

# Pavel Hudec

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## 📖 Education

### Hong Kong University of Science and Technology

Hong Kong

*PhD in Computer Science and Engineering supervised by Prof Amir Goharshady*

Sep 2021–Aug 2025

**Research:** Applying parameterization to solve a wide range of problems in diverse areas of computer science broadly related to program verification.

- Exploiting low treewidth of control-flow graphs of real-world programs to obtain faster algorithms for domain calculations in abstract interpretation.
- Using sparsity parameters such as treewidth and pathwidth to obtain faster algorithms for fundamental problems about MDPs.
- Extending recently developed parameterized algorithms for data packing and cache-conscious data placement to probabilistic programs.
- Researching novel sparsity parameters of control-flow graphs.
- Applying parameterization to speed up heuristics for SMT solving of specific theories.

**Coursework:** Type theory, Combinatorial optimization, Cryptography, Parametrized algorithms

**TA experience:** Introduction to Blockchain, Cryptocurrencies and Smart Contracts

- Grading assignments, giving comprehensive feedback to students.

### Charles University in Prague

Prague, Czech Rep

*Bc in General Mathematics*

Sep 2018–Jul 2021

**Coursework:** Abstract algebra (including Model Theory and Universal algebra I), Algorithms and Combinatorics (Graph Algorithms II, Computational geometry II, Combinatorics and Graph Theory II)

**Thesis:** Topological properties of algebraic curves (supervised by Dr Jan Štoviček)

**GPA:** 1.33 (1 – best, 4 – fail), 1 for the final exam.

**Activities:** Organizing mathematical correspondence seminars PraSe and iKSko for talented high school students

- Proposing, testing and proofreading problems, grading students' solutions, writing and proofreading model solutions.
- Giving lectures at camps and organizing them.
- Coordinated (graded, ensured fairness) at Middle European Mathematical Olympiad

Aug 2019

## 🏆 Awards

International Mathematical Olympiad;	Silver Medal;	3x Recipient	Jul 2016, Jul 2017, Jul 2018
International Olympiad in Informatics;	Bronze Medal		Sep 2018
International Mathematics Competition 2021;	First Prize		Aug 2021
International Mathematics Competition 2019;	First Prize		Aug 2019
ACM Collegiate Programming Contest Central European Regional Round;	Participant		Dec 2019
ACM Collegiate Programming Contest Central European Regional Round;	Participant		Dec 2018

## 👜 Work Experience

### Jane Street

Remote, London branch

*Quantitative trading intern*

Jul 2020–Sep 2020

- Examined relationship between volume traded and volatility of stocks over time.
- Used Python to fine-tune models for predicting volatility and beta models.
- Used Python to analyze data coming from a simulated stock exchange and based manual/automatic trading strategies on that.
- Participated in diverse mock trading scenarios.

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## 👋 Skills

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**Web Development:** HTML, CSS, Javascript (React, Redux, Node, Express, Mocha), PostgreSQL, Websockets.

**Data Analysis:** SQL, Python (Numpy, Pandas, Matplotlib, Sklearn).

**Miscellaneous:** Git / Terminal, LaTeX, Bloomberg Terminal, basics of Scala and MATLAB.

## 🌐 Languages

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**Czech** (native), **English** (fully professional, TOEFL 107 / 120), **German** (intermediate – B1).

## 🏢 Conference participation

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**PLMW mentoring workshop @ PLDI** Jun 2021

**VMW mentoring workshop @ CAV** Jul 2021

## 💰 Fellowships and Stipends

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**Hong Kong PhD Fellowship Scheme** 319,200 HKD / year + inflation Sep 2021–Aug 2024

- The most prestigious Hong Kong PhD stipend disbursed by the Hong Kong government.
- Currently at less than 2% acceptance rate (200 recipients each year across all science fields).
- Additionally includes 13,300 HKD / year as a research-related travel allowance.

**Red Bird Scholarship** 40000 HKD Sep 2021

- HKUST support for HKPFS awardees.

**HKUST top up for HKPFS awardees:** 319,200 HKD + inflation Sep 2024–Aug 2025

**Excellent study results stipend at Charles University** 37,000 CZK total Sep 2018–Jul 2021

**Representation of Charles University at IMC** 23,000 CZK total Aug 2019–Aug 2021

**Organizing correspondence seminar PraSe** 55,350 CZK total Nov 2018–Nov 2021

**Praemium Bohemiae** 90,000 CZK total Dec 2016–Dec 2018

- Awarded to medal winners at international science olympiads.