Kirill Grinko

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Personal

Hard skills	C++, Algorithms & data structures, Concurrency, C, Assembly x86-64, Python, LaTeX, Git, CMake, Gitlab CI/CD, GoogleTest, Bash, Docker, Qt, SFML.
Soft skills	Hard-working, Quick-learning, Organised, Outgoing and collaborative.
Languages	English (B2), Chinese (A1), Russian (native speaker).
Hobbies	Calisthenics, skiing, cycling, piano.

Projects

Spring 2025 — **Concurrency course homework**, Used tools: C++
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. Upcoming: work-stealing thread pool, channels for fibers, laziness optimization for futures.

Fall 2024 – Spring 2025 — **C++ course homework**, *Github page (clickable)*, Used tools: C++
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 — **Graphing Calculator**, *Github page (clickable)*, Used tools: C++, SFML, CMake
A graphing calculator and plotter application.

Fall 2024 – Spring 2025 — **Algorithms and data structures course homework**, *Github page (clickable)*, Used tools: C++
Implemented solutions to competitive programming problems covering fundamental algorithms and data structures, dynamic programming techniques, graph algorithms, algorithms on strings, and number theory algorithms.

Spring 2024 — **Box with molecules**, *Github page (clickable)*, Used tools: C++, Qt, CMake
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 page (clickable)*, Used tools: LaTeX, Python
A collection of completed laboratory works in physics, including theoretical calculations, experimental data analysis, and visualizations using Python.

Fall 2023 — **MBTI test**, *Github page (clickable)*, Used tools: Python, Qt, SQL
A program for taking the Myers–Briggs Type Indicator (MBTI) personality test.

Fall 2023 — **Text editor**, *Github page (clickable)*, Used tools: Python
A simple text editor designed for use in an internet browser.

Education

2023 – present — **Moscow Institute of Physics and Technology**, *finished 4th semester bachelor*, Overall GPA 4.70/5, Programming courses GPA 4.81/5
Phystech School of applied Mathematics and Informatics.

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

Achievements

2022 – 2023	All-Russian Olympiad for schoolchildren in physics (Final stage participant, top 80 in country); Phystech (MIPT) Olympiad in physics (Gold); Rosatom Olympiad in physics (Silver); Moscow Olympiad for schoolchildren in physics (Silver).
2021 – 2022	Rosatom Olympiad in physics and maths (Gold, Silver); All-Russian Olympiad for schoolchildren in physics (Regional stage prize winner); Phystech (MIPT) Olympiad in physics and maths (Silver, Silver).
2020 – 2021	All-Russian Olympiad for schoolchildren in physics (Regional stage prize winner); Moscow Olympiad for schoolchildren in physics (Silver).
2019 – 2020	International Experimental Physics Olympiad (Bronze); Moscow Olympiad for schoolchildren in physics (Silver).

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 (clickable).
2021	**QuSoft Quantum Quest** An online course on quantum computing for high school students, developed by Michael Walter and Māris Ozols. More info (clickable).

Courses taken

MIPT	Analytical Geometry; Introduction to Mathematical Analysis; General Physics: Mechanics; Algebra of Logic, Combinatorics, Graph Theory; Python Practicum; Linear Algebra; Multivariate Analysis, Integrals, and Sequences; General Physics: Thermodynamics and Molecular Physics; General Physics: Laboratory Practicum 1 – 2; Fundamentals of Higher Algebra and Coding Theory; Programming Technologies; Multiple Integrals and Field Theory; Fundamentals of Theory of Measure and Probability; Computer Architecture and Operating Systems; Harmonic Analysis; Probability Theory; Computing Architecture and Assembly Languages; Concurrency; Discrete Structures 1 – 2; Differential Equations 1 – 2; Algorithms and Data Structures 1 – 3; Programming in C++ 1 – 2.