

Patrik Backo

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GitHub: <https://github.com/PatrikBacko>

EDUCATION

Charles university, Faculty of Mathematics and Physics	2024 - 2026
- Master's degree candidate of Language Technologies and Computational linguistics	<i>(anticipated completion)</i>
Charles university, Faculty of Mathematics and Physics	2021 – 2024
- Bachelor's degree of Computer Science	

EXPERIENCE

Deep Learning Visual Engineer at ATG (Advanced Technology Group)	<i>Nov 2025 – until now</i>
- sole AI expert, independently driving the technical design and implementation of deep learning models for NDT (non-destructive testing)	
- Developing end-to-end vision software pipelines, managing the full workflow from curating industrial big data to training and integrating SOTA algorithms/models.	
AI Researcher at Faculty of Electrical Engineering, Czech Technical University in Prague	<i>Mar 2025 – until now</i>
- Investigating model properties and dataset biases in Visual-Language Models (VLMs) such as CLIP and SigLIP.	
- Mitigating identified biases to build more robust image retrieval systems.	
Junior Data Science Intern at MSD Czech Republic	<i>Nov 2023 – Oct 2025</i>
- Statistical data analysis, machine/deep learning, computer vision in python	
- Model deployment – AWS, Databricks	
Student developer at Siemens	<i>Aug 2022 – Dec 2022</i>
- Coding in C# and python,	
- Assisting with network and Linux administration	

PROJECTS

Drum one-shot sample generator – bachelor's thesis, Deep neural network based on VAE architecture generating sounds of drums for production of electronic dance music. Python, Pytorch, communication with music producers
Graph Theory Library – Object Oriented .NET library for graphs and algorithms from graph theory. Uses generic types, delegates, unit tests, json serialization, fluent syntax, and other programming concepts.
Speech coach – A Python application featuring a Streamlit frontend and FastAPI backend designed to analyze spoken English. It integrates Whisper for transcription and Llama LLMs to identify mistakes and provide actionable feedback.

LANGUAGES

- Slovak – native speaker
- English – advanced

COMPETITIONS AND INTERNSHIPS

- Deep learning micro-credentials at Charles University
- Unit 2023 - Hackathon
- Google Hash Code 2022
- Spring school of programming – Žilinská University (building and programming the solar energy car model)
- MiniErasmus - Comenius University in Bratislava, Faculty of Mathematics, Physics and Computer Science

ANOTHER ABILITIES

- Ability to **learn fast** and obtain **new skills quickly** – (previous work experience, Siemens and MSD)
- **Ambition** - (studying challenging University while working in my study field)
- **Friendly and positive attitude** - (University, high-school math/computer science competitions and conventions, team sports ...)
- **Independence** – CTU research and ATG job experience

INTERESTS

- cooking, finance, sports (climbing, hiking, skiing, badminton), computer games, cinematography, books