# Vorobev Mikhail

+7(977)938-28-68 | vorobev.mk@phystech.edu | @purely_injected | InversionSpaces

## Work and volunteering

**2023 - today** | **Fluence Labs - Aqua Language - Compiler Engineer - Scala**
Developing compiler for Aqua - language for computation orchestration in Fluence peer-to-peer network:
- Development of all compilation stages: parsing, type checking, IR passes, code generation.
- Design and implementation: boolean algebra, math optimizations, tracing code augmentation.
- Development and maintenance: LSP server, VSCode extension.

**2022 - 2023** | **Mosaic Research - Crypto HFT - Backend Engineer - C++**
Development and maintenance of infrastructure for crypto trading:
- Implementing microservices communication protocol with Aeron.
- Setting up CI pipeline for CMake projects: building, testing, caching, automatic dependecies updating.
- Developing scripts and small microservices with python3.

**2021 - 2022** | **Tinkoff - Credit and Brokerage Systems - Backend Engineer - Scala**
Development and maintenance of online credit broker backend on microservice architecture:
- Design and implementation of business functionality..
- Integration of message brokers: RabbitMQ and Kafka.
- Integration of databases: MongoDB and PostgreSQL.

**2021, 2022** | **Summer School «Slon» in Pushchino - Volunteer-Tutor**
Courses taught: Formal languages, Mathematical logic, FP in Scala, Python from scratch.

## Courses

**2021** | **MIPT - Concurrency course**
C++. Implementation of simple concurrency library: fibers, futures, thread pool.

**2021** | **MIPT - Distributed systems**
C++. Implementation of distributed consensus and replication algorithms: paxos, multi paxos, raft.

**2020** | **Tinkoff.Fintech - Scala development course**
Scala. Impementation of StopLoss-TakeProfit service integrated with tinkoff.investments.

**2020** | **Mail.ru - Introduction to production programming and data structures**
C, C++. Implementation of stack machine emulator and high-level language compiler for it.

**2017 - 2019** | **Air engineering school in Russia - Sounding rocket payload development**
C for AVR and STM32. Development of on-board firmware and peripheral drivers.

## Projects

**2020** | **gainy - Service with REST API**
Scala. StopLoss-TakeProfit service integrated with tinkoff.investments.

**2019** | **PEGgen - Command line utility**
Python3. Generation of recursive descent parser from formal grammar.

**2021** | **yaelc - Compiler of java-like language**
C++. Scanner (GNU Flex), LR-parser (GNU Bison), AST, type table.

**2017 - 2019** | **librscs - Peripheral drivers library for AVR**
C for AVR. Driver for Iridium9602 modem and testing of other modules.

## Education

**2019 - 2022** | **Moscow Institute of Physics and Technology - Phystech School of Applied Mathematics and Informatics - Engineering and Computer Science**
Bachelor's degree.

## Skills

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|---|---|
| **Programming languages** | Scala, C/C++, Python3 |
| **Technologies** | MongoDB, PostgreSQL, RabbitMQ, Kafka |
| **Frameworks and libraries** | ZIO, cats, fs2, akka-http, Aeron |
| **Tools** | git, cmake, sbt, Gitlab CI, Github Actions, liquibase |
| **Languages** | Русский(родной), English(B2) |

Up to date version of this CV