

Fedor Kurmazov

Software Engineer, 4+ years experience, GMT+3

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ABOUT

Software engineer with **4 years** of commercial experience with expertise in **backend development**, working in teams ranging from 2 to 20 members both remotely and on-site. Have modest **team-leading** experience through several contract projects. Able to design a full cycle of development: from product consumer requirements gathering to setting up CI/CD processes.

Interested in **high performance computing**, applications of **algorithms** and **data structures**, and **gamedev**. In my spare time **teaching** discrete mathematics and algorithms at my university.

In addition to programming, had [experience](#) in **computer graphics**, creating 3D models for games, was a regular participant of **math olympiads** and a member of a student scientific society in university.

SKILLS

Programming Languages: Python, C/C++, Rust, Wolfram Language, SQL; **Familiar:** Go, Lua, Haskell.

Technologies: Git, Docker, Linux, Make, CMake, Bash, GitHub Actions, PostgreSQL, YTsaurus, Bevy, Greenplum, ClickHouse, Apache Spark, Gurobi, LaTeX, Blender, GIMP, Inkscape, MS Office.

Abilities: OOP, programming patterns, parallel computing, GPU computing, system design, profiling, debugging, algorithms and data structures, combinatorial optimization, fundamental mathematics.

Languages: Russian (native), English (fluent).

EXPERIENCE

Yandex Go (St. Petersburg):

2021-08 – 2025-04

Software Engineer, Data Management Platform (DMP)

The Data Management Platform (DMP) team builds and operates the data-warehouse (DWH) infrastructure for dozens of internal Yandex services (Taxi, Food, Market, Lavka, etc.), each of which has its own streaming/batch data delivery processes, business requirements, and dedicated data engineering/analytics teams.

- Developed infrastructure for Data Warehouse with **several PiB of data**: integrated DWH with other services, extended data-entity **Python DSL**, designed an **ergonomic API** for Data Engineers.
- Enabled YTsaurus cross-cluster **data transferring** within existing ETL tasks.
- Developed a **plugin framework** and integrated it into the ETL processes, providing a common interface to **decouple** minor capabilities (logging, events, metrics collection, metadata updates, etc.).
- Implemented a **notification system** that reports ETL task execution status to improve observability.
- Integrated DMP and reactive execution system, **enabling** data consumers to subscribe to the platform's ETL pipelines.
- Designed and implemented a **DSL** to define YTsaurus composite types within the DMP framework's type system.
- Reduced the total execution time of integration tests by **2 times**.
- Investigated and solved system issues (e.g. database overflow, silent process failures).

Technologies: Python, PostgreSQL, YTsaurus, Greenplum, ClickHouse, Spark, Ubuntu, TeamCity.

(Contract) Huawei, PDMI RAS (Steklov Institute, St. Petersburg)

2024-06 – 2024-09

Technical Lead / Software Engineer — Cirbo (Boolean Circuit Analysis & Synthesis Lib)

Research and development project to build software for the analysis and synthesis of boolean circuits, carried out under a contract between Huawei Tech Company LLC and the St. Petersburg Department of the Steklov Institute of Mathematics of the Russian Academy of Sciences (PDMI RAS).

- Led a **6-engineer team**: architecture, tech-stack selection, code reviews, regular 1:1s.
- Delivered the library in time for the paper-submission deadline (it was **accepted to AAI-2025**).
- Set up library structure: dependencies, packages hierarchy, readme's, documentation (Sphinx).
- Integrated ABC and mockturtle C++ libraries as **CPython extensions** (pybind11).

Technologies: Python (poetry, mypy, flake8, black), C++17, Github Actions (unit tests, cibuildwheel).

(Contract) Huawei, PDMI RAS (Steklov Institute, St. Petersburg) 2021-09 – 2024-09

Software Developer / Researcher

Research and development project to build software for the Boolean Circuit Satisfiability (Circuit-SAT) problem solving, carried out under a contract between Huawei Tech Company LLC and the St. Petersburg Department of the Steklov Institute of Mathematics of the Russian Academy of Sciences (PDMI RAS).

- **Researched state-of-the-art** approaches to solving Circuit-SAT.
- Designed and **implemented a C++17/20 framework** for constructing a Circuit-SAT solver.
- Developed a **high-performance** Circuit-SAT solver.
- Designed **efficient algorithms** for circuit simplification and **heuristics** to speed up the solver.
- Implemented a **C++ benchmarking** harness supporting parallel runs.

Technologies: C++17/20, Github Actions (unit tests), [ABC](#).

(Contract) Gazprom Export LLC, SPbSUE 2021-03 – 2021-06

Software Developer / Researcher

Research project «Forecasting Operational Indicators of the European Gas Market» commissioned by Gazprom Export LLC together with St. Petersburg State University of Economics.

- Developed a scenario-based **balancing model** for natural gas demand.
- Performed **statistical analysis** of data on gas deliveries to the European gas market.

Technologies: Wolfram Language, Wolfram Mathematica.

Gazprom Neft, Saint-Petersburg 2020-04 – 2020-06

Intern in business planning department

- Developed **BI applications** for monitoring indicators by other departments of the company using QlikView and QlikSense.
- **Optimization** of existing SQL queries.
- Collection and primary processing of financial data.

Technologies: QlikView, QlikSense, SQL.

(Contract / Freelance) Computer Graphics 2015-04 – 2020-06

3D Generalist in Gamedev ([portfolio](#))

- Key projects:
 - Created 3D weapon models for multiplayer arena first-person shooter CityBattle | Virtual Earth by LLC RIKOR IMT.
 - Created 3D weapon and environment models for the first-person shooter Bitter End by Royal Arc.
- Full cycle of game-ready 3D models creation:
 - High-poly modelling | Mid-poly modelling | Low-poly modelling | Sculpting | Retopology (Blender).
 - UV-unwrapping | textures baking (Blender).
 - PBR texturing (Substance Painter, GIMP, Inkscape).
 - Rendering (Marmoset Toolbag).
 - Game engine asset creation (Unity).

Technologies: Blender, Substance Painter / Designer, Unity, Marmoset Toolbag, GIMP, Inkscape.

EDUCATION

COMPUTER SCIENCE CENTER, 2019–2022

Full-time **3 year** courses on «Computer Science» and «Software Engineering».

SAINT PETERSBURG STATE UNIVERSITY OF ECONOMICS – MASTER, 2020–2022

«Applied Mathematics in Economics (Operations Research)»

SAINT PETERSBURG STATE UNIVERSITY OF ECONOMICS – BACHELOR, 2016–2020

«Applied Economics (Mathematical and Statistical Methods In Economics)»

PROJECTS

1. [Open-source library](#) for boolean circuit analysis and synthesis – «Cirbo» (Python) (2024).
2. [Open-source library](#) for solving Steiner's tree problem in graphs (Wolfram Language) (2021).

TEACHING

Saint Petersburg State University of Economics

2024-09 – present.

Lecturer at Department of Applied Mathematics

- Preparation and teaching the course «Discrete Mathematics».
- Preparation and teaching the course «Optimization Algorithms on Graphs».

PUBLICATIONS

1. [Averkov D., Belova T., Emdin G., Goncharov M., Krivogornitsyna V., Kulikov A.S., Kurmazov F., Levtsov D., Levtsov G., Vaskin V., Vorobiev A. \(2025\). Cirbo: A New Tool for Boolean Circuit Analysis and Synthesis — AAAI-25](#)
2. [Averkov D., Emdin G., Krivogornitsyna V., Kulikov A.S., Kurmazov F., Smal A., Vaskin V. \(2025\). Simplifier: A New Tool for Boolean Circuit Simplification](#)

AWARDS

1. Second Prize (individual) at the “Higher League” Student & Alumni Olympiad, Applied Mathematics and Computer Science track (2021).
2. Second Prize (individual) at the 7th North Countries Universities Mathematical Competition (2021).
3. Third Prize (individual) and Second Prize (team) at the Open Student Mathematical Olympiad (Ashgabat) (2021).
4. Second Prize (individual) and Second Prize (team) at the 10th G. N. Shuppe Interregional Student Physics–Mathematics Olympiad (Round II of the All-Russian Student Olympiad) (2021).
5. Second Prize (individual) at the 6th North Countries Universities Mathematical Competition (2019).
6. First Prize (individual, 1st place) and First Prize (team, 1st place) — Group III universities category — at the St. Petersburg Regional Student Mathematical Olympiad (ITMO University) (2019).
7. Third Prize (team) at the 8th G. N. Shuppe Interregional Student Physics–Mathematics Olympiad (Round II of the All-Russian Student Olympiad) (2019).
8. First Prize (individual, 1st place) and Second Prize (team, 2nd place) — Group III universities category — at the St. Petersburg Regional Student Mathematical Olympiad (ITMO University) (2018).
9. 1st place in the “Economic Sciences (3rd–5th-year and Master’s students)” category at the 9th International Student Mathematics Olympiad (Yaroslavl State Technical University) (2018).
10. Second Prize (individual) at the All-Russian stage of the All-Russian Student Mathematics Olympiad (Yaroslavl State Technical University) (2018).
11. Third Prize (individual) at the Superfinal of the Internet Mathematics Olympiad, Ariel, Israel (2018).

SCHOLARSHIPS

1. Multiple-time recipient of the “KAB Viking” Scholarship (2018–2020).
2. Recipient of the Presidential Scholarship of the Russian Federation (2019).
3. Recipient of the Government of the Russian Federation Scholarship (2018).
4. Recipient of the St. Petersburg Government Scholarship (2018).