



Victor Berbenets

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EDUCATION

MIPT(Moscow Institute of Physics and Technology)
DREC(Department of Radio Engineering and Cybernetics)

2022 - 2026
Current GPA: 7.09/10

COURSEWORK

Main Courses: Discrete Math, Linear Algebra, Calculus, Physics, Computer technologies, Uses and Applications of C++ (by K. I. Vladimirov), Compiler Technologies and Professional Programming (by I. R. Dedinsky)

LANGUAGES

1. Russian / Native.
2. English / B1-B2.

SKILLS

Programming Languages: C/C++, Python, x86 Assembler
Tools: CMake, Git/GitHub, Linux, Vim, gdb, valgrind, VS Code, Latex

BEST PROJECTS

- Cache** | C++, CMake, Bash Aug. 2023
- LFU (least frequently used) cache implementation. My introduction to basic language concepts.
- Triangles** | C++, Python, CMake, Gtest, Bash Sep. 2023
- Detecting intersecting triangles in 3D space.
 - Building your own hierarchy of geometric figures: from points and segments to triangles and planes.
- AVL Tree** | C++, Graphviz, CMake, Gtest, Bash Oct. 2023
- Implementation of an AVL-based search tree with lower-, upper-bound methods and iterators.
 - The main task, besides creating a tree, is to write an effective distance method that works in $O(\log n)$.
- Matrix** | C++, CMake, Gtest, Bash Oct. 2023
- Implementation of a matrix class with a contiguous iterator class and a method for calculating the determinant.
- MatrixChain** | C++, CMake, Gtest, Bash Nov. 2023
- Efficient matrix chain multiplication.
 - The program prints the optimal sequence of multiplying matrix pairs.
- ParaCL** | C++, Bison, Flex, CMake, Gtest, Bash Dec. 2023 - Feb. 2024
- Custom C language (Interpreter). Frontend was implemented with Flex & Bison.
 - A large project that helped to thoroughly study the basic principles of OOP.
- Graph** | C++, CMake, Bash Feb. 2024 - Mar. 2024
- Donald Knuth's representation of a graph (TAOCP 7.1).
 - The program checks the graph for bipartiteness: if the graph is bipartite, it displays its colored representation, otherwise it displays a cycle of odd length.
- OfflineLCA** | C++, CMake, Bash Mar. 2024
- Solving RMQ problem in $O(n)$ preprocessing and answering each query in $O(1)$.

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| Differentiator <i>C, Graphviz, Latex, make</i> | Mar. 2023 - Apr. 2023 |
| <ul style="list-style-type: none"> • A program that calculates derivatives with respect to all variables and outputs it all to a pdf file. | |
| CPU <i>C, make</i> | Nov. 2022 - Jan. 2023 |
| <ul style="list-style-type: none"> • Assembler: support for basic proprietary commands. • Virtual processor: executes programs written on proprietary assembler. | |