, Václav Rozhoň, Robert Tarjan, and Jakub Tětek. Universal optimality of Dijkstra via beyond-worst-case heaps. *ArXiv*, abs/2311.11793, 2023. **Best paper award at FOCS'24** (to appear).

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

[7] 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.