



Victor Berbenets

 github.com/VictorBerbenets
 berbenets.vd@phystech.edu

EDUCATION

MIPT(Moscow Institute of Physics and Thechnology)
DREC(Department of Radio Engineering and Cybernatics)

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 method for calculating the determinant and contiguous iterator class.
- 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 style 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 $O(1)$.

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. 	