Maxim Zubakha'18

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System Programming and Applied Mathematics

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About me

I am C developer interested in low-level programming and optimizations.
My goal is to develop skills in binary optimization to create high-performance solutions for real-world problems.
In my free time I play volleyball and make music.

Education

Bachelor Student

MIPT - System Programming & Applied Mathematics — Sep 2024 - present time

Mathematical Analysis · Algorithms: Analysis & Development · Computer System Architecture & Assembly Languages

GPA: 7.6

Personal Projects

Soft Processing Unit (SPU)

Oct 2024 - Nov 2024

https://github.com/lvbealr/SPU/

C · Make

- Development of an interpreter for a stack processor with support for basic operations
- Implementation of a simplified assembler for translation to binary format
- Creating a stack machine with register and label support
- Video memory simulation via two-dimensional buffer to output simple graphics to the terminal

Esoteric Prison Programming Language

Dec 2024 - present time

https://github.com/lvbealr/Language/

C/C++ · graphviz

- An esoteric language compiler implementation. Syntax is based on prison jargon
- Convert source code to AST (cross-compilation is provided). Recursive descent parser
- Translation of syntax tree to assembly x86-64 code (under development)

Mandelbrot Set

Mar 2025 - Apr 2025

https://github.com/lvbealr/MandelbrotSet/

C/C++ · GLSL · SFML 3.0 · SIMD · Multithreading

- Baseline CPU implementation using naive iterative algorithms for fractal generation
- AVX256 optimized version leveraging SIMD intrinsics to parallelize computations
- GLSL/OpenGL shader-based GPU implementation for real-time rendering, utilizing parallel processing capabilities of modern graphics cards

Skills & Tools

Skills

C/C++ · x86-64 assembly · Python · Bash

Tools

Linux · Git · CMake · Make · Ghidra · radare2 · NASM · Graphviz · Doxygen

Libraries

SFML 3.0 · GTK 4.0

Soft Skills

Effective communication · Adapting to change · Decision making · Active listening