Richard Hladík

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A second-semester student of the Computer science MSc programme at ETH Zürich. Theoretical computer scientist at heart, but currently also trying to gain experience in more practical fields, such as ML, bioinformatics, operation research or software engineering. Open source enthusiast. I love pushing the boundaries of human knowledge and creating new and meaningful things, especially in a group of similarly passionate people.

Education

Sept. 2021–Now	MSc in Computer science **ETH Zürich** *GPA of 5.58 (out of 6.00) after the first semester*	*(expected graduation: March 2024)*
Sept. 2017–June 2021	Bc. in Computer science **Charles University**, Faculty of Mathematics and Physics, Prague *perfect grades (GPA of 1.00) throughout the studies and 224 ECTS credits*	
May 2017	upper secondary education **Grammar School and Commercial Academy Mariánské Lázně**	

Achievements & Awards

2021	ETH-D scholarship for excellent Master's students
2018	ACM-ICPC World Finals[†] – 56th place
2017	International Olympiad in Informatics – Silver medal (69th place)
2016	ACM-ICPC Central European Regional Contest[†] – 12th place (unofficial high school participation)
2016	International Olympiad in Informatics – Bronze medal (154th place)

Past Experience

Mar. 2020–Jun. 2021	*Computer Science Institute, Charles University, Prague.* Full- and part-time research supervised by Martin Koutecký. A part of a Student Faculty Grant and a superset of my bachelor's thesis. We propose two new combinatorial algorithms for the multicommodity flow (MCF) problem, and tie their time complexity to properties of the MCF polyhedron. One of the algorithms stems from the Frank-Wolfe method, a projection-free convex optimisation method gaining popularity in ML. Journal article(s) in progress.
June 2018–Dec. 2020	*Industrial Informatics Research Center, Czech Technical University, Prague.* Part-time research, supervised by Anna Minaeva. Proved NP-hardness of a certain periodic scheduling problem, developed and tested several new heuristics for it. The best one solves even medium-sized instances optimally or almost optimally in a few seconds.

Relevant courses: I've taken Introduction to Computer Linguistics, Deep Learning, Introduction to Computer Graphics, Data Compression Algorithms, Reliable and Trustworthy AI, and Information Theory I. Currently, I'm taking Principles of Distributed Computing. I've also taken Operating Systems, which involved writing a small OS (including interrupt management, heap allocator, scheduler, virtual memory etc.) in a team of two people.

Publications

[1] 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.

Projects

Outotune (2020–Now) – a harmoniser with VST3, LV2 and JACK support written in C++. Lets one sing chords in real time using a MIDI keyboard and one's voice, by analysing it and resynthesising it at different pitches.

Programming languages & technologies

Professionally worked with C++ and Python, also fluent in C and sh. Experience with Git, NumPy, PyTorch, TensorFlow, Pandas, among others. Long-time Linux user with sysadmin and systems programming experience.

Other

Languages: Czech (native), English (C2 – CAE Grade A), German (B2), French (basics)

In my free time, I help to organise seminars, competitions and educational camps for talented highschoolers:

2018–Now	*Czech Olympiad in Informatics*, *Czech IOI Selection Camp* – a series of off- and on-site competitions for Czech highschoolers that selects the Czech team for the International Olympiad in Informatics.
2017–2020	*KSP* – an algorithmisation correspondence seminar for Czech highschoolers; had one of leading roles in 2018–2019, managing 10–20 people and having responsibility for the seminar's main category.

[†] a team competition; with my friends Václav Volhejn and Filip Bialas