Maxim Zubakha'18

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System Programming and Applied Mathematics

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About me

I am a student and C developer who loves delving into low-level programming and squeezing the maximum out of systems.
I am fascinated by how code behaves at the hardware level,
so I am studying binary optimizations, operating systems, and profiling.
I enjoy optimizing memory management and disassembling assembly code.

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 (Von Neumann architecture)
- Implementation of a simplified assembler with support for basic operations for translation in 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 Programming Language

Dec 2024 - present time

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

C/C++ · graphviz · Make

- 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 · Make

- 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
- Baseline CPU implementation using naive iterative algorithms for fractal generation

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