

# Konstantin Amelichev

I'm a quick learner with a flexible mindset, currently specializing in backend tech. My prior experience includes researching, building products, and developing infrastructure in both big companies and startups. With robust engineering skills and a solid academic background, I'm able to contribute to every stage of the IT product life cycle — from early research to highload system with millions of users.

Actively seeking opportunities in the computer graphics and/or computer vision industry.

## Work Experience

**Neiro.ai**, Backend developer, 1 year

Increased availability and observability of company's ML API's using cloud solutions and custom API gateway for REST and GRPC clients with support of large media files. Feature development for AI chatbot application and generative AI web studio. Initiated launch of several projects, e.g. block-style video editor for ad creation.

**High Nu**, Infrastructure developer, 6 months

Infrastructure development for high-frequency trading startup. I increased number of market data sources using cryptocurrency exchanges rest/websocket API's, improved overall performance through fixing bottlenecks, set up process for continuous data processing, trading, simulation, alerting and monitoring.

**Tinkoff.ru**, Backend developer, 1 year 9 months

High-load services in advertising technologies (e.g. DMP, DSP in [real-time bidding model](#)), used for personal in-app recommendations. Improved admin console functionality through usage of macroses for custom creatives. Integrated new data providers for better geographic targeting. Created like/save mechanics for personal feed. R&D of MVP for the search of creatives based on image content.

**Teaching**, part-time for 4 years

Worked in [Tinkoff Edu](#) as teacher of [advanced algorithms](#) for competitive programming (3 years, 240 students total) and [basic algorithms](#) for bachelor students (6 months, 350 students total).

[Author and/or developer](#) of 10+ problems for Olympiads in programming.

[Teacher](#) of Distributed Systems course 23-24 in Higher School of Economics.

[Teaching assistant](#) of Distributed Systems course 22-23 in Higher School of Economics.

## Projects

[SimSearch](#)

Coursework paper about service developed in [Tinkoff.ru](#). Research of ANN problem. Presenting architecture of search engine for any type of object. This approach led to a content-based image search service.

[Perlin noise heatmap](#)

Visualization of Perlin noise with heatmap and marching squares technique. Rust OpenGL interactive application.

[3d-renderer from scratch](#)

Library for processing 3d scenes and rendering them in real-time. Uses only "set pixel" graphic primitive from SFML library, rasterization is self-written as well as scene manager.

[Digitalization of orienteering maps](#)

Labeled image dataset, setup augmentation pipeline for semantic segmentation problem.

Tested different approaches, currently the best is one using U-Net.

[OpenCV mini-projects in Rust](#)

Rust bindings for OpenCV used for sketch filter, shape detection, template search.

## Open Source Contribution

[DSLlab](#): formal verification of distributed systems with model checker.

[grpc-gateway](#): handling media data with multipart/form-data and macroses.

[knot-resolver](#): anti-censorship feature for DNS resolver.

! There are other interesting things on [my github](#): [tower-defense game](#), [AI for playing codenames](#), [Russian CS exam problems generator](#), and much more!

## Contacts

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Languages: English (advanced), Russian (native), French (beginner)

## Education

**Institute Polytechnique de Paris**, MScT.

*Paris, 2023 - 2025*

«AI & advanced Visual Computing» program, with focus on solving visual tasks, such as: Shape representation, Computer vision, Image synthesis, Computer animation.

**Higher School of Economics**, BSc.

*Moscow, 2019 - 2023*

«Applied math and informatics» program with specialization is distributed systems. [Thesis](#) on model checking for formal verification of distributed system.

**Relevant courses**

3d Computer vision

Machine learning

Algorithms and data structures

Harvard's CS50 «Introduction to Game development»

Udemy «Deep Learning and Computer vision»

! You can find more certificates on my [my linkedin](#) page!

## Achievements

Second Award in ICPC 1/4, Moscow, 2020

Gold prize winner All-Russian school

programming Olympiad 2019

Silver prize winner All-Russian school

programming Olympiad 2018

Candidate for Master of Sports in orienteering

## Skills

**Tech stack:** C++, Rust, Python, Go, Git, Linux.

**Libraries:** pytorch, keras, OpenCV, numpy, pandas, matplotlib, scikit-learn, STL, Boost.

**Tools:** Cmake, GDB, Valgrind, Gperf, Lua, protobuf, grpc, grpc-gateway, prometheus, graphite, ffmpeg, Unity, Markdown, Latex.

**Infrastructure:** Docker, k8s. CI/CD, AWS/GCP, ansible

**Databases:** postgresSQL, Redis, mongoDB, Aerospike, BigQuery.