Alexey Gronskiy

CV

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



Summary

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

	startups, I worked in range of roles from software eningeering to data and ML engineering, and in range of fields from computer vision for airborne collision avoidance to AI for code analysis. I am a private pilot and paramedic assistant in my free time. In software development, my priorities are systematism and clear communication.				
	7 years industry (Software Engineering)6 years academia (PhD, Computer Science)	Permanent Swiss residence permit ("C")Married, two children			
	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 repair and search Productionization and serving of LLMs Deployment, CI/CD for ML, on-call 	Data pipelines, orchestrationTeam growthMSc/BSc theses advisory			
	Operating programming languages				
	\circ C++ \circ Python	o Go			
	Software frameworks				
	\circ PyTorch, Tensorflow \circ C++ Abseil, GTest	 Huggingface 			
	Stacks & Tools				
	 CI/CD: Bazel, Pantsbuild, CircleCI/GH-actions Data and Orchestration: Luigi, Parquet/Arrow [No]SQL: Redis, MongoDB, MariaDB Cloud and Deployment: GCP/AWS, Terraform, k8s/Polaris, Envoy, Docker 	 Observability: Datadog, Prometheus, Graphana ML Training: Determined AI, Weights&Biases Organizational: Phabricator, JIRA, UML/C4 			
"Past" and "Secondary"	Areas of activity				
	 Computer vision for autonomous flight Object detection, collision avoidance NN verification and certification 	 Question reformulation, morphological analysis Theoretical ML, statistical learning theory Algorithmic robustness under uncertainty 			
	Programming languages & Software frameworks				
	OpenCV OSMnx○ PyMC3, Networkx, ○ C#, Qt4	COM(+)/WinAPI/MFCWeb (CSS/JS/Hugo)			
	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

Apr'21-curr. Senior software engineer, ML tech lead manager, Snyk (snyk.io 2), Zurich, Switzerland



- Conceived, developed and productionized several backend projects for Snyk Code
- O Working with adjacent teams on defining technical directions of the said projects.
- Organizing the infrastructure for training/evaluation of large NLP models for code analysis and search.
- Facilitating transition of internal computation pipelines to the cloud; implementing libraries that simplify/unify artifact storage and orchestration.
- O Leading (Jan'22 onwards) and growing a team of 5 FTEs, advising MSc thesis.
- Skills: C++17/20, Python, PyTorch, GCP/AWS, k8s/Helm, Docker,

Dec'20-Feb'21 Senior data engineer, SIX Banking Services, Zurich, Switzerland



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

Jun'18-Oct'20 Machine learning & computer vision engineer, Daedalean Al (ddln.ai d), Zurich, Switzerland



- Conceived and developed a prototype of a visual air-to-air object detection and tracking system (as part of autopilot collision avoidance).
- Researched, evaluated and made early technical decisions, shaped out data acquisition and annotation strategies. Defined evaluation metrics, navigated aviation industry standards on operational performance.
- O 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").
- Conceived, developed an extendable and modularized machine learning evaluation and reporting framework used across several projects.
- Co-supervised interns and joint MSc/semester
- Carried out flight tests as a fixed-wing aircraft pilot.
- 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.

May'17-Sep'17 Research intern, Research and Machine Intelligence, Google Zurich, Switzerland



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

ETH zürich

Aug'12-Mar'18 Doctoral research assistant, head teaching assistant, Machine Learning Group, Department of Computer Science, ETH Zurich, Switzerland

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

Apr'10-Aug'12 C++ software engineer, ABBYY Software, Moscow, Russia

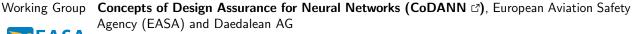


- O Worked on a framework for automated native language understanding and translation.
- Designed, developed SDK wrappers for language
- morphology analysis and text classification.
- Skills: C++03, C#, COM/COM+/WinAPI, SVN, interface design, internal libraries, UML.

2008–2011 Independent (freelance) C++ developer

- Developed a cross-platform (Mac/Linux/Windows) Skills: C++03, Qt 4, MercurialHg, PostgreSQL, tool for photo management, sold and maintained it (archive GitHub ♂).
 - presentation skills.

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



- PURDUE
- **ETH** zürich o "On Phase Transitions of Free Energy in Combi- o "Free Energy Rates for a Class of Optimization
 - International Conference on Analysis of Algorithms (AofA) 2017, Princeton
 - tion Problems"
 - Analytic Combinatorics (SODA-ANALCO) 2017, Barcelona
- 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, ETH Zurich with University Hospital Zurich and MPI Tübingen, Germany



- Detecting causal and statistical dependencies be Launched and co-led the project initially, supertween key factors of Acute Coronary and Takotsubo syndromes.
 - vised 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 ♂).



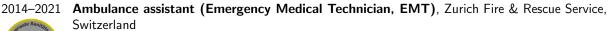
2006–2011 BSc + MSc, Department of Mathematics and Mechanics, Chair of Discrete Mathematics, Moscow State University of M.V. Lomonosov (MSU), Russia

- 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 (C2 Goethe,	2016)
0	English	fluent	 French 	. fluent (C1 DALF,	2011)

Volunteer Work





- O Regularly trained as an ambulance assistant.
- O Participated in ambulance shifts during public events in the city of Zurich.
- Was a 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



- contests
- Programming O II prize team, All-Russia Programming Contest 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.