kolya.kasparov@gmail.com

+7 (965) 342 - 14 - 11

Moscow

nniikon

Russian	Native
English	B2

Skills

Languages:

Experienced:
C, x86-64 assembly
Familiar with:
C++, Python
Actively learning:
C++, Verilog

Tools

perf, git, make, LaTeX, bash, Ghidra, gdb(edb), (neo)vim, Doxygen, Graphviz

Soft skills

- Time management
- Stress management
- Positive attitude

Kasparov Nikolay

First year MIPT student

Projects

Mandelbrot Set — March 2024

Mandelbrot fractal renderer with various optimizations

Toolset: C/C++, perf, gdb(edb), python, make

- SIMD optimizations
- Multi-threading
- Thread pool library

Hash table — April 2024

Hash table with assembly optimizations

Toolset: C/C++, x86_64 assembly, python, perf, make

- Perf for performance analysis
- SIMD optimizations
- Assembly optimizations
- Inline assembly
- Hash functions analysis

Cman language — In Development

Compiler to x86_64

Toolset: C/C++, x86_64 assembly, Graphviz, Make

- Hand-written recursive descent parser
- Intermediate representations (e.g., AST, IR) for scalability and code optimization
- Both assembly code and binary executables are being generated
- Powerful logging and dumping systems to simplify debugging
- Developed (but not yet deployed) Yacc-like parser generator

Real Gas Simulation — In Development

Highly optimized gas simulation for a physics project

Toolset: C++, perf, make

- GLM for computations
- OpenGL for rendering
- Spatial partitioning optimization
- Tons of various optimizations resulting in ~20x performance boost

Area of interest

CPU architecture, compilers, performance optimizations

Hobbies

Classical guitar and piano, chess, hiking

Asm Printf

March 2024

Printf clone written in x86_64 assembly

Toolset: C, X86_64 assembly, perf, make

- Hand-written switch statement
- Many format specifiers available, including floating point numbers
- Follows AMD64 ABI

Education

Moscow Institute of Physics and Technology (MIPT)

2023 - 2027

Dolgoprudny, Russia

First-year student at the Department of Radio Engineering and Computer Science.

Last semester **GPA**: 8.7/10.0
Last semester **GPA** for CS only: 10.0/10.0

System programming and compiler technology course (MIPT)

2023 - 2024

Dolgoprudny, Russia

Graduated with a GPA of 5/10 and 10/10 for the first and second semesters, respectively.

Achievements

Winner of the Phystech Olympiad in Physics.

February 2023

Scored 41/50

Winner of the MSU Olympiad in Physics.

March 2023

Scored 85/100