Ivan Gankevich

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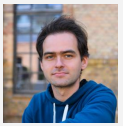

Rust/C++/Linux software engineer with 10+ years of experience, a PhD in computer science and fluid dynamics, and product-related skills.

Skills: Rust (3+ years), VueJS (3+ years), Golang (1+ years), C++ (10+ years), Linux (10+ years), Java (5+ years).

Experience

Product & Tech Lead, Staex (2021–2024)

- Designed and developed a peer-to-peer VPN with end-to-end encryption and mutual certificate-based trust. Fully written in Rust.
- Programmed web-facing services using Rust and VueJS.
- Designed and developed a Linux Seccomp-based process jail (Cijail) that protects from supply chain attacks. Also in Rust. https://github.com/staex-io/cijail
- Managed Gitlab CI/CD pipelines and production servers with Ansible, Docker, Grafana, Sqlite.
- Built DEB (Debian), RPM (Redhat), IPK (OpenWRT) packages for major Linux distributions.
- Built and deployed software on OpenWRT-based routers.
- Worked with customers to decide on the new product features.

Principal Software Engineer, Huawei (2020–2021)

- Led a team of 5 software engineers.
- Designed and developed a compressor of columnar data that is more efficient than ORC and Parquet.
- Optimised SparkSQL queries to improve performance by up to 80%.
- Optimised Hadoop HDFS for a large number of small files.
- Gave technical talks on internal conferences.

Associate Professor, Saint Petersburg State University (2012–2021)

- Led government-funded *Virtual Testbed* project: ship motion simulation, fluid dynamics, C++11, OpenCL, OpenMP, CUDA, OpenGL, Guile, HPC.
- Led government-funded *Subordination* project: batch job scheduler, C++17, Python, Javascript. The software developed in the frameworks of these projects was subsequently used in real-world applications.
- Built several packages for Guix Linux distribution.
- Published over 50 research papers.
- Won the awards 6 times in several Asia Supercomputer Challenge international competitions while advising a team of students.
- Won 4 best paper/talk awards in international conferences.
- Registered 1 patent.

Projects

Cijail (Rust, Linux Seccomp)

This is a CI/CD pipeline process jail that helps prevent supply chain attacks by filtering outgoing network traffic using allow lists. By default the outgoing traffic for all domain names, IP addresses and ports is blocked. Cijail makes it impossible to exfiltrate the data over DNS and makes it difficult to do by other means. The project uses Linux Seccomp and is fully written in Rust.

- Git repository.
- A talk on Cijail at Rust & Tell (Berlin).
- Slides.
- Reddit discussion.

Vtestbed (C++, OpenCL, OpenGL, Guile)

Virtual Testbed is a tool to simulate ship behaviour in rough seas and extreme conditions like fire and flooding. The source code is written in C++ and scripting is provided via Guile (a Scheme dialect).

- Web site.
- Git repository.
- Papers: 1, 2, 3, 4, 5.
- Demo videos: 1, 2, 3.
- Heavily inspired by Hull by Vasily Khramushin.

Subordination (C++, Python, NodeJS)

Subordination is a framework for developing distributed applications which features automatic restart of failed tasks without programmer's intervention. I used this framework to write my thesis. Over the years the concept of kernels (self-contained units of work) evolved and became the base for automatic parallelism in functional languages.

- Web site.
- Git repository.
- Papers: 1, 2, 3, 4.

Side projects

- Vncd (C++, Linux) — multi-user VNC server with authorization.
- GGG (C++, Linux) — group-of-groups-of-groups, a daemon that adds nested group support to Linux.
- Unistdx (C++, Linux) — a memory- and resource-safe wrapper for Linux system calls.
- Supercron (Guile, Sqlite) — a cron alternative that uses Guile to define the tasks.

Education

Saint Petersburg State University (2013–2017)

- Degree: PhD in Computer Science.
- Thesis: «Simulation modelling of irregular waves for marine object dynamics programmes».

Saint Petersburg State University (2011–2013)

- Degree: Master (Computer Science).
- GPA: 5.0 / 5.0.

Saint Petersburg Marine Technical University (2007–2011)

- Degree: Bachelor (Computer Science).
- GPA: 4.6 / 5.0.

References

I have been working with Ivan for almost 3 years, and I am excited about how much knowledge he has and how he distributes it to the team. Sometimes I think that I got more knowledge from Ivan than from the university.

He was a product lead at Staex, but was also responsible for every technical aspect of the company. He has strong experience in networking and Linux programming. Moreover, he has his own consensus algorithm, which can be useful for distributed systems, and that's a point about his skills in that area. I am not sure that a task exists that cannot be solved by Ivan. Also, I learned a lot of things from him about how to write more secure, reliable and clean source code in Rust. Last but not least, I want to say that all the infrastructure at Staex was working due to Ivan's.

I can confirm that Ivan provides his opinion clearly and can manage the team to make the product ready and usable. At the same time, Ivan helped a lot of other team members from the marketing and operational teams make their work easier by introducing new tools.

As a team member or leader, Ivan got my highest recommendation.

Sergei Lavrentev, Software Engineer, Staex

Ivan possesses extensive knowledge in decentralized and distributed systems, and his expertise has been instrumental in designing, building, and optimizing our customers' networks with unerring precision.

From his years as a professor at an esteemed tech university, he has brought in thoughtful insights and continuous research, driving the development and enhancement of the Staex product.

There is no network architecture he cannot automate, digitize, and optimize. Moreover he reviews systems in a snapshot and can instantaneously build and remedy situations, hardware and software related, making him a trusted tech leader who truly understands the complexity of today's (mobile) networks — systems, communication, security.

Apart from deep technical knowledge, he does not shy away from hard work and speedy turnarounds in a demanding startup culture. Ivan has a great sense of humor and is always willing to answer any questions. He holds patents and has led our tech team brilliantly. Thank you for your dedication and service, Ivan. I look forward to staying in touch and witnessing your future achievements.

Paksy Plackis-Cheng, Chief Strategy Officer, Staex