Richard Hladík

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Experience

Optimisation Research Intern (June 2018–August 2020) – *Industrial Informatics Research Center, Czech Technical University, Prague*

Research in scheduling and optimisation. Proved NP-hardness of a certain periodic scheduling problem, developed a heuristic which solves even moderate-sized instances efficiently. Primary author of the resulting paper, which has been recently accepted for publication.

Research in Network Flows (March 2020–present) – *Computer Science Institute, Charles University, Prague*

A part of a student grant and my bachelor's thesis. Research on the multicommodity flow and the length-bounded flow problems, supervised by Mgr. Martin Koutecký, Ph.D., with the aim of discovering an exact polynomial-time combinatorial algorithm for both. As of now, we have proven several strong theoretical properties and proposed a combinatorial algorithm that works well in practice.

Education

Charles University (2017–present) – *Prague*

Studying **General computer science** at the Faculty of Mathematics and Physics. As of the time of writing, perfect grades and 213 ECTS credits in the first three years.

Skills, abilities

Programming languages and technologies: professionally worked with **C++** and **Python**, fluent in **C** and **sh**. Knowledge of C#, Haskell, TEX, some knowledge of Rust, Perl, HTML+Javascript+CSS. Comfortable with **Git**, **TensorFlow**, **NumPy**, **Pandas**, **Googletest**, among others. Long-time user of **Linux** with system administration experience.

Interested in **data structures**, **algorithmisation**, discrete and convex optimisation, and systems programming.

Strong algorithmic thinking proven in programming contests and research.

Competitive programming

56th place at ACM-ICPC World Finals 2018.

5th place in the Central European Regional Contest (CERC) 2019. 9th place in 2018, 6th place in 2017, 12th place in 2016 (unofficial participation).

Silver medal (69th place) at the International Olympiad in Informatics 2017, bronze medal (154th place) in 2016.

3rd place in the Czech Mathematical Olympiad (category P) 2016, Czech national pre-IOI competition

Projects

Outotune (2020) – *real-time harmoniser*

A harmoniser plugin with VST3, LV2 and JACK integration written in C++. Lets you sing harmonies in real time using only your voice and a MIDI keyboard. Analyses your voice and synthesizes it at different pitches.

Rambajz (2019) – *real-time tuner and spectogram*

Graphical real-time tuner and infinitely zoomable spectogram. Written in C, using SDL and JACK, with emphasis on low latency and high tuning precision.

icpc-notebook (2016–2018) – *collection of algorithms and data structures*

A collection of algorithms and data structures which was used by our team at the ACM ICPC World Finals 2018.

Languages

Czech – native
German – B1
English – C1
French – basics

Other activities

Co-organised the **Czech IOI Selection Camp 2018** and **2019**, a series of on-site competitions for Czech high school students. Was responsible for preparing and testing tasks and managing the contest environment.

Co-organised the **Czech-Polish-Slovak Preparation Camp 2018** and **2019**, a series of on-site competitions for high school students advancing to the International Olympiad in Informatics. Was responsible for proposing, preparing and testing tasks.

Co-organised **KSP** (2017–2019), a programming correspondence seminar for Czech high school students interested in algorithmisation and data structures. Had one of leading roles in 2018–2019.

Co-organised **Kasiopea** (2017–2019), a programming competition for high school students of all levels of programming skills. Helped prepare and test tasks.