

# Patrik Backo

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

## EDUCATION

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

## EXPERIENCE

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

## PROJECTS

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**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

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- Slovak – native speaker
  - English – advanced

## COMPETITIONS AND INTERNSHIPS

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- **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

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- 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

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