Prague, Czechia
+420 723 359 847
cichra.r.business@gmail.com
cichrrad
cichrrad
Czech (Native), English (Fluent), Spanish (Basic)

Bc. Radek Cichra

Objective

M.Sc. student specializing in **High-Performance Computing (HPC)** and **System Programming**. Combining a rigorous mathematical background (FNSPE with Honours) with practical software engineering (FIT). Interested in **C++, Ruby, Parallel programming** and **(graph) algorithms** (TNL, CUDA, Kokkos, OpenMP).

Education

2024–Present **Ing. (M.Sc.) in Computer Science – in progress**, *Czech Technical University – FIT*, Prague, Czechia
Master's Thesis: Portable High-Performance Implementation of the Maximum Flow Problem using Kokkos (Device-agnostic parallel graph algorithm).

2024 **B.Sc. with honours in Applied Informatics and Computer Science**, *Czech Technical University – FNSPE*, Prague, Czechia
Bachelor's Thesis: Parallel graph algorithms for GPU.

Experience

2023–2024 **Developer, Template Numerical Library (TNL)**, *Czech Technical University*, Prague
Developing and implementing graph algorithms using TNL and CUDA as part of Bachelor's thesis

2024 **Co-Author, UTEI Course Scripts**
Co-authored 38-page guide on Deterministic Automata, Turing Machines, and grammars

2023 **Teaching Assistant, ZPRO Course**, *Czech Technical University*, Prague
Guided first-semester students in Python programming

2020 **English Tutor**, *Vachta Milevsko*, Milevsko
Tutored grades 5–11 in English language skills

Skills

Languages **C/C++, Python, Ruby**, Java, TypeScript, GDScript

Technologies Linux, Git, OpenMP, CUDA, (C)Make, Kokkos, Godot

Other College graduate level mathematics & computer science theory; Elder Scrolls Lore

Certifications & Courses

2024 English C1 Certificate – Common European Framework of Reference (CEFR)

2024–2025 Chaos Software Data Structures in C++ and Machine Learning Course (with certificate)

Projects

Ruby/C (Greybox) Fuzzer, *GitHub: cichrrad/apt-fuzzer*

- Designed a coverage-guided fuzzer with a **forking server** architecture with seed power profiles (**AFL**-inspired).
- Implemented a custom C instrumentor that injects **shared memory** communication, utilizing runtime pointer swapping for efficient IPC coverage collection for seed energy calculation.

CUDA Canny Edge Detector, *GitHub: cichrrad/ni-gpu-canny*

- Developed a fully parallelized edge detection pipeline on GPU.
- Optimized memory access using **Shared Memory tiling** for Gaussian blur and hysteresis thresholding kernels.

Algorithmic Dithering Suite, *GitHub: cichrrad/bi-pgr-dither-app*

- Implemented 6+ error diffusion algorithms (Floyd-Steinberg, Stucki, Sierra) using raw matrix operations.
- Built a modular Python UI for real-time parameter tuning and image processing experimentation.

Interests

Music, Fantasy Literature, Linux Customization, Unnecessary Automation and **Game Completion** (Achievement Hunting)