Ivan Vodolazhenko

MIPT Bachelor Student

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Skills

- **C++**
- **C**
- **Assembly x86_64**
- **Python**
- **NVDIA CUDA**
- **PTX Assembly**
- **LLVM**
- **Kcachegrind**
- **CMake**
- **Git**
- **Tex**
- **Dot Language**
- **Make**
- **lldb**

Education

2012 – 2023 **High School Education** — General School
Graduated with a gold medal.

2012 – 2019 **Musical Education** — Musical School
Graduated with a degree in accordion.

2020 – 2023 **Physics & Mathematics & Informatics & Chemistry** — ZFTSH MIPT
The prize-winner of the final tests.

2023 – ... **Bachelor – Informatics & Computer Engineering** — MIPT
Finished:
The course of system programming and compiler technologies, C, assembly, Computer Architecture and Operating Systems
Currently:
Concurrency course, C++, Algorithms

Experience

07.2024 - 08.2024 **Baikal Electronics**
Intern in GPGPU Group
Creating simulator of GPGPU. Working with CUDA, PTX assembly.

Languages

Russian
Native language

English
12+ years of studying, B2 Level

Grades

MIPT Overall Average
7.8/10.0

MIPT Programming Average
8.7/10.0

Achievements

2022 **Olympiad**
Phystech International
Prize-winner in physics.

2022 **Sport**
Tennis
Candidate for Master of Sports.

Projects

2024 **Graphic Editor**
Tools: C++, SFML
A graphic editor designed and implemented from scratch using the SFML graphics library. It supports pencil drawing, creating geometric shapes, working with files and applying filters. New tools and filters can be added using dynamically linked plugins that comply with the developed standard.
[Link to GitHub]

2023 – 2024 **My Programming Language**
Tools: C, Assembly x86_64, Dot
Compiler for my own programming language. It consists of a parser, a simple optimizer and a translator. It compiles program for my processor emulator or for intel x86_64 architecture.
[Link to GitHub]

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Soft Skills

- **Responsible**
- **Hard-working**
- **Punctual**
- **Reliable**
- **Sociable**

2024 **Hash Table**
Tools: C, Assembly x86_64
Implementation of a hash table and optimization of its operation using low-level machine code (SIMD instructions, inline assembly language, functions written in assembly language).
[Link to GitHub]

2024 **3D Sphere**
Tools: C++, SFML
Rotating 3D sphere with changing illumination and ray casting.
[Link to GitHub]

2024 **Mandelbrot**
Tools: C, Assembly x86_64
Creating an image of the Mandelbrot set and optimizing the creation process using SIMD instructions.
[Link to GitHub]

2023 **Processor**
Tools: C
My processor emulator. It supports a set of commands written in my assembly language.
[Link to GitHub]

2023 **Differentiator**
Tools: C, Dot
This program finds the derivative of any mathematical expression and creates a LaTex document with the result.
[Link to GitHub]

2024 **My Printf**
Tools: C, Assembly x86_64
Standard C function *printf* realization using NASM. It is compatible with stdcall.
[Link to GitHub]