Alexey Gronskiy

Zurich, Switzerland ☑ alexey@gronskiy.com Homepage: gronskiy.com ♂ LinkedIn: agronskiy 갑 This CV (up to date): gron.sk/cv 갑



Summary

Mathematician by training, computer science PhD, with experience in both corporations and

| | range of fields from computer vision for airborne a private pilot and paramedic assistant in my free systematism and clear communication. o 6 years industry (Software Engineering) o 6 years academia (PhD, Computer Science) | collision avoidance to AI for code analysis. I ame time. In software development, my priorities are O Permanent Swiss residence permit ("C") | | | |
|---------------------------|--|--|--|--|--|
| | Skills | | | | |
| | Listed below are the skills split into "fresh" and "past" ("secondary") ones. The latter can be brushed up quickly. | | | | |
| "Fresh" | Areas of activity | | | | |
| | NLP for code analysis and search Computer vision for autonomous flight Object detection, collision avoidance Pipelines orchestration | NN verification and certification Code review and documentation process Navigating regulatory standards MSc/BSc theses advisory | | | |
| | Operating programming languages | | | | |
| | \circ C++ \circ Python | o Go | | | |
| | Software frameworks | | | | |
| | PyTorch, TensorflowOpenCVHuggingfacePandas, Geopandas | Scikit-learn, PyMC3Networkx, OSMnxPlotly, Dash, FoliumFlask | | | |
| | Stacks & Tools | | | | |
| | CI/CD: Bazel, Pantsbuild, CircleCI/GH-actions Data and Orchestration: Luigi, Parquet/Arrow [No]SQL: Redis, MongoDB, MariaDB Cloud: GCP/AWS, Terraform, k8s, Docker | Training: Determined AI, Weights&Biases Organizational: Phabricator, JIRA, UML/C4 dia grams | | | |
| "Past" and "Secondary" | Areas of activity | | | | |
| | Natural Language Processing Question reformulation, morphological analysis Statistical Learning Theory Algorithmic robustness under uncertainty | Teaching assistance External API design for SDK products Cross-platform UI development Database normalization analysis | | | |
| | Programming languages & Software frameworks | | | | |
| | $\begin{array}{ccc} \circ \; COM/COM + & \circ \; C\# \\ \circ \; WinAPI/MFC & \circ \; Qt4 \end{array}$ | MATLABOpenMPHTML/JS/CSSHugo/Jekyll | | | |
| | Stacks & Tools | | | | |
| | CI/CD: Google's Blaze, Mercurial, Bazaar, SVN, various internal code review tools Data: Apache Beam, RabbitMQ | Databases: MySQL, PostgreSQLCloud: Google's BorgTypesetting: LATEX | | | |

Working Experience

2021-curr. Senior software engineer, ML team lead, Snyk (snyk io 13), Zurich, Switzerland



- Organizing the infrastructure ing/evaluation of large NLP models for code.
- Productionizing several PoC-stage projects, work-
- for train- O Facilitating movement of mining pipelines to the cloud, creating internal libraries for storage and orchestration.
 - ing with adjacent teams to bring them to deploy- O Skills: C++17/20, Python, PyTorch, GCP/AWS, k8s, Docker, Terraform

2020-2021 Senior data engineer, SIX Banking Services, Zurich, Switzerland



- 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.
- O Participated in preparatory work for transition to cloud pipelines
- O Skills: Python, Geospatial analysis, Mircosoft Azure (Data Factory, DataLake, Databricks), JFrog Artifactory, data security and compliance.

2018–2020 Machine learning & computer vision engineer, Daedalean Al (ddln.ai &), Zurich, Switzerland



- Conceived and developed a prototype of a visual air-to-air object detection and tracking system (as part of autopilot collision avoidance).
- O Researched, evaluated and made early technical decisions, shaped out data acquisition and annotation strategies. Developed evaluation metrics, navigated aviation industry standards on operational performance.
- As part of a 4-member team, worked with European Aviation Safety Agency on defining the concepts of safety assurance for neural networks (coauthored gron.sk/codann c, see "Publications").
- O Conceived, developed an extendable and modularized machine learning evaluation and reporting framework used across several projects.
- Co-supervised interns and joint MSc/semester students.
- Carried out flight tests as a fixed-wing aircraft
- O Skills: C++14, Python, Tensorflow, Git, object detection and tracking, cloud computing and automation (GCP/GKE/KubeFlow/Jenkins), operational performance metrics, technical ownership, requirements design, product development cycle.

summer 2017 Research intern, Research and Machine Intelligence, Google Zurich, Switzerland



- tion reformulation (see Google AI blog post ♂).
- O Developed several deep learning models for an- O Skills: Python, C++11, Tensorflow, NLP, experiswer ranking.
- Presented at monthly meeting of Google Research.
- Worked on answer ranking module for active ques Approved for full-time conversion by the hiring
 - mental design, MapReduce, communication.

2012–2018 Doctoral research assistant, head teaching assistant, Machine Learning Group, Department of Computer Science, ETH Zurich, Switzerland

- **ETH** zürich
- O Conducted research in both theoretical and practical fields (see "Projects" below).
- Launched medical collaborations with University Hospital Zurich (see www.cardioml.ch ♂).
- Supervised several MSc theses.
- Taught "Introduction to Machine Learning" and "Statistical Learning Theory" courses, created a script for the latter.

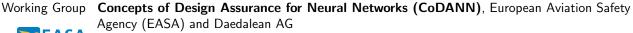
2010–2012 **C++ software engineer**, ABBYY Software, Moscow, Russia

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

2008–2011 Independent (freelance) C++ developer

- Conceived and developed a cross-platform Skills: C++03, Qt 4, MercurialHg, PostgreSQL, (Mac/Linux/Windows) tool for photo management, sold and maintained it.
 - selling and presentation.

Research Projects, Working Groups, Publications and Talks





- Participated in a working group (gron.sk/easa ♂) Co-authored a report "Concepts of Design Assurwhich aimed at establishing methods and concepts for ensuring operational safety of machine learning models in aviation.
 - ance for Neural Networks", whose official summary (gron.sk/codann ♂) was published by EASA.

Research Projects Statistical Mechanical Analysis of Combinatorial Free Energy, ETH Zurich with Center of & Publications Science of Information, Purdue University





- - International Conference on Analysis of Algorithms (AofA) 2017, Princeton
- tion Problems"
 - Analytic Combinatorics (SODA-ANALCO) 2017, Barcelona
- **ETH** zürich o "On Phase Transitions of Free Energy in Combi- o "Free Energy Rates for a Class of Optimization Problems"
 - International Conference on Analysis of Algorithms (AofA) 2014, Paris
 - "Phase Transitions in Parameter Rich Optimiza- O "Asymptotic Evaluation of Posterior Agreement for some Optimization Problems"
 - J. of Theor. Comp. Sci. (TCS) 2018

Robustness and Informativeness of Minimum Spanning Tree Algorithm, ETH Zurich

- rithms"
 - Joint ETH & Google Workshop, Google, Zurich, 2016
- "On Informativeness and Robustness of Algo- "How Informative are Minimum Spanning Tree Algorithms"
 - International Symposium on Information Theory (ISIT) 2014, Hawaii



Machine Learning for Cardiological Diseases (www.cardioml.ch 2), ETH Zurich with University Hospital Zurich and MPI Tübingen, Germany



- tween key factors of Acute Coronary and Takotsubo syndromes.
- O Detecting causal and statistical dependencies be- O Launched and co-led the project initially, supervised BSc and MSc theses.

Robust Solving of Algorithmic Problems, ETH Zurich with Institute of Theoretical Informatics,

o "Robust Optimization in the Presence of Uncertainty: a Generic Approach" J. of Computer and System Sciences (JCSS) 2018

Education

ETH zürich

2012–2018 Doctoral degree (Dr. Sci. ETH), Machine Learning Group, Department of Computer Science, ETH Zurich, Switzerland

> Ph.D. Thesis "Statistical Mechanics and Information Theory for Approximate Robust Inference" (gron.sk/thesis ♂).

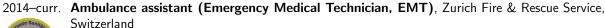
2006–2011 BSc + MSc, Department of Mathematics and Mechanics, Chair of Discrete Mathematics, Moscow State University of M.V. Lomonosov (MSU), Russia

- O Specialist (equiv. BSc + MSc) degree in Pure and Applied Mathematics, with Honors.
- Thesis "On some metrical properties of Boolean functions" (gron.sk/msc-thesis ♂).

Languages

| 0 | Russian | native | ○ German | fluent (C | 2 Goethe, | 2016 |
|---|---------|----------|--------------------------|-----------|-----------|------|
| 0 | English | . fluent | French | fluent (| C1 DALF, | 2011 |

Volunteer Work





- O Regularly training as an ambulance assistant.
- Participating in ambulance shifts during public events in the city of Zurich.
- O First responder to alarms from large-scale emergencies.

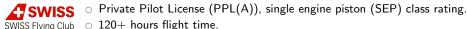
2007–2012 Lecturer/Teacher, MSU-/MIPT-based summer and winter schools ♂ for mathematics and programming, Russia



- Created original lecture/seminar materials.
- Conducted lectures and seminars for high school students.
- O Topics: mathematical analysis, discrete mathematics, programming.

Hobbies and Other Activities

Aviation Pilot, SWISS Flying Club (www.swissflyingclub.ch 2), Hausen am Albis, Switzerland



- SWISS Flying Club 0 120+ hours flight time.
- contests
- Programming O II prize team, All-Russia Programming Contest O II prize team, Moscow Programming Contest (2005).
 - (2005).

- Sports & Music O Karate (gold medal in Swiss Spring Kyu- O Alpine skiing and snowboarding. tournament, 2014).

 - O Playing flute, guitar.

Pilot blog Author, Telegram channel "CrossWind Landing" (in Russian) (gron.sk/x-wind 다)



- O Telling the story of learning for private pilot license in Switzerland. O Topics about aerodynamics, meteorology, and the fun of flying.
- Blog Author, Personal blog on range of topics (gron.sk/posts ♂)
 - O Topics: aviation, tech, programming.