Anton Hmelnitskiy, 2nd-year Bachelor's student at DREC,MIPT

Personal Information

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I'm 2-year Bachelor of the Department of Radio Engineering and Computer Technology at the Moscow Institute of Physics and Technology. I completed "System programming and compiler technology course", where I gained skills in managing large projects, debugging, and code optimization. I also have experience in Python, graph plotting and approximation and in radio engineering.
GPA : 7.96/10

Experience

ISP RAS, Crusher. August 2024 - now

Main Projects

❒ **Language** (GitHub)

C NASM Translation

Developed a translation system that converts from code on my language to binary tree and next to NASM. Consists of FronEnd, BackEnd and includes parser, lexical analyzer and translator to assembler with my standard library(written on NASM).

❒ **Differentiator** (GitHub)

C Python GraphViz LaTeX

Created a tool that differentiates expressions(based on binary tree) and generates a LaTeX book. The generated logs (in addition to GraphViz) contain randomly generated jokes, plotted graph using Matplotlib.

❒ **HashTable** (GitHub)

C Assembler SIMD Perf

Project of hash table creation with research of working speed. In this project I worked with profilier(Perf), analyzed distributions of different hash functions and used low level optimizations like SIMD, assembler inserts and aligning to increase speed of hash table.

❒ **Mandelbrot Set** (GitHub)

C SDL AVX

Visualized the Mandelbrot set using SDL/SDL2, comparing different pixel processing functions. I measured FPS and execution time using rdtsc(), and compared various optimization combinations : standard, with merged pixels, and with AVX instructions.

❒ **Mega-Humidifier** (GitHub)

Arduino 3D Printing PCB Laser

This is a project for the development of a smart air humidifier. In it I used technologies such as Arduino programming, PCB design, laser cutting, 3d modeling and printing. The electronic modules included a display, RTC-module, MOSFET, sensors and e.t.c.

Hard Skills

Programming languages : C, C++, x86 Assembler, Python, Shell.
Other languages : Markdown, dot, HTML, LaTeX, LibreOffice.
Tools : Git, Docker, Make, CMake, Perf, EDB, IDA, Doxygen.
Libraries : SFML, SDL/SDL2, Matplotlib, GraphViz.
Languages : Russian(Native), English(B1).

Soft Skills

Communication, responsibility, motivation, creativity.