Victor Berbenets

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Education

MIPT(Moscow Institute of Physics and Technology) 2022 - 2026
DREC(Department of Radio Engineering and Cybernetics) *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).

Differentiator | *C, Graphviz, Latex, make* Mar. 2023 - Apr. 2023

- A program that calculates derivatives with respect to all variables and outputs it all to a pdf file.

CPU | *C, make* Nov. 2022 - Jan. 2023

- Assembler: support for basic proprietary commands.
- Virtual processor: executes programs written on proprietary assembler.