

Jan Sobotka

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EDUCATION

Swiss Federal Institute of Technology in Lausanne (EPFL) <i>M.S. in Computer Science</i>	Sep. 2024 – ongoing Lausanne, CH
Czech Technical University, Faculty of Information Technology <i>B.S. in Informatics, Specialization in Artificial Intelligence</i>	July 2021 – July 2024 Prague, CZ

• Weighted grade average: **5.89** (scale of 1.0 to 6.0, 6.0 is the best)
• Anticipated graduation date: 08/26

• Weighted grade average: **1.05** (scale of 1.0 to 4.0, 1.0 is the best)
• Ranked among the **top 5%** of students in the majority of courses.

INDUSTRY EXPERIENCE

AI/ML Engineer Junior <i>Generali Česká pojišťovna</i>	June 2021 – June 2023 Prague, CZ
• Prepared a machine learning pipeline that improved the accuracy of product recommendations by 35%. • Built computing infrastructure for the company's internal data science community with over 90 members. • Applied deep learning to product and text recommendation, client departure prediction, email classification, and unsupervised customer segmentation.	

IT Generalist
Startup Disrupt

Feb. 2020 – June 2021
Prague, CZ

- Led the development of a web application for ticket sales.
- Managed IT setup and support for over 30 offline and online events.

RESEARCH EXPERIENCE

Research Assistant at the Autonomous Systems Group <i>University of Texas at Austin, Oden Institute for Computational Engineering and Sciences</i>	July 2025 – ongoing Austin, US
• Analyzing large language models in strategy games using mechanistic interpretability and game theory. • Supervised by Prof. Ufuk Topcu.	
Research Assistant at the MLBio Lab <i>Swiss Federal Institute of Technology in Lausanne (EPFL)</i>	Aug. 2024 – July 2025 Lausanne, CH
• Designed a framework to improve model robustness against distribution shifts by dynamically weighting an ensemble of weak supervisors, outperforming baselines by over 40% [2]. • Evaluated in-context learning capabilities of multimodal foundation models on computer vision tasks. • Supervised by Prof. Maria Brbić.	
Research Intern at the Computational Systems Neuroscience Group <i>Faculty of Mathematics and Physics, Charles University</i>	Sep. 2023 – Aug. 2024 Prague, CZ
• Developed a state-of-the-art method for decoding high-fidelity images from neural population activity [1]. • Supervised by Mgr. Ján Antolík, Ph.D.	
Computational Neuroscience Research Intern <i>Biozentrum, University of Basel</i>	July 2023 – Sep. 2023 Basel, CH
• Designed computational models of spiking neural networks and analyzed the role of bistable dendrites in memory (research project: <i>Bistable Dendrites Matter: Auto-Associative Memory in Networks of Neurons</i>).	
Research Assistant at the Data Science Lab <i>Faculty of Information Technology, Czech Technical University</i>	Apr. 2023 – Feb. 2024 Prague, CZ
• Analyzed training dynamics of optimization methods known as <i>Learning-to-Optimize</i> (meta-learning) and <i>fractional gradient descent</i> [4, 5, 6].	

PUBLICATIONS

* DENOTES EQUAL CONTRIBUTION

- [1] MEIcoder: Decoding Visual Stimuli from Neural Activity by Leveraging Most Exciting Inputs. [PDF ]
Jan Sobotka, Luca Baroni, Ján Antolík.
Neural Information Processing Systems (NeurIPS 2025).
- [2] Weak-to-Strong Generalization under Distribution Shifts. [PDF ]
Myeongho Jeon*, Jan Sobotka*, Suhwan Choi*, Maria Brbić.
Neural Information Processing Systems (NeurIPS 2025).
- [3] Reverse-Engineering Memory in DreamerV3: From Sparse Representations to Functional Circuits. [PDF ]
Jan Sobotka, Auke Ijspeert, Guillaume Bellegarda.
Neural Information Processing Systems (NeurIPS 2025, Spotlight at Mech Interp Workshop).
- [4] Do LLMs Strategically Reveal, Conceal, and Infer Information? A Theoretical and Empirical Analysis in The Chameleon Game. [PDF ]
Mustafa O. Karabag, Jan Sobotka, Ufuk Topcu.
Under review (2025).
- [5] Enhancing Fractional Gradient Descent with Learned Optimizers. [PDF ]
Jan Sobotka, Petr Šimánek, Pavel Kordík.
ArXiv preprint (2025).
- [6] Investigation into the Training Dynamics of Learned Optimizers. [PDF ]
Jan Sobotka, Petr Šimánek, Daniel Vašata.
International Conference on Agents and Artificial Intelligence (ICAART 2024).
- [7] Investigation into the Training Dynamics of Learned Optimizers (Student Abstract). [PDF ]
Jan Sobotka, Petr Šimánek.
AAAI Conference on Artificial Intelligence (AAAI-24).

SELECTED PROJECTS

- Deep Reinforcement Learning for Optimal Experimental Design in Biology** Jan. 2023 – June 2023
• Open research project focused on efficient estimation of biological system parameters [OpenBioML ].
- Generative Models of Regulatory DNA Sequences Based on Diffusion Models** July 2022 – Dec. 2022
• Open research project investigating the application of diffusion models to genomics data [OpenBioML ].

EXTRACURRICULAR ACTIVITIES

- Organizer of the Traion Community of Student Entrepreneurs** June 2020 – Feb. 2021
• Organized offline meetings, educational seminars, and workshops for student entrepreneurs.
- Volunteer for an Entrepreneurship Education Program for Students** Dec. 2019 – Aug. 2020
• Organized events and wrote a technology/entrepreneurship blog for the Soutěž a Podnikaj organization.
- Pitcher at the Czech Republic National Baseball Team U-15** Jan. 2017 – July 2017
• Secured third place at the U-15 European Baseball Championship 2017.

HONORS AND AWARDS

- The Bakala Foundation Scholarship:** Awarded to 12 out of 165 applicants | The Bakala Foundation  | 2024
- Merit-Based Scholarship for Academic Achievements:** Czech Technical University | 2021, 2022, 2023
- National Benchmark Exam in Mathematics:** Scored higher than 97% of the 875 test takers | SCIO  | 2021
- Algorithms & Programming Competition FIKS:** 4th out of 107 contestants | Czech Technical University | 2020
- TOP25 Czech High School Students of the Year 2020:** Selection based on extracurricular activities | 2020

SKILLS

Programming languages: Python, C, C++, Julia, JavaScript, Go

Other selected technologies: PyTorch, Scikit-learn, NumPy, Pandas, Matplotlib, Azure, AWS, Git, Docker, Bash

Languages: Czech (native speaker), English (C1, TOEFL iBT 105), German (A2)