

# Aleksei Zhukov

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## Career summary

I'm a software engineer with a fair amount of field experience in various industries. Show me an interesting problem, where I can make a difference - and I'll be happy to help.

I'm solving problems by writing code. Or suggesting to not write code, if that looks to be a better choice. Besides this technical side, I can assist with problem-solving that requires communication and organizing people, helping to understand, prioritize and reach the goals.

## Summary of qualifications

Programming languages:	<p><b>Python:</b> Expert knowledge of the language, its implementations (primarily, CPython) and ecosystem. 11+ years of professional experience. This includes Django, Django REST Framework, Celery, Flask, gevent, SQLAlchemy, and many other frameworks and libraries.</p> <p><b>Go:</b> 3.5 years of professional experience. Good proficiency with the language, tools, and mainstream libraries, with awareness about some common pitfalls and technology-specific patterns.</p> <p><b>JavaScript:</b> Good knowledge of the language for both in-browser and standalone (Node.js) applications. Overall familiarity with the ecosystem. Experience in modern web application development with Webpack, Babel, React.js, Redux etc.</p> <p><b>C/C++:</b> Average knowledge of the languages and some common libraries of mostly *nix origin (glib, libcurl, OpenSSL, libev, etc.).</p> <p><b>Other:</b> Elm, Java (J2SE and Android), Perl5, Lua, Erlang/OTP, PHP.</p>
Major services and integrations:	AWS (EC2, S3, SNS), Azure (VM, storage), Sentry, Rollbar, CodeShip, CircleCI, Travis, LogDNA, Mailgun, SendGrid, ElasticEmail, Stripe, PayPal.
DevOps tools:	Docker and Docker Swarm (incl. multiarch swarms), Kubernetes, rkt, Ansible, Salt, Puppet, Fabric, Vagrant, GitLab CI, Debian packaging, private PyPI repos, monitoring with Prometheus and Grafana.
Operating systems:	In-depth knowledge of various GNU/Linux distributions (mostly of Debian ancestry), NixOS, Arch Linux and Gentoo. Basic familiarity with macOS.

# Personal projects

Personal projects and FLOSS contributions

- **LogDNA-Logrus ([github.com/drdaeman/logdna-logrus](https://github.com/drdaeman/logdna-logrus); own project)**
  - Created a Go library that allows Logrus/Logrus Mate to send data to LogDNA.com
- **Thinker ([github.com/internalfx/thinker](https://github.com/internalfx/thinker); main developer Bryan Morris)**
  - Made it possible to sync database tables with compound and heterogeneously-typed primary keys.
  - Did a few small bugfixes and performance improvement patches.
- **FireSync ([github.com/drdaeman/firesync](https://github.com/drdaeman/firesync); own project)**
  - Greatly simplified self-hosting by creating an independent standalone implementation of Firefox Accounts and Sync services in Python/Django.
  - Reverse-engineered the undocumented details of the relevant protocols.

# Professional experience

## Software engineer

2018—present

Global Commerce Technologies Pte. Ltd.

- **Backend development**
  - Improved existing legacy Python solutions by porting parts of a relatively dated monolithic Flask project to modern Django & Go microservices.
  - Participated in work on integrations with various financial institutions, exchanges, transfer networks, and payment outlets.
  - Made developer jobs easier by helping to improve the company's internal tooling.
  - Researched a successful switch to a different CI solution that was a better fit for the company's needs.

## Head of backend development

2015—2018

Livecoding LLC., later LiveEdu Inc.

- **Backend development**
  - Developed and maintained LiveCoding.tv / LiveEdu.tv website.
  - Kept systems up-to-date, improving security and lowering the technical debt. Orchestrated and performed a gradual migration from Django 1.6 to 1.11.
  - Simplified payment processing by abstracting away PayPal and Stripe APIs behind a Python/Django-based microservice.
  - Maintained a fork of ejabberd XMPP server, implementing some non-standard protocol extensions, like nickname colors.
  - Created an image thumbnailing microservice using Go and Azure Blob Storage.
- **ICO website backend development**
  - Helped to make EDU token ICO campaign a success by designing and maintaining the backend for the token sale website.

- Provided a solution to interact with Ethereum smart contract in real-time for ETH contributions, as well as natively accepting for Bitcoin and Litecoin on their respective blockchains.
- **Full-stack/frontend web development**
  - Planned and helped with an upgrade of the website from a classic server-side template-based solution into a modern JavaScript webapp (React.js, Redux, Webpack, Babel), paired with Django REST Framework for the backend APIs.
  - Evaluated newer technologies. In particular, researched and experimented with Elm, although the technology was deemed too risky for production at that time.
- **System administration**
  - Server provisioning. We started with manual, then used Salt, and then Ansible.
  - Proposed and started to use Docker to run our services, significantly saving development time on debugging environment-related issues. Have some experience with Docker daemon internals, as I've debugged various issues.
  - Monitoring with Zabbix and Prometheus.

## **Freelance jobs**

*2014—2015*

via oDesk

- Mostly, Python scripting jobs — web scraping, data processing, etc.
- Helped one client to learn the technology and fit his project into Heroku's old free tier by writing a tutorial on setting up periodic job scheduling with Django/Celery.

## **Lead software engineer**

*2009—2015*

Alphacom LLC., Veliky Novgorod, Russia

- **Network access provision**
  - Designed, built and managed the company's PPPoE network access servers.
  - Increased performance and allowed our company to differ with unique tariff plans by customizing off-the-shelf software. I've maintained a fork of accel-pppd, an improved PPP daemon for GNU/Linux systems, adding custom features to it.
  - For the authentication, authorization and accounting, I've developed a custom Python/SQLAlchemy-based module for FreeRADIUS server, tailored to company specifics. This was a good experience with test-driven development.
  - Worked on a custom firmware for company-provided WiFi routers.
- **System administration (classic style)**
  - PostgreSQL database administration and management.
  - Vyatta/VyOS-based gateway router setup (BGP, OSPF, load balancing).
  - DNS (Bind9 and PowerDNS) server administration.
  - Proper Debian packaging of various software.
- **Web development**

Did the initial development and maintenance of the backend code for the company's websites, primarily using Python/Django. Had implemented a single sign-on system that transparently worked across multiple first-level domains.

- **Network storage and downloads service (IDisk.su)**
  - Helped company to significantly decrease volume (and thus, costs) of the inbound traffic by sharing bandwidth for customer downloads. Created a custom web-based BitTorrent client app, and a Python/gevent backend to manage a pool of shared Transmission processes and do the accounting.
  - Our customers were used to FTP access, so I've developed a read-only FUSE-based virtual filesystem to improve the user experience.

## Software engineer

2006—2013

Novgorod Datacom CJSC., Veliky Novgorod, Russia

- **Development of in-house IPTV solution.** Developed a web-based UI for STB devices and also had some experience with UDP multicast video streaming. Unfortunately, the project was canceled.
- **Integrating third-party IPTV middleware (ORCA RiGHTv) with billing and ERP.** Developed a web interface to manage users, register them with IPTV middleware via SOAP calls, configure networking equipment using Perl and telnet to provision IP multicast streams, and handle accounting records in various formats. The project was successful and had worked reliably for about 6 years until it was deprecated due to change of IPTV software vendor.
- **Watchdog software to remotely reboot network equipment.** Developed a daemon in C++ that had watched the list of MAC addresses in an MS SQL database and sent the special “ping” packets to hardware watchdog devices.
- **Self-care/payment processing service.** Replaced a bunch of legacy CGI scripts with a modern website. This allowed us to expand and start to interoperate with multiple online and kiosk payment providers.

*Since mid-2009 by the agreement between two companies, I was primarily doing outsource work for Alphacom LLC, while still having Novgorod Datacom as my employee.*

## Freelance jobs

2005—2006

via agency

- Front-end XHTML/CSS layout coding from provided PSD/PNG mockups
- Development of various simple PHP-based websites

## Education

M.Sc. in Radiophysics

2002—2008, Novgorod State University named after Yaroslav-the-Wise (NovSU)