Skvortsova Alina

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EDUCATION

ITMO University, Russia Sep 2023 - June 2025
Master in applied math and informatics, Department of Mathematical and Computer Modeling

Moscow State University, Faculty of Computational Math and Cybernetics, Russia Sep 2019 - June 2023
Bachelor in applied math and informatics, Department of System Analysis (GPA 4.4/5.0)

Mathematical Models in Investment Banks, Russia Feb 2022 - May 2022
Deutsche Bank
The course includes an overview of current applied problems in investment banking, as well as methods used in practice to solve them, based on the experience of one of the leading global investment banks - - Deutsche Bank AG

SKILLS

Technologies:
C++, C, Matlab, Python, LATeX, CMake, SQL, Git, Linux, Jira, Hadoop

Knowledge:
Deep knowledge in the field of mathematical analysis, linear algebra, probability theory and statistics, game theory, optimal control, differential equations,
discrete mathematics and fundamentals of cybernetics, optimization methods, mathematical economics, numerical methods and functional analysis

Languages:
English (working proficiency), Russian (Native), French (beginner)

WORK EXPERIENCE

Mathematics and computer science tutor
Sep 2021 - Sep 2023
Was working with middle and high school children, prepared for exams, entrance papers and Olympiads

ACADEMIC RESULTS

«Research into asymptotics of deflators in Cantor-Lipman model of investments in imperfect capital market»
Final qualifying paper

«Research into nonlinear dynamics and limiting behaviour of discrete and continuous dynamical systems on the plane»
Course papers

PROJECTS

Linux Shell
C, Linux

Engineered a high-performance Linux shell using C programming language, featuring a recursive descent parser to efficiently parse bash-like syntax into an RPN "middle interpretation." Implemented a stack machine for executing the parsed commands, ensuring seamless and reliable execution of complex shell operations.

Iterable Square Matrix
C++, makefile

Engineered a library to work with dance and sparse matrixes. Implemented methods include algorithms for graphs: diameter search and vertex search with the maximum number of incoming and outgoing edges. The graph can be represented as a square adjacency matrix. Depending on the task and the density of the graph (the number of edges), it is preferable to use different matrix implementations (sparse or dense).

Optimal way

Matlab

Generating an optimal way for a sapper to get from the start point to the finish point on the field full of mines. Mines places in each square with the probability $P(i, j) \in [0, 1]$. The dynamic Bellman algorithm is used to solve the problem.

Delaunay triangulation

Matlab

Delaunay triangulation is constructed on a plane using the iterative "Delete and Build"method, and the obtained triangulation points are projected onto a sphere to demonstrate the possibility of the dynamics of a three-dimensional figure without the need for repeated calculations.