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Kirill Grinko

Education

2023 – Present **Moscow Institute of Physics and Technology**, *finished 4th semester bachelor*, Overall GPA: 4.74/5; Programming courses GPA: 4.82/5
System Programming and Applied Mathematics, Phystech School of Applied Mathematics and Informatics.

2019 – 2023 **Moscow State School 57**, *grades 8 – 11*, GPA: 5/5
Focus on physics and math. Graduated with federal and Moscow gold medals.

Experience

Sep 2025 – Present **Software Engineering Intern at VK**, *database team*
Optimizing RAM usage for a high-throughput, concurrent in-memory key-value store.

Spring 2025 **Concurrency course at MIPT**
Implemented various synchronization primitives using atomic operations only. Built a thread pool and stackful coroutines. Combined them to create fibers (user-space cooperative threads) and implemented synchronization primitives for them. Developed functional combinators for working with futures (representing values computed by asynchronous operations). Implemented a lock-free data structures (atomic shared_ptr, stack, queue) using the hazard pointers scheme.

Fall 2024 – Spring 2025 **C++ course at MIPT**, *GitHub repo*
Implemented template allocator-aware data structures (unordered_map, list, smart pointers, strategy-based array, matrix), type-erased configuration system with vtable, compile-time 8-puzzle solver, JSON converter, geometry primitives, big_integer.

Fall 2024 – Spring 2025 **Algorithms and data structures course at MIPT**, *GitHub repo*
Implemented solutions to competitive programming problems covering fundamental algorithms and data structures, dynamic programming techniques, graph algorithms, algorithms on strings, and number theory algorithms.

Projects

June 2025 **Metrics lib**, *GitHub repo*, C++, CMake, Bash
A high-performance C++ library for collecting, aggregating, and writing metrics to a file. Uses lock-free containers implemented with a hazard pointer scheme for safe memory reclamation. Features an extensible architecture based on templates and interfaces, allowing users to easily define custom metrics. Includes a modular codebase with CI powered by GitHub Actions for automated building, formatting, and testing.

Fall 2024 **Graphing calculator**, *GitHub repo*, C++, SFML, CMake
A graphing calculator and plotter application. The Bridge pattern is used to separate math logic from rendering.

Spring 2024 **Box with molecules**, *GitHub repo*, C++, Qt, CMake, Python
A simulation of an ideal gas in an enclosed space, including a small research component to test the validity of the Maxwell distribution.

Fall 2023 – Spring 2024 **Physics laboratory works**, *GitHub repo*, LaTeX, Python
A collection of completed laboratory works in physics, including theoretical calculations, experimental data analysis, and visualizations using Python with numpy and matplotlib.

Skills

Hard skills	C++, Algorithms & data structures, Concurrency, C, Assembly x86 & ARM, Python, LaTeX, Git, Bash, Docker, CMake, GoogleTest, Gitlab CI/CD, Qt, SFML.
Soft skills	Quick-learning, Hard-working, Organised, Outgoing and collaborative.
Languages	English (C1), Chinese (A2), Russian (native speaker).

Achievements

2023 **All-Russian Olympiad in physics**, *final stage participant, top 80 in country*

2023 **Phystech (MIPT) Olympiad in physics**, *final stage gold medal*

2022 **Rosatom Olympiad in physics and maths**, *final stage gold and silver medals*

2019 **International Experimental Physics Olympiad**, *bronze medal*

2019 **Maxwell Physics Olympiad**, *final stage silver medal*

Extracurricular activities

2019 – 2023 **Olympiad Physics Classes**
Theoretical and experimental training for All-Russian Olympiad in physics, organized by the Moscow City Department of Education.

2020 – 2022 **Yandex Lyceum**
Python programming classes for high school students. *More info*.

2021 **QuSoft Quantum Quest**
An online course on quantum computing for high school students. *More info*.