

# Tomáš Majerčík

Student at Faculty of Informatics and Information Technologies, STU;

NLP Research Intern at KInIT



## Contact

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**GitHub:** <https://github.com/tomasmajercik>

## Education

### 2023 - present

Faculty of Informatics and Information Technologies, STU

### 2019 - 2023

Gymnázium Antona Bernoláka

## Language

Slovak	Native
English:	Upper-intermediate
German:	Begginer

## Top skills

### Programming languages

Python · Pytorch · Transformers (lib) · PHP · JavaScript · React JS / native · HTML · CSS · PostgreSQL ·

### Programming Tools

Git (GitHub) · Figma · Latex · Linux (Command prompt) · Arduino

### Soft skills

Mentorship · Adaptability · Problem Decomposition · Teaching Complex · Communication · Time Management · Topics Simply · Responsibility · Patience · Creativity Skills

## About Me

Currently, I am studying at the Slovak University of Technology, Faculty of Informatics and Information Technologies. Playing guitar has been a big part of my life - it has taught me patience, creativity, and the joy of continuous learning. I'm passionate about coding, problem-solving, and building cool things with technology. I enjoy exploring different areas of tech, from software development to AI.

## Work Experience

### NLP Research Intern

Intern Researcher in Bratislava, Slovakia

- Jun 2025 - present
- AI, machine learning
- mechanistic interpretability
- research oriented
- presenting my work
- Memory-efficient training

### Programko

Lecturer in Bratislava, Slovakia

- October 2024 - January 2025
- Lecturing scratch on a primary school

## Projects

### Language specific neurons

Python · PyTorch · HF

- Identified language-specific neurons in multilingual transformer models using entropy-based analysis
- Implemented a pipeline with Hugging Face models to record neuron activations and compute LAPE entropy across multiple languages
- Built and saved language-specific neuron masks to enable targeted analysis and intervention
- Prepared ground for leveraging these neurons to improve fine-tuning on low-resource languages through selective capacity reallocation
- + LoRA, Quantization, PyTorch hooks, Entropy analysis (LAPE)
- + SSH (remote GPU), Code optimization, Visualization
- + Paper replication, Presentation / reporting

### Code completion evaluation

Python · Hugging Face

- Prepared a dataset for fill-in-the-middle code completion using AI models (StarCoder2, Hugging Face)
- Evaluated outputs with NLP metrics (Exact Match, chrF++, Levenshtein)
- Manually analyzed model behavior and code prediction quality

### Turnify mobile app

React Native · NodeJS · PostgreSQL

- Developed a cross-platform mobile app for organizing tournaments
- Complete mobile app development
- + Frontend / REST API with Node.js (Express.js) / Database skills
- + UI, design, collaboration

### Document Management

ReactJS · SASS · PHP · MySQL

- A document management web app
- Implemented file uploading, managing, and downloading
- + Database for storing documents and photos
- + Handling problems with file uploading and storing

### Arduino projects

Embedded C++ (Arduino)

- Explored embedded systems by working with Arduino
- Experimented with sensors and actuators
- + Fundamental understanding of electronics
- + Real-time programming and sensor data processing
- + Hands-on prototyping

More work on the github link