

# Alexey Gronskiy

CV



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This CV (up to date): gron.sk/cv

## General Information

Education Ph.D. (Dr. Sc. ETH Zurich) in machine learning, MSc/BSc in pure mathematics  
Born 16/11/1989, Moscow, Russia  
Citizenship Russian Federation; Swiss residence permit "B" (for work)  
Civil Status Married, one child

## Working Experience

2018–current **Machine learning engineer**, Daedalean AI, Zurich, Switzerland



- Working on machine learning and computer vision for autonomous flight operations.
- Focus on certifiable applications and embedded systems.
- Conceived and developed the direction of object detection and collision avoidance.
- Conceived and developed the unified ML evaluation framework used in the company.
- Technologies: C++14, Python, Tensorflow 1.XX, cloud computing (Google Cloud), pipeline design, automation and reporting (Jenkins, Kubernetes, Dash).

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



- Worked on answer ranking for active question reformulation (see Google AI blog post).
- Developed several deep learning models for answer ranking; presented at monthly meeting of Google Research Europe.
- Got an approval (offer) for the full-time job conversion.
- Technologies: Python, C++11, Tensorflow, experimental design, data processing.

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



- Conducted research in both theoretical and practical fields (see "Projects" below).
- Launched medical collaborations (UniSpital Zurich, e.g. 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 House, Moscow, Russia



- ABBYY is a world-leading OCR and text scanning software company.
- Designed language morphology and classification products under "NLC Compreno", a framework for automated native language understanding and translation.
- Technologies: C++03, C#, COM/COM+/WinAPI, SVN, internal libraries, UML.

2008–2011 **Independent (freelance) C++ developer**

- Developed a cross-platform (Mac/Linux/Windows) database tool for photo management.
- Presented application to clients, marketed the product, provided long-term technical support.
- Technologies: C++03, Qt 4, MercurialHg, PostgreSQL.

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## Research Projects, Publications and Talks

Research Project **Statistical Mechanical Analysis of Combinatorial Free Energy**, ETH Zurich with Center of Science of Information, Purdue

- Publications & Talks
- “On Phase Transitions of Free Energy in Combinatorics”  
*International Conference on Analysis of Algorithms (AofA) 2017, Princeton*
  - “Phase Transitions in Parameter Rich Optimization Problems”  
*Analytic Combinatorics (SODA-ANALCO) 2017, Barcelona*
  - “Free Energy Rates for a Class of Optimization Problems”  
*International Conference on Analysis of Algorithms (AofA) 2014, Paris*
  - “Asymptotic Evaluation of Posterior Agreement for some Optimization Problems”  
*J. of Theor. Comp. Sci. (TCS) 2018*

Research Project **Robustness and Informativeness of Minimum Spanning Tree Algorithm**, ETH Zurich

- Publications & Talks
- “On Informativeness and Robustness of Algorithms”  
*Joint ETH & Google Workshop, Google, Zurich, 2016*
  - “How Informative are Minimum Spanning Tree Algorithms”  
*International Symposium on Information Theory (ISIT) 2014, Hawaii*

Research Project **Machine Learning for Cardiological Diseases ([www.cardioml.ch](http://www.cardioml.ch) )**, ETH Zurich with University Hospital Zurich and MPI Tübingen, Germany

- Detecting causal and statistical dependencies between key factors leading to Acute Coronary and Takotsubo syndromes.

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


- Publications
- “Robust Optimization in the Presence of Uncertainty: a Generic Approach”  
*J. of Computer and System Sciences (JCSS) 2018*

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## Education

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](http://gron.sk/thesis) ).



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

- Specialist (equiv. M.Sc.) in Mathematics.
- Diploma with Honors in Pure and Applied Mathematics.

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## Languages

russian	<b>native</b>	
english	<b>fluent</b>	TOEFL iBT score 106/max.120, 2011
german	<b>fluent (C2)</b>	Goethe Zertifikat – GDS C2, 2016
french	<b>fluent (C1)</b>	DALF C1, 2011

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## Volunteer Work

2014–present



**Ambulance assistant (emergency medical technician)**, Zurich Fire & Rescue Service (Schutz und Rettung Zürich, Feuerwehr Sanitäts-Kompanie), Switzerland

- Trained as an ambulance assistant (EMT).
- Regular ambulance shifts in Zurich.
- Alarm first responding.

2007–2012



**Lecturer/Teacher**, MSU-/MIPT-based summer and winter schools [↗](#) for mathematics and programming, Russia

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

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## Hobbies and Other Activities

Aviation



Active member of SWISS Flying Club ([www.swissflyingclub.ch](http://www.swissflyingclub.ch) [↗](#)), Hausen am Albis, Switzerland

- Training for Private Pilot License (PPL-A).
- 90 Hrs. single-engine piston (SEP) aircraft.

Sports



- Karate (Kim Dojo Zurich, gold medal in Swiss Spring Kyu-tournament, 2014).
- Alpine skiing and snowboarding.

Music

- Flute.
- Guitar.