

# Kirill Grinko

## Personal

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 (B2), Chinese (A1), Russian (native speaker).

Hobbies Calisthenics, skiing, cycling.

## Experience

Oct 2025 – Present **Software Engineering Intern at VK, Database team**

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.

## Education

2023 – Present **Moscow Institute of Physics and Technology**, *finished 4th semester bachelor*, Overall GPA: 4.70/5; Programming courses GPA: 4.81/5  
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.

## 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 for schoolchildren 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, developed by Michael Walter and Māris Ozols. *More info.*