Václav **Mácha**

Prague, Czech Republic

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Education

Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University   *Prague, Czech Republic*
PH.D. STUDIES IN MATHEMATICAL ENGINEERING   *September 2017 – present*
- Dissertation topic: General Framework for Classification at the Top.

Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University   *Prague, Czech Republic*
MASTER'S DEGREE WITH DISTINCTION IN APPLIED MATHEMATICAL STOCHASTIC METHODS   *September 2012 – June 2017*
- Master thesis: Parallel methods of gradient optimization for predictive control.
- Bachelor thesis: Mathematical optimization methods for electromobility.

Work Experience

Gen Digital Inc. (former Avast Software s.r.o.)   *Prague, Czech Republic*
RESEARCHER   *January 2022 – present*
- The UNCOVER project: Development of a tool for detecting Portable Executable (PE) files based on analysis of their metadata. Deployment of the PE detector as a standalone Docker container that can be easily integrated into a larger steganalysis framework.
- Development of a tool for extracting relevant content from OCR output using generative NLP models.

Avast Software s.r.o.   *Prague, Czech Republic*
INTERNSHIP   *June 2020 – December 2022*
- Implementation of specialized algorithms for nonlinear binary classification. These algorithms maximize the true positive rate at a fixed false positive rate.
- Integration of the algorithms into existing training/evaluation pipelines for large-scale experiments.

Artificial Intelligence Center, Czech Technical University   *Prague, Czech Republic*
JUNIOR RESEARCHER   *October 2019 – December 2021*
- Extension of the general framework for binary classification at the top samples. The original framework supports only linear models, and the extension allows to use of arbitrary non-linear models, such as neural networks.
- Cooperation with industrial partners: Avast, Honeywell.

Department of Computer Science and Engineering, Southern University of Science and Technology   *Shenzhen, China*
JUNIOR RESEARCHER   *March 2019 – May 2019*
- Derivation of the dual formulation for problems from the general framework for binary classification at the top samples.
- Development of an efficient algorithm for solving the resulting dual formulations.

Cisco Systems, Inc.   *Prague, Czech Republic*
SOFTWARE ENGINEER   *July 2018 – September 2019*
- Efficient implementation of algorithms for solving problems from the general framework for binary classification at the top samples.
- Implementation of a training pipeline in Julia language that allows asynchronous loading of data and parallel training using GPUs.

Institute of Information Theory and Automation, Czech Academy of Sciences   *Prague, Czech Republic*
JUNIOR RESEARCHER   *September 2017 – December 2020*
- Formulation of a general framework for binary classification at the top samples. The framework unifies how to solve problems such as TopPush, Accuracy at the top, or the Neyman-Pearson problem.

Regional Innovation Centre for Electrical Engineering, University of West Bohemia

Junior Researcher

- Study of the use of mathematical optimization techniques for electric drive control.
- Development of algorithms for optimal control of Permanent Magnet Synchronous Motor (PMSM).

Other skills

Languages

Czech:	Native
English:	Intermediate

Software

Programming languages:	Julia, Python, Matlab, Bash
Operating systems:	Linux, macOS, Windows
Other software:	LaTeX, Git, Slurm, Docker