

# Nikita Kulakov

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## EDUCATION

### University ITMO

*Bachelor of Informatics and Computer Engineering*

June 2024

*Current GPA: 3.93/4.00*

## RELEVANT COURSEWORK

**Grades:** Exclusively A's, completed courses

**Courses:** Functional Programming in Haskell (Part I, II), Mathematic Logic, Computer Vision, Image Processing, Machine Learning and Data Analysis, Applied Statistics, Embedded Systems, Digital Circuitry

## SKILLS

**Languages:** C/C++, Haskell, Python, Lua, Golang, Rust, Verilog, AMD64 Assembly, JavaScript, SQL,  $\text{\LaTeX}$

**Tools:** Git/GitHub, Linux, Bash/Zsh, Makefile, CMake, Conan, Flex, Bison, gRPC, Protobuf, REST, Node.js, PostgreSQL, MongoDB, Docker, Unit, CI/CD, Screen/Tmux, Vim, VS Code, Vivado IDE

## PROJECTS

### IoT World Simulation | *C++, CMake, Conan, Python, gRPC, GTest, Protobuf, Docker, Git* May 2023 - June 2023

- Simulated real world for data collection devices by realizing algorithms for lighting, temperature, air movement, obstacle-aware wireless network.
- Implemented asynchronous multi-threaded application operation using mutexes, callbacks, and queues.
- Created several kinds of virtual devices that can collect data from the simulation and send it to the data lake.
- Performed exchanges between simulation and virtual devices using single calls and streams using gRPC.

### Interactive Buffer LRU | *Verilog, Vivado IDE*

April 2023

- Added possibility to change the program operation mode using exclusively double claps.
- Converted data from PDM microphone interface and visualized amplitude on LED.

### Academic Relational DB | *C/C++, Bison, Flex, Boost, gRPC, CTest, Protobuf, Cmake, Bash, Git*

January 2023

- Implemented a C relational database supporting insert, delete for  $O(1)$ , search for  $O(n)$  operations.
- Added an allocator allowing to reuse free partitions in the DBMS data file.
- Introduced selection using nested JOINS with conditional nested operators, and standardized the implementation of new conditional operators.
- Added processing of syntax and semantic errors with description of reasons.

### ALU CPU | *Python, Coverage, Mypy, Pylint, Pytest, CI/CD, Bash, Git*

December 2022

- Simulated the operation of a stack processor that fetches instructions and changes the state of register cells, memory and I/O ports.
- Implemented the assembler translator into processor instructions in accordance with ISA.
- Tested the correctness of the translator and processor simulator using CI/CD on GitHub and GitLab.

## EXPERIENCE

### Tinkoff Invest Robot Contest | *Backend Developer, DevOps*

May 2022

- Developed a multi-user Java application that allows active user accounts to analyze quotes of traded stocks and buy them according to a specified algorithm at a given periodicity.
- Implemented Spring Security to secure user data API access keys and trading logs on user account.
- Configured Docker containers for frontend and backend deployment, added Nginx.

### Ovision Hack Dev Track | *Frontend Developer*

April 2022

- Developed a one-page JavaScript web application using React and Effector that reads an image from a user's camera and sends it to a server and visualizes facial landmarks on the it.
- Implemented cropping of the original image using JS Tensorflow to reduce network and server load.