

MICHAŁ FLAK

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ABOUT

Software engineer with over 7 years of experience.

Currently building apps with large language models (LLMs), experienced in backend and blockchain (Solana) development.

EDUCATION

University of Strathclyde BA Product Design and Innovation	Glasgow, Scotland Nov 2015 - Jun 2016 (switched to CS)
AGH University of Science and Technology BEng Computer Science	Kraków, Poland Nov 2017 - Sep 2022

EXPERIENCE

Monadical <i>Distinguished Software Engineer</i>	Remote Nov 2021 - Present
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- Involved in internal ML R&D projects, including a Stable Diffusion interface, Minecraft skin generator, semantic search enabled Zulip fork and a RAG engine for internal company data
- Open source contributions to Danswer, LlamaIndex and Metaplex
- Integrated Solana blockchain with OpenSea NFT exchange, then worked on DevVel at OpenSea

Stats Perform <i>Software Engineer</i>	Remote Nov 2020 - Nov 2021
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- Modernized and migrated a suite of ~60 legacy .NET desktop and web applications from on-premise datacenter to AWS
- Worked with a team of initially 15, later 5 highly experienced engineers
- Worked with Terraform, Jenkins, Auth0

Betsold Ltd <i>Lead DevOps Engineer</i>	Remote Dec 2018 - 2020
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- Responsible for setting up CI/CD pipelines and scalable infrastructure in AWS for the auction platform
- Managed a team of 4 engineers
- Continued application development until and after product launch

Betsold Ltd <i>Software Engineer</i>	Glasgow, Scotland / Remote July 2016 - Dec 2018
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- Joined in early stages of a sports betting auction startup as a second developer on the team, saw its growth and journey to launch
- Developed auction API in C# / Asp.NET Web API + SQL procedures
- Worked on a live update system for auction bids over websockets, F/E + B/E

Twenty Squares Ltd <i>Project Manager / Software Engineer</i>	Remote July 2018 - October
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- Worked with a Junior Developer on a redesign / overhaul of a climate change educational game for Scottish primary schools
- Built content structure and presentation templates in Umbraco CMS
- Built a 3D "voxel" - based game using the PlayCanvas engine (Javascript / WebGL)

SKILLS

Tech - Professional:

- Languages: Python, Rust, C#, Javascript, Terraform, SQL, Powershell, bash
- Others: LLMs, RAG, LlamaIndex, Langchain, Pytorch, Ray.io, Modal, Solana, Anchor, AWS, CI/CD, Machine Learning (ML), parsing / CFGs

SELECTED PROJECTS

How to make LLMs speak your language *blogpost*

<https://monadical.com/posts/how-to-make-llms-speak-your-language.html>

Post describing guided LLM generation and an overview of available tools.

Lisp interpreter *Python*

<https://github.com/elo-siema/toy-lisp-interpreter>

Interpreter of a simple lisp-like language. Made with Python using SLY.

HyperMaze *Rust, Webassembly*

<https://github.com/elo-siema/HyperMaze>

Experiment in non-euclidian geometry - maze game taking place on a hyperbolic plane. Became my engineering thesis.

Chip8 emulator *Rust*

<https://github.com/elo-siema/rust-chip8>

Simple game console emulator written in Rust as an exercise.

6onode *Javascript*

<https://github.com/elo-siema/6onode>

Alternative multithreaded client of a popular online chat service (websocket-based). Reverse engineered the communication protocol from obfuscated Javascript and with the help of Wireshark. Automatic switching of VPNs for new conversations.

Centipede *Javascript*

Emulator of an arcade game Centipede by Atari. Used an existing JS emulator of MOS6502, wrote the remaining bits (graphics, memory mapping, I/O). Uses the original game ROM dump. Created as a recruitment task.

COURSES

Machine Learning Coursera by Andrew Ng

Exercises in Octave.

Zero to Hero by Andrew Karpathy

Implemented things from the basics of ML (autograd engine, backpropagation) to a toy character-level transformer in Pytorch.