

Aram Davtyan

Bern, Switzerland
☎ +41 76 214 14 82
✉ aram.davtyan@unibe.ch
📄 [araachie.github.io](https://github.com/araachie)
🌐 [araachie](#)

Education

- Sep 2020 – present **Ph.D. in Computer Science**, *University of Bern, Computer Vision Group*, Bern, Switzerland.
Research topic: Learning Object Interactions, Controllable Video Generation, World Models.
Supervisor: **Prof. Dr. Paolo Favaro**
- Sep 2014 – Jun 2020 **B.S. + M.S. equivalent (with honors) in Mathematics**, *MSU*, Moscow, Russia, GPA 4.98/5.
Thesis: Spectral analysis of the operator in the generalized 't Hooft model.
Supervisor: **Prof. Dr. Igor Sheipak**
- Sep 2016 – Jun 2018 **M.S. equivalent in Data Analysis**, *Yandex School of Data Analysis*, Moscow, Russia.
Thesis: Optimization of oil production via forecast models on injection wells operation modes.
Supervisor: **Prof. Dr. Ilya Muchnik**

Winter and Summer Schools

- Jul 2023 **Attendee**, *International Computer Vision Summer School*, Sicily, Italy.
Intense one-week summer school with more than 100 participants and lectures delivered by world renowned experts in the field of computer vision.
- Feb 2020 **Attendee**, *Winter School "Math of machine learning"*, Sochi, Russia.
Four-day workshop consisting of 3 interdisciplinary mini-courses on theoretical foundations of machine learning and deep learning delivered by world-class scientists.

Job Experience

- Feb 2019 – Sep 2020 **Software Engineer**, *Yandex*, Moscow, Russia.
- Developing the backend of Yandex.Navigator, a high-load service responsible for building optimal routes in the automobile graph with respect to the realtime traffic.
 - Solved various tasks for maintaining the service, from building data acquisition pipelines to enhancing data quality and developing (sub)optimal route proposal algorithms on road graphs.
 - Significantly improved the quality of the suggested routes via supervised and reinforcement learning techniques.
- Sep 2017 – Dec 2021 **ML Specialist**, *Inline group*, Moscow, Russia.
- Solved various tasks on ML applications in oil industry, involving forecasting oil production rates and building statistical graphs of relationships between different type of wells.
 - Collecting and preprocessing data, negotiating and presenting solutions to the customers.

Selected Publications

- Nov 2023 **Multi-View Unsupervised Image Generation with Cross Attention Guidance**, *arXiv preprint*.
Llukman Cerkezi, **Aram Davtyan**, Sepehr Sameni, Paolo Favaro.
[\[paper\]](#)
- Mar 2023 **Learn the Force We Can: Enabling Sparse Motion Control in Multi-Object Video Generation**, *AAAI 2024*.
Aram Davtyan and Paolo Favaro.
[\[paper\]](#) [\[website\]](#) [\[github\]](#)
- Nov 2022 **Efficient Video Prediction via Sparsely Conditioned Flow Matching**, *ICCV 2023*.
Aram Davtyan, Sepehr Sameni, Paolo Favaro.
[\[paper\]](#) [\[website\]](#) [\[github\]](#)

- Mar 2022 **Controllable Video Generation through Global and Local Motion Dynamics**, *ECCV 2022*.
Aram Davtyan and Paolo Favaro.
[\[paper\]](#) [\[website\]](#) [\[github\]](#)
- Feb 2021 **KOALA: A Kalman Optimization Algorithm with Loss Adaptivity**, *AAAI 2022*.
Aram Davtyan, Sepehr Sameni, Llukman Cerkezi, Givi Meishvili, Adam Bielski, Paolo Favaro.
[\[paper\]](#) [\[website\]](#) [\[github\]](#)
- Mar 2020 **Oil Production Forecast Models Based on Sliding Window Regression**, *Journal of Petroleum Science and Engineering 2020*.
Aram Davtyan, Alexander Rodin, Ilya Muchnik, Alexey Romashkin.
[\[paper\]](#)
- Oct 2019 **Control Method of Oil Production at Mature Separate Oil Deposit**, *Patent, RU2701761C1*.
Aram Davtyan, Alexey Romashkin, Muchnik Ilya.
[\[url\]](#)

Talks

- Sep 2023 **Efficient Video Prediction via Sparsely Conditioned Flow Matching**, *Heidelberg, Germany*.
Nectar Track Oral Presentation, GCPR 2023.

Teaching Experience

- Falls 2020-2023 **Teching Assistant**, *University of Bern*, Bern, Switzerland.
“Machine Learning” (B.S. level) course taught by **Prof. Dr. Paolo Favaro**
- Spring 2023 **Teching Assistant**, *University of Bern*, Bern, Switzerland.
“Deep Learning” (M.S. level) course taught by **Prof. Dr. Paolo Favaro**
- Fall 2021 **Teching Assistant**, *Yandex School of Data Analysis*, Moscow, Russia.
Seminar on Self-Supervised learning in Computer Vision for the “Machine Learning” course.
- Spring 2021 **Teching Assistant**, *University of Bern*, Bern, Switzerland.
“Advanced Topics in Machine Learning” (M.S. level) course taught by **Prof. Dr. Paolo Favaro**
- Sep 2018 – **Supervisor**, *Yandex School of Data Analysis*, Moscow, Russia.
- Dec 2021 Supervised a group of students in their research in statistical methods applied to the oil industry.

Skills

- Coding C/C++, Python
- ML/DL libs numpy, pandas, matplotlib, sklearn, PyTorch, torchvision, TensorFlow
- Other SVN, git, SQL, MapReduce, Wolfram Mathematica, \LaTeX
- Math Functional Analysis, Probability Theory, Statistics

Other Achievements

- Mar 2018 **Changellenge CupIT Data Science section**, *1st place*, Moscow, Russia.
- Fall 2016 **Lomonosov MSU VII Annual Conference for Students in English**, *2nd place*, Moscow, Russia.
- Spring 2015 **University Olympiad in Topology and Differential Geometry**, *Prize*, Moscow, Russia.
- Spring 2014 **Russian Olympiad in Physics Finals**, *Top-200 in Russia*, Saint-Petersburg, Russia.

Languages

- English Fluent
- German Intermediate
- Russian Native language
- Armenian Mother tongue