

# Hmelnitskiy Anton

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## Personal Information

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I'm first-year student of the Department of Radio Engineering and Computer Technology (DREC) at the Moscow Institute of Physics and Technology (MIPT, Phystech). I completed Ilya Dedinsky's "System programming and compiler technology course" (Grade in 2 term : 9/10), where I gained skills in managing large projects, debugging, and code optimization. My most interesting projects include a translator from my own language to assembler, a differentiator that generates a  $\text{\LaTeX}$  book, and projects focused on low-level code optimizations. I also have experience in Python and have worked on lab reports involving graph plotting and approximation.  
GPA : 7.6/10.


## Main Projects

### ☐ Language





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 standard library.

### ☐ Differentiator

Created a tool that differentiates expressions and generates a  $\text{\LaTeX}$  book. The generated logs (in addition to GraphViz) contain randomly generated jokes, plotted graph using Matplotlib. I parse expression, create binary tree, differentiate it and write to .tex file.

### ☐ Hash Table

Project of hash table creation with research of working speed. In this project I worked with profiler(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

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 with GCC's -O0 and -O3 optimizations.

## Hard Skills

**Programming languages :** C, x86 Assembler, Python, Shell, Bash.

**Other languages :** Markdown, dot, HTML,  $\text{\LaTeX}$ , MS Office, LibreOffice.

**Tools :** Git, Make, CMake, Perf, EDB, IDA.

**Libraries :** SDL/SDL2, Matplotlib, GraphViz.

**Languages :** Russian(Native), English(B1).

## Soft Skills

Communication, responsibility, motivation, creativity.

## Hobby

Table tennis, volleyball, board games, watching movies, listening to music.