

# Alexey Gronskiy

ML Software Engineer / Engineering Manager / TLM

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## Profile

I am a mathematician by training, hold a computer science PhD, and possess long-time experience in industrial software engineering. My roles range from individual contributor to engineering manager. The areas I operated range from running an ML team which owns the whole production data-train-evaluate-deploy cycle of LLMs for automatic vulnerability remediation ([Snyk DeepCode AI Fix](#)) to developing computer vision system for collision avoidance ([Daedalean's Spotter](#)). I follow a hands-on style of work and love to see demos productionized.

**Experience:** 8 years industry (Software Engineering) and 6 years academia (PhD, Computer Science)

## Professional Experience

**Engineering manager (ML team)** *Snyk* ([snyk.io](#)) **Zurich, Switzerland** 06/2023 – present

- Driving the launch of [Snyk DeepCode AI Fix](#) from Beta to GA via a series of steady model improvements and closing the product-train-eval feedback loop.
- Oversaw development of in-house data labelling service and launched labelling collaborations with external parties, improving the remediation coverage from 1 to 7 programming languages, and increasing the quality by 20%.
- Oversaw moving of ML train/eval and crawling pipelines to automated KubeFlow cloud, speeding up the release cadence.
- Developed services for hosting company-wide ML hackathons and label-a-thons.
- Led and grew a team from 3 to 6 engineers; advised MSc theses (jointly with ETH Zurich).
- Skills & Stacks:** C++17/20 (for serving/engine), Python/PyTorch/ONNX (for NLP/LLM), Go (LSP), Bazel, k8s (GKE/Amazon EKS), Helm, Envoy, Docker; production cycle, requirements management, mentoring, people management.

**Senior ML SWE, Tech lead** *Snyk* ([snyk.io](#)) **Zurich, Switzerland** 04/2021 – 06/2023

- Together with the team, beta-launched products for automatic vulnerability remediation and code search ([Snyk DeepCode AI Fix](#)), including serving architecture and implementation; worked in a squad across the division set the technical directions, roadmaps and priorities.
- Built the infrastructure for training/evaluation and serving of LLMs for code repair and search (real-time inference of 3B+ models). Designed and built internal libraries for simplified storage of various artifacts over any S3-compliant storage.
- Brought in codebase best practices, test-driven development, scaled the experimentation.
- Publications:** "DeepCode AI Fix: Fixing Security Vulnerabilities with Large Language Models" ([arXiv](#)).
- Skills:** C++17/20, Bazel; Python/Pytorch/ONNX; Go; k8s (both GKE/Amazon EKS), Helm, Envoy, Docker; Language Server Protocol; Weights & Biases; program analysis.

**Senior data engineer** *SIX Banking Services* ([six-group.com](#)) **Zurich, Switzerland** 12/2020 – 02/2021

- Organized technical stack, code review and other processes in a newly established data science unit.
- Performed analytical support of stakeholder business units, provided analysis and computed KPIs for ongoing projects in payment ecosystems.
- Participated in preparatory work for transition to cloud pipelines.
- Skills:** Python, Geospatial analysis, Microsoft Azure (Data Factory, DataLake, Databricks), JFrog Artifactory, data security and compliance.

**Machine learning & computer vision engineer** *Daedalean AI* ([ddln.ai](#)) **Zurich, Switzerland** 06/2018 – 10/2020

- Prototyped real-time visual air-to-air object detection and tracking system, currently Daedalean's core product ([Daedalean's Spotter](#)).
- Designed and built in-house model evaluation framework which allowed to automate the release cycle and ablation experiments.
- Shaped out data acquisition and annotation strategies. Defined evaluation metrics, navigated aviation industry standards on operational performance. Supervised interns/MSc students. Carried out flight tests as a fixed-wing aircraft pilot.
- Publications:** (with European Aviation Safety Agency) "Concepts of Design Assurance for Neural Networks" ([Published by EASA](#)).
- Skills:** C++14, Python, Tensorflow, Git, object detection and tracking, cloud computing and automation (GCP/KubeFlow/Jenkins), technical ownership, requirements design, product development cycle.

**Engineering intern** *Google, Research & Machine Intelligence* **Zurich, Switzerland** 05/2017 – 09/2017

- Worked on answer ranking module for active question reformulation project. Developed several deep learning models for answer ranking.
- Blog post:** "Open Sourcing Active Question Reformulation with Reinforcement Learning" ([Google AI blog post](#)).
- Skills:** Python, C++11, Blaze (Bazel), Tensorflow 1.x, NLP, experimental design, MapReduce (Flume).

**Software engineer** *ABBYY Software* ([abbyy.com](#)) **Moscow, Russia** 04/2010 – 08/2012

- Worked on a framework ([ABBYY Compreno](#)) for automated native language understanding and translation. Designed, developed SDK wrappers for language morphology analysis and text classification.
- Skills:** C++03, C#, COM/COM+/WinAPI, SVN, interface design, internal libraries, UML.

**Freelance C++ developer** **Moscow, Russia** 2008 – 2011

- Developed a cross-platform (Mac/Linux/Windows) tool for photo management, sold and maintained it with multiple publishing houses ([archive GitHub](#)).
- Skills:** C++03, Qt 4, MercurialHg, PostgreSQL, presentation skills.

## Areas of Expertise

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**Fresh:** ML for code repair and search – Productionizing and serving of the whole ML stack (DL, LLMs) – Low-memory and low-latency model optimization – Data pipelines and orchestration – Engineering management, team growth, processes organization – Theses advisory, mentoring; **Past:** Computer vision for autonomous flight – Object detection, collision avoidance – NN verification and certification.

## Education

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**PhD in Computer Science** *ETH Zurich, Dept. of Computer Science, ML Group* **Zurich, Switzerland** 2012 – 2018

- Conducted research in theoretical ML (discrete optimization under uncertainty).
- Launched medical collaborations with University Hospital Zurich.
- Supervised several MSc theses.
- Taught “Introduction to Machine Learning” and “Statistical Learning Theory” courses, created a script for the latter.
- **Thesis:** “Statistical Mechanics and Information Theory for Approximate Robust Inference” ([ETH Dissertation](#))

**Specialist in Mathematics** *Moscow State University, Dept. of Mathematics and Mechanics* **Moscow, Russia** 2006 – 2011

- Specialist (equiv. BSc + MSc) degree in Pure and Applied Mathematics, with Honors.
- **Thesis:** “On some metrical properties of Boolean functions” (<https://gron.sk/msc-thesis>)

## Skills, Frameworks and Stacks

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- **Main languages:** C++, Python, Go
- **Build & CI/CD:** Bazel, Pantsbuild, CircleCI, Github Actions
- **Data & Formats:** PostgreSQL, Redis, MongoDB, Parquet, Kafka
- **Cloud:** GCP/AWS, GCS/S3, Firebase
- **Deployment & Balancing:** k8s, Helm, Terraform, Envoy, Docker
- **Observability:** Datadog, OpenCensus, Prometheus, Grafana
- **ML Training:** PyTorch, Tensorflow, DeepSpeed; Determined AI, Weights & Biases, Vertex AI
- **ML Serving:** Huggingface, ONNX, BitsAndBytes/Optimum
- **Org:** Phabricator, JIRA, UML/C4
- **Dev:** Git, Mercurial, Bazaar, NeoVim,  $\LaTeX$

## Languages

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- **Russian** [Native]
- **English** [Fluent]
- **German** [Fluent, C2, Goethe]
- **French** [Fluent, C1, DALF]

## Volunteer Work

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**Firefighter, Emergency Medical Technitian** *Zurich Fire & Rescue Service* **Zurich, Switzerland** 2014 – 2021

- Regularly trained as an ambulance assistant (EMT).
- Participated in ambulance shifts during public events in the city of Zurich.
- Was a first responder to alarms from large-scale emergencies.

## Hobbies and Other

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- Privat Pilot Licence
- Sports (running, cycling, karate)
- Music (flute & guitar)
- Technical blog ([gronskiy.com/posts](https://gronskiy.com/posts))