

# Aram Davtyan

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## Education

- 2020-present **University of Bern,**  
*Computer Vision Group,*  
PhD in Computer Science.
- 2014-2020 **Lomonosov Moscow State University,**  
*Specialist degree,*  
Faculty of Mechanics and Mathematics,  
Department of Function Theory and Functional analysis.  
GPA 4.98 (top 10 out of 250 students)
- 2016-2018 **Yandex School of Data Science,**  
*Department of Data Analysis.*
- 2020 **Winter school "Math of machine learning 2020",**  
Intense four-day workshop consisting of 3 interdisciplinary mini-courses by world-class scientists.

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## Job Experience

- 2017-2021 **Inline group,**  
*resource center specialist,*  
Applying machine learning to various problems in oil industry.  
collecting and preprocessing data, negotiating with the customers
- 2019-2020 **Yandex,**  
*software engineer,*  
Developing the backend of a high-load service (Yandex.Navigator) responsible for building optimal routes in the automobile graph with respect to the realtime traffic.  
implementing algorithms on road graphs, improving quality of the service via supervised and reinforcement learning techniques

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## Teaching Experience

- 2020-present **University of Bern,**  
Teaching assistant of Machine Learning and Deep Learning courses.
- 2021 **Yandex School of Data Science,**  
Conducted a seminar on Self-Supervised learning in Computer Vision.
- 2018-2021 **Yandex School of Data Science,**  
Supervised a group of students in their research in statistical methods applied to the oil industry.

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## Research Experience

- 2020-present As a part of Computer Vision Group in the University of Bern doing research in unsupervised learning of object interactions in the videos under the supervision of Prof. Dr. Paolo Favaro
- 2018-2020 Research in spectral analysis of the operator in generalized 't Hooft model under the supervision of Prof. Dr. Sheipak I.A.
- 2017-2018 Thesis project "Optimization of oil production via construction of forecast models on injection wells operation modes" for Yandex School of Data Science under the supervision of Prof. Muchnik I.B.
- Author and owner of the patent RU 2 701 761 C1 "Control method of oil production at mature separate oil deposit"

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## Publications

- 2022 Aram Davtyan, Sepehr Sameni, Llukman Cerkezi, Givi Meishvili, Adam Bielski, Paolo Favaro, KOALA: A Kalman Optimization Algorithm with Loss Adaptivity, In AAAI 2022. <https://arxiv.org/abs/2107.03331>
- 2020 Aram Davtyan, Alexander Rodin, Ilya Muchnik, Alexey Romashkin, Oil production forecast models based on sliding window regression, Journal of Petroleum Science and Engineering, Volume 195, 2020, 107916, ISSN 0920-4105, <https://doi.org/10.1016/j.petrol.2020.107916>.

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## Other Experience

- 2014-2018 Organizer of «Matprazdnik» (a math olympiad for 1000+ high school students around Russia) graded their work and distributed the prizes

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## Skills

- Computer Skills Algorithms and data structures, Machine Learning, Artificial Neural Networks and Computer vision  
C/C++, Python (numpy, pandas, sklearn, etc)  
Pytorch, Tensorflow, Keras  
Basic skills in SQL, experienced in MapReduce  
SVN, Git  
Wolfram Mathematica,  $\text{\LaTeX}$   
The basics of computer structure and UNIX operating system
- Mathematics Strong knowledge of functional analysis, probability theory, statistics

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## Achievements

- Data Science Case championship "Changellenge CupIT 2018" Data Science section (Winner)
- English Lomonosov Moscow State University VII Annual Conference for Students in English (2nd prize awarded, 2016)
- Mathematics University Olympiad in Topology and Differential Geometry (Prize 2015)
- Physics Participated in Russian Olympiad in Physics Finals (top-200 in Russia)

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## Personal information

- Languages English (fluent), German (B1+), Russian (native), Armenian (mother language)
- Hobbies Sports (martial arts, rock climbing), playing guitar, reading