

# Richard Hladík

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## Experience

**Optimisation Research Intern** (June 2018–December 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 [conference paper](#).

**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** (2017–2021) – *Prague*

Bachelor's degree in Computer Science, studied at the Faculty of Mathematics and Physics. Perfect grades throughout the study and 224 ECTS credits in total.

**ETH Zürich** (starting from September 2021) – *Prague*

MSc degree in Computer Science (majoring in Theoretical Computer Science).

## 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, advancing to ACM-ICPC World Finals 2020. [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 spectrogram*

Graphical real-time tuner and infinitely zoomable spectrogram. 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** – C2 (CAE Grade A)

**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.