The resume is available in pdf and html. Consider the condensed version of the resume.

Name: Aleksei Markov **Email**: laladrik at pm.me

Senior Software Engineer with 15+ years of experience. Core competencies: Rust, Go, GNU/Linux, high-load web systems, and desktop applications. Additional skills: Python, C++. I strive to understand systems and keep them simple. This allows my software to keep users happy and AWS bills lower.

Professional experience

Independent study & research

From Dec 2024 to present	Graphics programming & compiler engineering

Goal: learn to create graphics software and compilers.

Method: create two applications: a clone of an old game Space Invaders and a compiler for Tiger programming language.

Results of compilers study:

- Implemented from scratch with Rust programming language the lexical, syntactic and semantic analysis for Tiger programming language.
- Improved the knowledge of artificial language processing.
- Applied the automated debugging with GDB.
- Improved the knowledge of available debugging tools.

Results of graphics software study:

- Created the game with the library SDL3 and its extensions for media in Zig programming language.
- Applied the knowledge of Data-oriented design.
- Enhanced the skill of developing desktop application development for GNU/Linux.
- Improved the skill of creating cross-platform software for the following platforms: GNU/Linux, MS Windows, WebAssembly.

AWS Cloudfront

From Nov 2022 to Dec 2024	Monitoring system of the low-latency video streaming protocol

At AWS I helped to build the monitoring system for the distributed low latency streaming service from Prime Video.

Achievements:

- Improved the data pipeline components written in Rust on top of AWS S3. The improvement implemented the support the new format of the data. Simplified some subsystems utilizing Rust features.
- Taught Rust to the colleagues with various backgrounds.
- Designed and implemented more precise calculation of loading of the nodes of the streaming service. This improved a high load system written in Go. The design required me to coordinate the work of people across the globe.
- Implemented hot-reload of the configuration in a high load system written in C++. The configuration carried information about the changes in the fleet of server clusters distributed across the globe. Extended the tech stack of the project and improved the automated testing.
- Fostered the new model of server clusters for the streaming service. Designed the project and the plan of work. Managed the execution of the plan across multiple teams.

Responsibilities:

- Designing the system components, clarifying the requirements from a set of departments involved in the process.
- Driving the design process from the idea to the paper, dealing with ambiguity in the inputs and lack of data.
- Presenting projects to the team.
- Implemented the components using a set of technologies: Rust, Go, C++, Python, Git, Amazon Web Services, Docker.
- Updated the old development environments according to the security requirements.
- Coached the team on matters related to Rust.
- Maintained the software in production and investigated issues that caused customer impact.

Blackmoon

From Aug 2018 to Nov 2022	Cryptocurrency Trading Platform

As a part of a small development team, I improved existing components of the system and introduced new ones, upgraded version of the company's core software product. Assisted devops and data science departments.

Achievements:

- Implemented a data pipeline of a blockchain to export the world state to a decentralized application server. The implementation was in C++, but ported from Rust. The pipeline was on top Kafka.

- Implemented a proxy between the HTTP and fix protocol in Go. The proxy was backed by Redis and PostgreSQL.
- Implemented the communication between the core platform and the trading engine in Go. The communication worked on top of RabbitMQ. The data was stored in Redis and PostgreSQL.
- Extended the infrastructure spread across the bare metal servers with Proxmox and AWS.

Responsibilities:

- Utilization of a variety of languages, libraries, tools, protocols, including: Go, C++, Rust, Python 3.7, AIOHTTP, RabbitMQ, Redis, Postgresql, SaltStack, Terraform, Git, Amazon Web Services, FIX, gRPC, Google Protobuf.
- Designed a huge extension for existing system of microservices which work on trading. It includes: managing all trading events, analyzing of trading activity, adapting a trading engine for existing components.
- Assisted the data science department.
- Assisted the devops department.
- Managed all technical subjects related to a trading engine with the development team as well as the data science team.
- Participated in an Agile Development environment, including sprint planning and estimation.

Floship

From May 2018 to Aug 2018	Delivery service

As a self-contractor python backend developer I took tasks of integration of the core project and third party applications and developed new one. Achivements included:

- Improved reliability of the integrations with Shopify, Magento, WooCommerce.
- Implemented an integration with Amazon MWS.

Ringmaster Technologies, Inc

From Aug 2017 to Mar 2018	An insurance management project

Worked as a backend developer created a main the company's core backend application. Fulfilling the role of a DevOps engineer setup continious delivery. Responsibilities included:

- Designed the core project's system and data flow scenarios against RabbitMQ, Redis, Postgresql.
- Developed backend for platform with Django REST Framework and Python 3.6.
- Testing software with PyTest.
- Customization and integration of Meteorjs-based application Rocket.Chat.

- Develop and maintain CI/CD pipeline with Docker, TeamCity and GitLab.
- Collaborated with programmers, quality assurance, UI desginers.
- Managed Git repository, including code review, branching and merges of changes.

4XXI

From Aug 2014 to May 2017	Financial services, Research project

As a backend developer worked individually on updating and maintaining existing financial service, supporting its infrastructure taking tasks from devops field. As a part of a team, I participated in creation of new financial service. As the first member of R&D department created AI software dedicated to solve celestial mechanics problem.

Responsibilities included:

- Maintained existing a financial service written in Python 2.7, Django 1.5, Backbone.js, Postgresql, jQuery
- Collaborated with the product owner, the project manager.
- Improved infrastracture.
- Refactored code.
- Created backend for a new financial service with Python 3.5, Django 1.8, Postgresql, Redis, Celery.
- Research basic machine learning techniques, libraries, tools, including Numpy, Matplotlib, Scikit-learn, XDGboost, Tensorflow.
- Research different approaches in order to achieve better performance of data processing including, writing Python modules in C, implementing some components in Go.
- Implemented infrastracture for research project with Docker and Docker Swarm.
- Desgined, implemented and deployed a machine learning application solves celestial mechanics problem.

Achievements included:

- Encrypted user related data in Postgresql.
- Optimized database queries in the entire application, some of pages are got faster 20 times.
- Improved exsisting infrastracture fault tolerance of the existing financial service.
- Paper Evgeny A. Smirnov, Alexey B. Markov “Identification of asteroids trapped inside three-body mean motion resonances: a machine-learning approach” DOI: 10.1093/mnras/stx999

Clever promo

From Jun 2012 to Nov 2013	Web-studio

As a part of web-studio development team worked on customers' projects. Fulfilling the role of generalist programmer, I ran projects through full product lifecycle from design and task estimation through development, testing, release and live operations. Also, maintained exising projects.

Responsibilities included:

- Developed and tested core library that was used across all Django-based projects.
- Developed web-applications utilizing Python 2.7, Django 1.4/1.5, jQuery, Postgresql, Redis, Celery, JavaScript.
- Maintained existing software written in PHP
- Designed new features and components with a focus on the end user's experience.
- Assisted customers with questions of administration panel features.

Skills

Programming languages

Rust	Golang	C++	C	Python	JavaScript
5y+	9y+	5y+	5y+	7y+	9y+

Infrastructure

Linux	Postgresql	Docker	Redis	Nginx	RabbitMQ	Ansible
13y+	9y+	4y+	8y	5y+	8y	6y

General

English	Russian	Spanish
Advanced	Native	Basic

Independent projects

- Xapian-haystack (Fall 2014 – winter 2014) – Xapian-haystack is a backend of Django-Haystack for the Xapian search engine.
- LegsIK (Summer 2015 – Sprint 2016) – an Unreal Engine 4 plugin implements inverse kinematics for legs of a model writen in C++.
- Jedi (Winter 2020 – Spring 2020) – a static analysis tool for Python that is typically used in IDEs/editors plugins.

- Yasec (Summer 2020) – a Rust library builds configuration from environment variables.
- FlameGraphViewer (2023) – a Rust application allows you to inspect huge flamegraphs which can’t be inspected in a browser as an SVG graph.
- A clone of Space Invaders (2025) – a study project to learn game engine develoment by creating one. The project involves SDL 3 and Zig programming language.
- Neotest (2025) – a framework for interacting with tests within NeoVim. My contribution was about extending the API to allow a user to access the buffer with the test output.