

# RACHKOV MIKHAIL

2nd year student at MIPT DREC

@rachkov.mv@phystech.edu  
t.me/lucky\_038

7-988-414-01-61  
Mikhail038

Dolgoprudniy, Russia



## PROJECTS

### Operating System

work in progress

https://github.com/Mikhail038/ZeroOS

C++ Assembly

Project to explore Operating Systems. Uses grub to boot-load system. On current moment has implementation of keyboard driver (interruption manager + hardware communication) and simple Text User Interface.

### Language Compiler

https://github.com/Mikhail038/MY\_Language

C Assembly GraphViz

Compiler for my own (reduced C) language. Translates code to assembly and then creates an ELF executable file. Project consists of Lexer, Recursive Parcer, AST-Tree to ASM translator and finally ASM to ELF translator.

### CPU Emulator

https://github.com/Mikhail038/MY\_CPU

C

Project to explore CPU work. Translates "ASM-code" (reduced ASM) to "machine code" (MC) and then executes it on own CPU (C code). Project consists of ASM to MC translator, DISASM (MC to ASM), CPU implementation and own debugger, that allows to execute code line by line and observe registers, stack and memory values.

### Mandelbrot Render

https://github.com/Mikhail038/SIMD\_Mandelbrot

C SIMD

Program renders Mandelbrot Set, using SIMD instructions to fasten it. Performance growth up to 4x.

### Differentiator

https://github.com/Mikhail038/MY\_Differentiator

C GraphViz

Program finds derivative to any function, using recursive tree operations.

## SUMMARY

I am 2nd year DREC MIPT student. Mostly experienced in C programming, now learning C++. Have experience in low-level programming, using SIMD instructions, reverse engineering. Love to explore how things work and implement them by myself. Easily find way to communicate with people and try to learn from them.

## STRENGTHS

C/C++ x86 Assembly Git GraphViz

Make Linux

Hard-working Motivator & Leader

## LANGUAGES

Russian ● ● ● ● ●

English ● ● ● ● ●

## EDUCATION

B.Sc. in Applied Mathematics and Physics

MIPT

Sept 2022 - June 2026

## ADDITIONAL COURSES

X-Course (Industrial Programming in C) by Ilya Rudolfovich Dedinsky

MIPT

Sept 2022 - Aug 2023

Algoritms and Data Structures

VK Education

Sept 2023 - Nov 2023