



# Kyryll Puchkov

SOFTWARE ENGINEER · BACKEND DEVELOPER

Schaffhausen, Switzerland | permit S

☎ (+41)76-230-2289 | ✉ kyryll.puchkov@sit.study | 📷 puchkovki | 📱 puchkovki | 🌐 puchkovki

"I didn't fail 1000 times. I've just found 1000 ways that won't work."

## Education

### SIT(Schaffhausen Institute of Technology)

MSC COMPUTER SCIENCE AND SOFTWARE ENGINEERING

- GPA: 5/5
- Major: Computer Science

Moscow, Russia

Sep. 2021 - Current

### MIPT(Moscow Institute of Physics and Technology)

MSC IN APPLIED MATHEMATICS AND PHYSICS

- GPA: 4.9/5
- Major: Financial technology in business

Moscow, Russia

Sep. 2021 - Current

### MIPT(Moscow Institute of Physics and Technology)

BSC IN APPLIED MATHEMATICS AND PHYSICS

- GPA: 4.87/5, Honours degree
- Major: Computer Science
- Bachelor's thesis: Garbage collector in search engines, based on bitmap-indexes

Moscow, Russia

Sep. 2017 - Aug. 2021

## Skills

**Programming** C++, Scala, Golang, SQL, Python

**Quantitative** Linear algebra, Discrete mathematics, Algorithms, Probability theory, Optimisation

**Tools** AWS, Docker, Gitlab CI, TravisCI, Jira, Latex

**Languages** Russian – native, English – C2, German – B1

## Experience

### Tinkoff

SOFTWARE DEVELOPER

- Using own *pipeline* framework, created a vast *microservice* infrastructure with integration of *automated testing* service.
- Took part in *SRE* team work, enhancing server *reliability* and *overload* resistance; maintained *legacy code review* to decrease incidents number.
- Collaborated with peers on the development of new automation tools and services that used the *Scala pure functions*; worked on the elimination of the side effects and improvement of reliability and performance using the *functional paradigm*.

Moscow, Russia

Sep. 2021 - May. 2022

### Acronis

RESEARCH INTERN

- Theoretically described the *garbage collection* algorithm in search engines, based on bitmap-indexes.
- Implemented the algorithm on a *search engine* based on *LSM trees* written in *Golang*.
- Calculated the algorithm *running time* depending on the amount of added documents and *IO metrics* for the request queries.

Singapore

Sep. 2020 - Aug. 2021

## Projects

### Booking web application for laundries in households in Switzerland

PROJECT MANAGER

- Start-up project for the cohort 2021 at SIT.
- Create project plans to fit stakeholder and customer needs and deliver with-in budget on desired outcomes. Define project roles and responsibilities in close collaboration with the Product owner, including project scope and objectives to ensure a cross-functional understanding amongst project members.
- Developed and implemented project roadmaps and business canvas, led key stakeholder engagement and accountability, and communicated project status with relevant stakeholders.
- Learn from recent projects to identify and recommend improvements, cost saving initiatives, and substitutions to positively impact current and future project budget or schedule.

Python

2022

## Garbage collector in search engines

Golang

CORE MEMBER

2021

- Developed an effective garbage collection algorithm, tested and compared with other solutions.
- Written fully in **Golang** due to its convenience for **multithreading**.

## Model of a distributed system

Golang

CORE MEMBER

2021

- Implemented the **infrastructure** that allows to create models of **distributed processes**.
- Written fully in **Golang** due to its convenience for multithreading.
- distr-model simulates distributed processes that exchange messages with loss and supports both **synchronous** and **asynchronous** operation mode.

## Telegram bot for the campus domestic issues

Python

MEMBER

2020

- This **bot** simplified the application filling process for the domestic issues in the campus.
- Backend is written fully in **Python**, using the Google Tables. Frontend is using **JavaScript** to interact with users.

## Computational mathematics

C, C++

CORE MEMBER

2020

- Integration using trapezoidal rule (on OpenMPI and OpenMP).
- Solution of the heat equation (on OpenMPI and OpenMP).
- Bignum arithmetic (on OpenMPI).

## B-tree

C++

CORE MEMBER

2020

- B-tree realisation. This tree is a self-balancing tree data structure that maintains sorted data and allows searches, sequential access, insertions, and deletions in  $O(\log(n))$ .

## Multithreaded list

C++

CORE MEMBER

2020

- Stack is implemented with two-way adding methods *push\_front()* and *push\_back()* and front deleting *pop\_front()*.
- By using *Iterator* we implement range based loop for our list or output it with output function.
- To check ABA problem was implemented swap methods with sleep and yield realisations *swapSleep* and *swapYield* respectively.
- Deleting is implemented with *Hazardpointers*.

## Website for programming contests (Judex)

Golang

CORE MEMBER

2019

- Judex is a system for **automatic testing** for student contests.
- Backend is written fully in **Golang**, using the standard libraries and **MongoDB** Server.
- Project is using multithreading with **goroutines** for faster results. **System calls** are used to manage time and memory used for test runs in isolated environment in order to keep system safe.

## Command-line interpreter (Microshell)

C++

CORE MEMBER

2018

- Microshell provides most of commands, contained in bash.
- Syntax is the same as in other implementations of UNIX shell, with regular expressions, pipes, input-output redirection and standard notation available.
- Microshell interacts with operating system by a set of UNIX system calls and supports signals and multiprocessing.

# Extracurricular Activity

## Zurich helps Ukraine

Zurich

CORE MEMBER

Mar. 2022 - PRESENT

- Non-profit association created in Zurich by volunteers, who are driving non-profit events to support refugees from Ukraine.
- Collecting, sorting and distributing of humanitarian aid.

## Cultural Education Project Druzi

Zurich

MEMBER

Sep. 2022 - PRESENT

- A cultural and educational project for children from Ukraine living in Zurich because of the war.
- Organize various activities: courses, workshops, guided tours, summer camps and many more.

## Libereco

Zurich

MEMBER

Nov. 2022 - PRESENT

- Company helps people in need who are in trouble through no fault of their own.
- Collecting, sorting, distributing and sending the humanitarian aid to the Ukraine.

## Program Committees

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MIPT **SMM department leader**, Institute trade union committee  
MIPT **Travel project manager**, Institute trade union committee  
MIPT **SMM writer**, University student council

2018 - 2021

2019 - 2021

2018 - 2021

## References

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### Manuel Oriol

ASSOCIATE PROFESSOR IN QUANTUM SOFTWARE ENGINEERING & SCHAFFHAUSEN INSTITUTE OF TECHNOLOGY

[manuel.oriol@gmail.com](mailto:manuel.oriol@gmail.com)

+41765767064

### Lesia Nünlist

FOUNDER & "ZURICH HELPS UKRAINE"

[olesia.nuenlist@gmail.com](mailto:olesia.nuenlist@gmail.com)

+41787721822