



# DOLGOV ALEXANDER

2st year student, 19 years old

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Dolgoprudny, Russia

KetchuppOfficial

## STRENGTHS

Responsible Pedantic  
Stress-resistant Inquisitive  
Communication skills  
Quick learner

## SKILLS

Programming languages:

C C++ x86-64 assembly

Tools:

make CMake git  
valgrind gdb graphviz  
kcacheGrind

Other skills:

Bash LaTeX Markdown

## LANGUAGES

Lang 1: Russian (native)

Lang 2: English (B2/C1)

## EDUCATION

Moscow Institute of Physics and Technology | DREC

2021 – 2025 Dolgoprudny, Russia

GPA: 8.26/10

Compiler technology and professional programming | by Ilya Dedinsky

2021 MIPT

Introduction to computer architecture and assembler | by Ilya Dedinsky

2022 MIPT

Uses and applications of C++ | by Konstantin Vladimirov

2022 – 2023 MIPT

## WORK EXPERIENCE

Summer internship

August 2022 ISP RAS, Software engineering department, Vitaly Cheptsov team

Port of an algorithm of fast conversion from floating-point numbers to strings to the standard C library of RTOS

## BEST PROJECTS

C++

Triangles |

Program that intersects triangles in 3D  
Octree is used for spatial partitioning

Matrix |

Implementation of class representing matrix  
Two determinant computing algorithms are implemented

Tree |

Implementation of advanced red-black tree  
 $k^{th}$  lowest element and the number of elements less than the given one queries are of  $O(\log(n))$  complexity

C and assembly

Binary translator |

Translates binary code generated by the proprietary assembler (a part of "Processor" project) into x86-64 machine code  
Machine code is executed just after translation without making ELF

## Processor |

- Assembler/Disassembler: support proprietary instruction set
  - Virtual processor: executes programs written on proprietary assembly
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## ParaPF: para print function |

- Small assembly implementation of standard C function printf
  - Supports %b format specifier for binary output
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## Hash table |

- Quality of 7 hash functions was examined
  - Hash table search was boosted by x86-64 assembly and SIMD
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