Pavel Veselý – Curriculum Vitae

Current position:	Assistant Professor at Computer Science Institute of Charles University
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RESEARCH INTERESTS

Theoretical computer science and combinatorics, with particular focus on designing efficient algorithms and data structures, specifically:
- streaming algorithms (e.g., quantile estimation, geometric streams, packing and scheduling problems),
- online algorithms (e.g., buffer management, packing and scheduling problems), and
- approximation algorithms (e.g., shortest superstring problem).

POSITIONS, EDUCATION, AND ACADEMIC DEGREES

September 2020 — present: **Assistant Professor**, Computer Science Institute of Charles University, Prague, Czech Republic. On leave from 19 September 2020 – 30 April 2021.

September 2018 — April 2021: **Research Fellow**, Department of Computer Science, University of Warwick. Advisor prof. **Graham Cormode**.

Ph.D. — 2018, Charles University, doctoral thesis *Online Algorithms for Packet Scheduling*. Advisor prof. RNDr. **Jiří Sgall**, DrSc.

October 2014 — September 2018: PhD studies at Computer Science Institute of Charles University, Prague, Czech Republic. Advisor prof. RNDr. **Jiří Sgall**, DrSc.

Mgr. — 2014, Charles University, master thesis *Online algorithms for variants of bin packing*. Advisor prof. RNDr. **Jiří Sgall**, DrSc.

October 2012 — September 2014: master studies, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic.

Bc. — 2012, Charles University, bachelor thesis *Artificial intelligence in abstract 2-player games*. Advisor RNDr. **Tomáš Valla**, Ph.D.

October 2010 — September 2012: bachelor studies, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic.

AWARDS

2022 ACM SIGMOD Research Highlight Award for the PODS 2021 paper *Relative Error Streaming Quantiles*.

Best Paper Award at the 40th ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems (PODS 2021) for paper *Relative Error Streaming Quantiles*.

Faculty Post-Doctoral Research Prize at the University of Warwick's Faculty of Science, Engineering and Medicine (SEM) for paper *A Tight Lower Bound for Comparison-Based Quantile Summaries*.

Tutorial for *Linear algebra I* in winter semester 2016/2017 was awarded by dean as **one the best tutorials in the student rating** at the Faculty of Mathematics and Physics, Charles University.

Paper *Online Chromatic Number is PSPACE-Complete* received the **Best Student Paper Award** at the 27th International Workshop on Combinatorial Algorithms (IWOCA 2016).

Thesis *Artificial intelligence in abstract 2-player games* obtained the **Dean's award for the best bachelor thesis** at the Faculty of Mathematics and Physics, Charles University in academic year 2011/2012.

Supervision of Postdoctoral Fellows

Nicolaos Matsakis (2022 — present)

Supervision of Students

Tomáš Domes (2023 — present): master student working on estimating quantiles in data streams with relative error guarantees (in collaboration with J. Tětek)

Matúš Mitro (2023 — present): bachelor student working on improving competitive ratio bounds for packet scheduling with uniform deadlines

Vojtěch Gaďurek (2023 — present): bachelor student working on an experimental project comparing Invertible Bloom Lookup Tables (IBLT) to the very recent "Simple Set Sketch"

Ondřej Sladký (2022 — present): bachelor student working on representations and indexes for k-mer sets in computational genomics (in collaboration with K. Břinda)

Ekaterina Milyutina (2022 — 2023) — bachelor thesis *Efficient representation of k-mer sets*, successfully defended (supervised together with K. Břinda)

Petra Kaštánková (2016) — bachelor thesis *Artificial intelligence for Mariáš*, successfully defended with the highest grade; Mariáš is a card game popular in Czech republic)

Organization of Scientific Meetings

Spring School of Combinatorics 2022—2024 (annual event held in the Czech countryside consisting of student presentations of research papers)

Current Trends in Theoretical Computer Science 2023 ("Současné trendy teoretické informatiky", a Czech/Slovak conference consisting of invited presentations by young researchers in TCS)

Grant Projects

Principal Investigator

Applied for *ERC Starting Grant 2023*, proceeded to the second round of evaluation.

Effective scheduling in overloaded systems, 2017 − 2018. Grant 634217 of the Charles University Grant Agency. Principal investigator Mgr. Pavel Veselý. Supervisor prof. RNDr. Jiří Sgall, DrSc.

Team Member (since 2018)

New challenges in streaming, online, and combinatorial algorithms, 2024 − present. Grant 24-10306S of the Czech Science Foundation (GAČR). Principal investigator Jiří Sgall.

Efficient and Realistic Models for Computational Social Choice, 2022 − present. Grant 22-22997S of the Czech Science Foundation (GAČR). Principal investigator Martin Koutecký.

EPAC: Efficient approximation algorithms and circuit complexity, 2021 − present. Grant 19-27871X of the Czech Science Foundation (GAČR). Principal investigators Michal Koucký and Pavel Hrubeš.

Center for Foundations of Modern Computer Science, 2021 − present. Charles University research center in the program UNCE. Principal investigator prof. RNDr. Jiří Sgall, DrSc.

Small Summaries for Big Data, 2018 − 2021. European Research Council grant ERC-2014-CoG 647557. Principal investigator prof. Graham Cormode.

Teaching

Lectures at the Faculty of Mathematics and Physics, Charles University:

- *Algorithms and data structures I* (core bachelor course; summer semesters 21/22 and 23/24)

- *Streaming Algorithms for Big Data* (designed new course; summer semesters 21/22 and 23/24)

- *Combinatorics and Graph Theory 2* (bachelor course; summer semester 22/23)

- *Algorithmic Data Privacy* (designed new course, together with Pavel Hubáček; summer semester 22/23)

Taught 27 tutorials/seminars in total for 10 different CS and math courses

OTHER ACADEMIC ACTIVITIES

Collaboration with Splunk Inc., a US-based company that focuses on processing machine-generated big data, on algorithms for estimating quantiles in data streams that resulted in a joint publication at KDD 2021.

Collaboration with Apache DataSketches, an open-source software library of stochastic streaming algorithms, on implementing the algorithm for relative-error streaming quantiles from the PODS 2021 paper.

Program committee member:

- 32nd Annual European Symposium on Algorithms (**ESA 2024**),

- 18th Workshop on Approximation and Online Algorithms (**WAOA 2020**).