Jan Neumann

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Software Engineer & ML Engineer at SoftVision s.r.o.
Artificial Intelligence & Computer Science MSc. with distinction @ FEE CTU Prague
Member of Czech Alpha Chapter of Upsilon Pi Epsilon
graduate of prg.ai Minor

I have always strived mainly for **breadth** in my scope of knowledge across different fields of **CS and AI / ML**. I pride myself on having a **strong sense for well-designed, 'clean' code.** Whilst paradigm-agnostic, I lean towards a **functional programming** code style, a clean separation of concerns, and I am an advocate for writing **strongly typed code** (even in languages such as Python).

Lastly, a proud **neovim user**.

Experience

Software & ML Engineer @ SoftVision s.r.o.

Jan 2025 — Present Prague, CZ

An AI powered algorithmic cryptocurrency trading fund. Within a small engineering team, responsibilities span **the full pipeline: research, modeling, ML and RL model training (custom impl), parallel & vectorized data processing on time-series data (PyTorch, Pandas), data science, and production model deployment (Docker)**.

Also worked on refactoring a healthcare project PoC **(Python + FastAPI & TypeScript + React) into a production-ready service**: enforced a model-first design, used Pydantic on top of MongoDB, designed a special scoring algorithm of questionnaires with strong enforcement of specific constraints on top of an LLM chatbot.

Backend Software Engineer @ Oracle NetSuite

Jul 2022 — Dec 2024, Part time during studies Prague

Worked on a large-scale, multi-team enterprise cloud platform in Java 17 and Oracle SQL. Optimization of complex SQL statements for performance, resolving bugs reported by customers in legacy code, as well as implementation of new features.

Software Developer @ Blindspot Solutions s.r.o.

Nov 2021 — May 2022, Part time during studies Prague

Worked on a computer vision project for a CZ startup and a natural language processing / data science / semantic web project for a US startup. Mainly Python and PyTorch.

Education

Master's Degree @ FEE CTU — With Distinction

Jun 2021 - Jun 2024 Prague, CZ

M.Sc. Artificial Intelligence and Computer Science.

Bachelors's Degree @ FEE CTU — With Distinction

Jun 2018 — Jun 2021 Prague, CZ

B.Sc. Artificial Intelligence and Computer Science.

Recent Projects

Scaling Up Deep Relational Learning @ FEE CTU

Jun 2023 — Jun 2024 Prague, CZ

The subject of my master's thesis. Designed and implemented a **compiler-like component** for a **novel (differentiable) machine learning framework,** to convert its original universal (but CPU-bound) implementation to one that utilizes a GPU efficiently. The result **outperforms PyTorch Geometric (SOTA for GNNs) in training speed** on the architectures it supports, while natively supporting a much broader class of architectures that PyTorch Geometric does not. The core challenge was finding good setups for efficient parallelization via symbolic transformations, for which I took inspiration from a Compiler Construction course (in Scala) I took at TU Delft in the Netherlands.

Received **"best students of electrotechnical faculties award"** from **Josef Hlavka Foundation**.

Code available **on GitHub**.

A Deep Learning Blueprint for Relational Databases @ FEE CTU

Jun 2023 — Jan 2024 Prague, CZ

Apply deep learning directly to your SQL database (as-is) using Transformer architectures. Co-authored paper published at **TRL @ NeurIPS 2023**.

Planning Methods and Controllers for Autonomous Vehicles @ TU Delft

Nov 2022 — Feb 2023 Delft, NL

Co-authored *"A Bi-level Real-time Microsimulation Framework for Modeling Two-dimensional Vehicular Maneuvers at Intersections"* paper published at **IEEE ITSC 2023**. Received **"Best Student Paper Runner-Up"** award at the conference.

AI Center @ FEE CTU (Bachelor's Thesis)

Jul 2020 — Jun 2021 Prague, CZ

Finding an appropriate approach to optimizing charging station locations and sizing for electric vehicles. The subject of my bachelor's thesis, as part of a collaboration with ŠKODA AUTO. Development in **Python, C++ and Gurobi**.

Older Projects

Dept. of Computer Graphics and Interaction @ FEE CTU

Sep 2018 — Dec 2019 Prague, CZ

Occured prior to my studies at FEE CTU. Work constituted the analysis and comparison of various depth sensors and their underlying technologies, as well as the development of a set of related tools in Python.

Marketplace

Oct 2017 — May 2018

A SPA **web application** developed in **PHP (Laravel) and TypeScript (Vue.js)**, similar in functionality to Facebook's marketplace.

Zdraví, které baví

Oct 2016 — Sep 2018, Feb 2021 — Sep 2021

A personal **website** of a health, fitness and wellness consultant, written in **JavaScript (Eleventy)**. Near-perfect Google PageSpeed Insights score. Integrated with a **CMS-like system** that rebuilds the site upon changes in a **WYSIWYG editor**, with live preview using **React**. Published on Netlify.

Crate Run

2014 — 2015

An **Android mobile game** made first in Unity, later in **Java and LibGDX**. The game was published on Google Play. I was 15 - 16 years old then. It is no longer available.

Furthermore, contribution to other projects, also related to electric mobility, such as a shortest distances computation library in C++.

Education-Related

Upsilon Pi Epsilon — Czech Alpha Chapter

2021 — *Present* Prague, CZ

Member since 2021, chosen based on my academic achievements.

Exchange Semester

Technische Universiteit Delft

Sep 2022 — Feb 2023 Delft, NL

prg.ai Minor

finished Jun 2021 Prague, CZ

Done in addition to my standard bachelor's degree programme.

Languages

Czech (native)

English (C1 level)

German (basic)