

# Roman Ostafeichuk

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[github.com/rozmarln](https://github.com/rozmarln)

## Education

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**MIPT (Moscow Institute of Physics and Technology), DREC** (2024 — present)

- Major: Applied Mathematics and Physics
- GPA: 7.29 / 10

## Additional Training

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“System Programming and Compiler Technologies” (Huawei) — 1 semester

VK Education: “System Programming” — in progress

MIPT iLab C++ Course — in progress

## Skills

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**Programming:** C, C++, Python (scripting), Bash, L<sup>A</sup>T<sub>E</sub>X

**Tools & Technologies:** Git, Make, CMake, GTest, GitHub CI, Linux, POSIX API, SQLite

**Languages:** Russian (native), English (A2–B1)

## Projects

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**Shell Emulator** (`Shell_emulator`) — C, Linux, POSIX

- Mini-Bash with pipes, redirections, logical operators, and background jobs.
- Uses `fork/exec`, `dup2`, signals, and zombie reaping.

**Coroutine Message Bus** (`Coroutine.messaging_system`) — C

- Message queue and cooperative coroutine scheduler (state machine, no threads).

**Red–Black Tree (RB-tree)** (`RB-tree`) — C++, GTest, CMake, RAII

- Insert/delete, rotations, and invariant restoration; focus on pointers and balancing.

**Cache Algorithms: LRU and LIRS** (`cache_task`) — C++, GTest, CMake

- OS-level cache modeling: LRU and improved LIRS; tests (GTest) and CI (GitHub Actions).

**Sea Battle — networked Battleship** (`Sea_battle`) — C, libuv, SQLite, ncurses

- Client–server game: asynchronous UDP server on `libuv` (event loop, timers, non-blocking I/O).
- Player accounts and stats stored in **SQLite** (`users_info.db`); TUI client built with `ncurses`.
- Custom protocol: game states, connection handling, turn transmission and hit validation.

**Differentiator — symbolic differentiation** (`Differentiator`) — C/C++, Graphviz

- AST parser, expression simplification, derivative computation; graph visualization via Graphviz.