Sergei Volkov

Data analyst/Python developer with an academic background in limnology and hydrophysics, passionate about automation. A long-term fan and user of Linux, Vim, and open-source software. I write efficient code to collect data from APIs, load it into databases, analyze, visualize, and create automated reports with Tableau or other BI tools. I prepare and analyze AB tests, check hypotheses, and describe the research to stakeholders. I value reproducibility (in computing and research), keeping information version-controlled, and writing concurrent, easy-to-read code.

Work experience

Aug 2023 – Feb 2024 **Data Scientist**, *Crocus Labs GmbH*

Software development, Software architecture, Product design, Project management, Testing, Team leading

- Set up CI/CD and coding conventions
- Designed AWS architecture for IoT, web app, service DB, and ETL
- Developed various Python and Bash scripts
- Created IoT showcase with virtual clients in Python and MQTT broker in separate Docker containers

I was hired to build an ETL for collecting data from smart lamps for greenhouses. However, upon my arrival, a complete redesign of the AWS architecture was necessary, which I made but eventually it was canceled. My employment ended when the company decided to switch to a self-hosted solution from cloud-based.

Jun 2021 – Mar 2023 **PhD Student**, *Leibniz-Institut für Gewässerökologie und Binnenfischerei (IGB Berlin)*

Research design, Data processing, Fieldwork, DevOps, Academic writing and editing

- Analyzed various data, conducted research, and published papers
- Created complex environments for the MATLAB package (OpenCV and mexopencv built with CMake in Docker, GUI on host machine with remote X session)
- Developed Python computer vision programs and ad-hoc data wrangling frameworks
- Organized fieldwork and participated in lab work
- Administered remote Linux servers

Focused on the hydrophysical aspect of a joint limnological project, with an emphasis on biomass sinking, degradation, and the carbon cycle.

Oct 2020 – Feb 2023 **Data QA**, *Playrix*

Data analysis, Validation, ETL design, Manual and automated QA

- Wrote complex SQL (various dialects) queries and scripts in Python and PySpark
- Worked with Big Data
- Developed automated data quality evaluation methods
- Implemented several BI algorithms in SQL and Python
- Designed methods for creating ad-hoc data validation SQL queries with metaprogramming
- Managed QA section of the project and led QA team
- Designed and verified BI dashboards

Hired by the data engineering team to check the legacy ETL data and conduct data quality control during migration to a new ETL. Later, responsibilities included developing Tableau dashboards and their sources, and consulting developers on calculating different metrics.

Mar 2020 – Oct 2020 **QA Engineer**, *Playrix*
Manual QA, Automation, Teaching, Testing documentation writing, MitM traffic sniffing, Statistical analysis

- Mocked package loss and network random latency by proxying traffic on a Linux host
- Data-driven checking of random-based algorithms
- Developed a Python script for TestRail API

Nov 2019 – Feb 2020 **Data Analyst**, *Playrix*
Data analysis, Automation, User tracking events design, Reporting and presenting to stakeholders, AB tests
SQL, Python, Analytics, DataViz, Big Data

May 2016 – Jul 2020 **Teaching Assistant**, *Petrozavodsk State University*
Educational program design, Lecturing, Teaching
Thermodynamics, Heat transfer, and other courses

Jan 2016 – now **Research Assistant**, *Northern Water Problems Institute*
Data analysis, Fieldwork, Experiment design, Data processing frameworks development, Academic writing, editing, and typesetting

Technical Skills

Development
Python: NumPy, Pandas, SQLAlchemy, Matplotlib, concurrency, Plotly
SQL: Analytic/window functions, query optimization
Data: Spark, Snowflake, dbt, Tableau, Looker, Plotly Dash, Spreadsheets
NoSQL: DynamoDB, MongoDB
Linux: Bash, system management, SSH, Nix
Containers: Docker, systemd-nspawn, LXC, Kubernetes, chroot
IaC: Terraform, Pulumi, Nix
General: Git, Vim, Emacs, Jupyter
CI/CD: GitHub Actions, TeamCity, GitLab
Cloud: AWS, GCP
Typesetting: Markdown, LaTeX, Pandoc
Other: Julia, MATLAB, minor knowledge of JS, C/C++

Analytical
AB test design and analysis
Cohort analysis
Time-series analysis
Descriptive and inferential statistics
Machine learning basics
Data wrangling

Research
Fieldwork: Organizing, sampling, working with probes, logistics, hand and power tools
Writing: Academic writing, editing, publishing, proofreading
Data processing: Writing ad-hoc frameworks, automation, visualization

Communication skills

- Presenting
- Communicating with stakeholders
- Public speaking
- Teaching/Mentoring
- Feedback sharing
- Active listening
- Remote team building

Organisational / managerial skills

- Agile, Kanban, Scrum
- Managing small teams of developers
- Task management and distribution
- Project management

Projects

2015 – 2017 **Lake Onego: Life Under the Ice**, *NWPI*
Research and fieldwork
Joint interdisciplinary project to study the under-ice life

2021 – 2023 **Lake Pycnoclines Trap Organic Particles Forming Hot Spots of Accelerated Carbon Cycling in the Water Column (PycnoTrap)**, *IGB Berlin*
Joint interdisciplinary project researching sinking and degradation of biomass in the turbulent environment (lake water column)

Awards - Certifications - Licenses

2017 **Machine Learning**, *Stanford University on Coursera*
Certificate available at https://www.coursera.org/account/accomplishments/verify/U4VGJWXFGMS9

Voluntary

2013 – 2015 **Garbage Collection**, *On multiple sites near Onego Lake*, Petrozavodsk, Russia

2011 – now **OpenStreetMap**, *Data surveys and contribution*, Republic of Karelia, Russia

Education

2010 – 2015 **Specialist Degree in Energy Supplies**, *Petrozavodsk State University*

Thesis

2015 **Noniterative Heat Exchanger Calculation**

Supervisor: Professor Sergei Bogdanov

The thesis proposes a direct analytical calculation procedure for heat exchanger design, avoiding the use of optimization algorithms

Personal

Citizenship **Russian**

Languages **Mother tongue: Russian**
English: C1
German: B1

Driving license **European Driving License: B, C**

Publications

2021 **Full Reynolds Stress Tensor of Convective Turbulence Estimated with Paired Acoustic Doppler Current Profilers**, *S. Bogdanov, G. Kirillin, S. Volkov, G. Zdorovennova*
DOI:10.1002/essoar.10507975.1

2019 **Fine scale structure of convective mixed layer in ice-covered lake**, *S. Volkov, S. Bogdanov, R. Zdorovennov, G. Zdorovennova, A. Terzhevik, N. Palshin, D. Bouffard, G. Kirillin*
DOI:10.1007/s10652-018-9652-2

2019 **Under-ice convection dynamics in a boreal lake**, *D. Bouffard, G. Zdorovennova, S. Bogdanov, T. Efremova, S. Lavanchy, N. Palshin, A. Terzhevik, L. Vinnå, S. Volkov, A. Wüest, R. Zdorovennov, H. Ulloa*
DOI:10.1080/20442041.2018.1533356

2019 **Structure and dynamics of convective mixing in Lake Onego under ice-covered conditions**, *S. Bogdanov, G. Zdorovennova, S. Volkov, R. Zdorovennov, N. Palshin, T. Efremova, A. Terzhevik, D. Bouffard*
DOI:10.1080/20442041.2018.1551655

2018 **Albedo of a Small Ice-Covered Boreal Lake: Daily, Meso-Scale and Interannual Variability on the Background of Regional Climate**, *G. Zdorovennova, N. Palshin, T. Efremova, R. Zdorovennov, G. Gavrilenko, S. Volkov, S. Bogdanov, A. Terzhevik*
DOI:10.3390/geosciences8060206

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