

ROMAN NEČAS

+421 919 407 379 | roman@necas.me | necas.me | linkedin.com/in/roman-necas | git.necas.me/roman.necas

EDUCATION

Brno University of Technology – Faculty of Information Technology

Brno, CZ

Bachelor of Information Technology (expected Jun. 2026)

Sep. 2023 – Present

- Bachelor's thesis: Detection of AI-generated video

Gymnázium Ladislava Novomeského

Senica, SK

Computer Science specialisation

Sep. 2015 – May 2023

- School-leaving exam in Computer Science and Mathematics, both passed with grade 1 (highest)

PROJECTS

Encrypted ICMP Covert Channel | *C, OpenSSL (AES), raw sockets, Linux*

2025

- Built a client/server tool in C that exfiltrates arbitrary files through a covert channel hidden inside ICMP/ICMPv6 Echo-Request/Reply packets, with AES encryption over raw sockets.
- Designed a custom transport protocol on top of ICMP for file segmentation, metadata handling, and integrity verification.

Secured SOHO Network | *Docker, Traefik, WireGuard, Authentik, Mailu, AdGuard*

2025

- Built and secured a complete small-office / home-office network on a single VPS: router with NAT, Traefik reverse proxy with TLS, AdGuard DNS, Mailu mail server, WireGuard VPN, and Authentik AAA for centralised SSO across services.

Interpreter | *Python 3.11, Lark, PHP 8, XML, OOP*

2025

- Implemented a two-stage pipeline for a custom object-oriented language: a Python front-end using Lark for lexical/syntactic analysis, emitting an XML AST after static semantic checks.
- Developed the back-end interpreter in PHP 8 with an OOP design split across *Model / Expression / Statement / Values* namespaces – classes, methods, blocks, message-passing semantics, and runtime object model.

Winery Management System | *Laravel 12, PHP 8.2, Tailwind CSS, Vite, MySQL, Docker*

2025

- Built a full-stack web application for winery management and e-shop, with role-based access control via Laravel Policies.

ESP32 Heart-Rate Monitor | *C, ESP-IDF, FreeRTOS, PulseSensor, I²C OLED*

2025

- Built an embedded system measuring heart rate via photoplethysmography: ADC sampling on a hardware timer, Kalman-filtered signal, active threshold-crossing beat detector, and live OLED output.

TECHNICAL SKILLS

Languages: C, C++, Python, Java, JavaScript (Node.js), PHP, Bash, SQL, VHDL, MIPS64 assembly, L^AT_EX

Frameworks / Libraries: Laravel, Lark, JavaFX, JUnit, ESP-IDF, FreeRTOS, SIMLIB, PyTorch, torchvision, scikit-learn, NumPy, OpenCV

Infrastructure / DevOps: Docker, Docker Compose, Linux (Debian/Ubuntu), Traefik, Caddy, NAT/iptables, UFW, Fail2ban

Security / Networking: Raw sockets, ICMP, Wireshark, OpenSSL/AES, WireGuard VPN, Authentik SSO, SIP/VoIP

Databases / Web: MySQL, Oracle SQL (PL/SQL, triggers, procedures), Tailwind CSS, Vite

Tools: Git, GDB, Valgrind, Make/CMake, Maven, Composer

Spoken: Slovak (native), Czech (fluent), English (fluent), German(basics)

Interests: Cybersecurity, space, engineering, science, self-hosted infrastructure