

Bc. Michal Novotný

12+ YEARS PRODUCTION ENGINEERING

Senior Systems, C++/CUDA & AI Software Engineer · Local LLMs, Linux Infrastructure & Low-Latency Systems

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OBJECTIVE & PROFILE

I am seeking a challenging engineering role where I can apply 12+ years of professional C++/Python, Linux systems, and cloud infrastructure experience while advancing in modern AI engineering. Known for precision, systematic problem solving, and dependable on-time delivery, I bring strong drive and curiosity to every project. Currently, I build projects such as **StarGazer** (Node.js + Codex MCP) and compete in public AI challenges including **gemma-4-developer-agent**, designing structured agentic workflows and technical specifications across frontier models and local open-weight LLMs.

SYSTEMS & PERFORMANCE
C / C++ · CUDA · FFmpeg APIs · Shared Memory IPC · Linux (CentOS, Fedora, OSTree)

AI, LLMS & MACHINE LEARNING
Local LLMs · Agentic Workflows · TensorFlow / Keras · Scikit-learn · River · OpenCV

CLOUD, PACKAGING & DEVOPS
Python · Flask / Django · Docker · Ansible · AWS · Prometheus / Grafana · Bash

DATA & APPLICATION STACK
PostgreSQL · TimescaleDB · MySQL · Redis · Elasticsearch · PHP (Zend) · C#

WORK EXPERIENCE

2006 – Present

AI / Virtual Reality Developer

Nov 2026 – Present

VR Group, a.s. · Czech Republic

Setting up and developing an internal, on-premise LLM assistant intended for daily engineering and management workflows. In parallel, developing and maintaining the core C++ engine of a military flight simulator, most recently focusing on rewriting its collision detection subsystem.

C++ · Local LLMs · Flight Simulation Engine · Collision Detection

Self-Employed Machine Learning Engineer

Mar 2024 – Oct 2026

Independent / Freelance · Brno

Built an end-to-end time-series forecasting platform from several years of independent R&D, combining large-scale data pipelines with deep neural networks in TensorFlow/Keras, NumPy, Pandas, Numba, Scikit-learn, and River over PostgreSQL with TimescaleDB (psycopg2). Deployed trained models to AWS and instrumented training workloads with Prometheus and Grafana.

TensorFlow / Keras · PostgreSQL + TimescaleDB · AWS · Prometheus / Grafana · Numba / River

Senior Software Engineer

Jul 2019 – Mar 2024

Comprimato · Brno

Engineered low-latency live video streaming software for real-time codec and transport format conversion, primarily in C++ using CUDA and FFmpeg APIs alongside Python and Bash CI/system tooling. Developed a custom Linux OS image based on OSTree and CentOS 7 supporting atomic whole-filesystem snapshot updates. Specialized in latency and throughput optimization, notably replacing unnamed pipes with shared-memory IPC and re-architecting internal process parallelization.

C++ · CUDA · FFmpeg APIs · Shared-Memory IPC · OSTree / CentOS 7 · Python / Bash

Web Developer
Feb 2019 – Jun 2019

Freelance · Brno

Delivered custom e-commerce storefronts and web applications for commercial clients including Portadesign, ProTibet, and Steeltrading using PHP, MySQL, and Elasticsearch full-text search.

PHP · MySQL · Elasticsearch

Software Engineer
Dec 2015 – Jan 2019

Red Hat, Inc. · Brno

Worked across the full stack on Copr, Fedora's open-source RPM build system—spanning the Flask, jQuery, and PostgreSQL web frontend down to automated cloud VM orchestration for isolated package builds. Created the rpkg command-line utility to streamline everyday packaging workflows for Fedora maintainers and developers. Wrote primarily Python and Bash while maintaining Fedora Infrastructure Ansible playbooks and production Docker workflows.

Python · Flask · PostgreSQL · Docker · Ansible · Fedora Copr & rpkg

C++ Programmer
Jan 2015 – Nov 2015

FEI Czech Republic · Brno

Developed hardware-control software in C++ on Windows for electron microscopes, owning the system responsible for rapid specimen exchange into the microscope's main vacuum chamber. Also created several internal C# GUI applications for hardware testing and diagnostics.

C++ · Windows · C# · Hardware Control

Python Web Programmer
Feb 2013 – Nov 2014

Freelance · Brno

Built custom Python web applications powered by Django and PostgreSQL with strong emphasis on clean, non-redundant architecture and thoughtful UI ergonomics. Administered customer CentOS servers running web and email services, maintaining availability via Monit, Munin, and custom top-log monitoring scripts.

Python / Django · PostgreSQL · CentOS · Monit / Munin

Web Backend Programmer
Mar 2012 – Jan 2013

Portadesign · Brno

Designed and implemented PHP/MySQL web backends on the Zend Framework, incorporating Redis as a caching layer. Gathered customer requirements, proposed clean and maintainable technical architectures, and managed the company's CentOS production web servers.

PHP / Zend · MySQL · Redis · CentOS

C/Python Software Engineer
Jan 2010 – Jun 2011

Radiante s.r.o. · Brno

Part-time engineering role during university developing load-testing and operational software for US telecom vendor Tekelec. Implemented the Python database layer for an employee web scheduler and extended existing Linux C/C++ load-testing tools used directly against physical telecommunications hardware.

C / C++ · Python · Linux · Telecom Load Testing

Army Simulators Software Engineer
Jul 2007 – Aug 2007

E-com · Brno

Summer contract building C++ touch-panel software for the Fennek armored vehicle simulator, enabling operators to control vehicle subsystems such as door actuation and engine ignition.

C++ · Embedded Touch UI · Military Simulator

Army Simulators Software Engineer

Jul 2006 – Aug 2006

E-com · Brno

Summer contract contributing to a German Air Force training center project, implementing a C++ Windows socket library to coordinate remote VideoLAN (VLC) clients for live trainee monitoring.

C++ | Windows Sockets | VLC Control

EDUCATION

Theoretical Informatics (Bc. / B.Sc.)

2005 – 2011

Masaryk University · Brno, Czech Republic

Built a strong computer science foundation solving algorithmic problems across Haskell, Prolog, Python, C, C++, and Java alongside deep GNU/Linux systems experience. Bachelor's thesis, *"Job Scheduling with the SLURM Resource Manager"* (is.muni.cz/th/173052/fi_b_b1/), analyzed and benchmarked SLURM cluster scheduler APIs. Competed repeatedly in the FIbot virtual-arena strategy competition, earning a best placement of **2nd overall**.

Computer Science (Exchange Semester)

Sep 2007 – Dec 2007

University of Nottingham · Nottingham, United Kingdom

Academic exchange programme in Great Britain focused on game theory, artificial intelligence, and combinatorial optimization while significantly advancing spoken and written English.

PROJECTS & INTERESTS

Agentic AI Orchestration & Competitions (gemma-4-developer-agent)

Currently focused on orchestrating LLMs through structured workflows—authoring precise technical specifications that guide agents to produce clean, verifiable implementations.

Frontier & Local LLMs | Agentic Workflows | Technical Specifications

StarGazer — github.com/clime-alertviz/StarGazer

Full-stack stargazing & outdoor outing planner pairing a web application and SQLite backend with authenticated MCP tooling (OpenAI Codex CLI), combining Open-Meteo cloud forecasts, Astronomy Engine sky ephemeris calculations, and Geoapify journey routing.

Node.js | MCP SDK | OpenAI Codex CLI | SQLite | Open-Meteo | Astronomy Engine

MotionPaint — github.com/clime/motionpaint

Earlier open-source computer vision project implementing real-time color-change tracking in live video streams to render interactive graphical effects.

Python | OpenCV | Qt

Algorithmic Problem Solving & Linux Internals: Long-time student of GNU/Linux internals; practiced algorithmic challenges on Project Euler and CodeAbbey and competed several times in Google Code Jam.

Personal Interests: Strategy board games (formerly chess, currently Go), dancing, and playing acoustic guitar.

GENERAL

Languages: Czech (Native), English (Fluent)

Driving Licence: Category B