

Curriculum Vitae




Name/Surname Alexander Korotin
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Professional Experience

- 12.2022 - Until Now** **Skolkovo Institute of Science and Technology [Skoltech/RAIC]**
Center for Applied Artificial Intelligence
Head of Research Group (Research in generative modeling & optimal transport)
Supervisor: prof. E. Burnaev (e.burnaev@skoltech.ru) 
- 11.2021 - Until Now** **Artificial Intelligence Research Institute [AIRI]**
Learnable Intelligence Group
Research Scientist (Research in generative machine learning & optimal transport)
Supervisor: prof. E. Burnaev (burnaev@airi.net) 
- 03.2018 - 11.2022** **Skolkovo Institute of Science and Technology [Skoltech/CDISE]**
Center for Computational and Data-Intensive Science and Engineering
Research Intern (Research in generative machine learning & optimal transport)
Supervisor: prof. E. Burnaev (e.burnaev@skoltech.ru) 
- 03.2017 - 03.2018** **Institute for Information Transmission Problems [IITP/Lab10]**
Laboratory No. 10 of Intellectual Data Analysis and Predictive Modeling
Intern-Researcher (Research in online learning: averaging experts' predictions)
Supervisor: prof. E. Burnaev (e.burnaev@skoltech.ru) 
- 09.2016 - 03.2017** **Yandex [Yandex/Research]**
Yandex Research
Intern-Researcher (Machine learning for time-series anomaly detection)
Supervisor: G. Gusev (gleb57@yandex.ru) 
- 02.2016 - 01.2017** **National Research University Higher School of Economics [HSE/CS/TCS]**
International Laboratory of Theoretical Computer Science
Intern-Researcher (Research in Discrete Geometry)
Supervisor: prof N. Vereshchagin (nikolay.vereshchagin@gmail.com) 
- 04.2014 - 09.2014** **Yandex**
Group for International Ranking
Intern-Developer (Data analysis for an internal project)
Supervisor: E. Krokhalev 

Project Activities

- 01.2021 - 12.2022** **Unpaired learning from irregular geometric modalities**
Development of new methods for unpaired learning tasks.
Joint Skoltech-MIT collaboration project [Next generation program].
Member of Project (Research & Computational Experiments)
Skoltech PI: prof. E. Burnaev (e.burnaev@skoltech.ru)
MIT PI: prof. J. Solomon (jsolomon@mit.edu) 

- Unpaired learning**
 07.2020 - 06.2022 Development of new methods for unpaired learning tasks.
Joint Skoltech-Huawei collaboration project.
 Member of Project (Research & Computational Experiments)
Skoltech PI: prof. E. Burnaev (e.burnaev@skoltech.ru)
- Application of Neural Networks for Monitoring and Prediction of State of the Main Roads**
 10.2017 - 01.2018 *Research is supported by the Ministry of Education and Science of Russian Federation, grant No. 14.606.21.000.*
 Member of Grant (Research & Computational Experiments)
Grant Head: prof. E. Burnaev (e.burnaev@skoltech.ru)
- Machine Learning for Modeling the Players' Behavior in On-line Team Games Based on their Psycho-Emotional State**
 09.2018 - 09.2021 *Research is partially supported by the Russian Foundation for Basic Research, project No. 18-29-22077\18.*
 Member of Grant (Research & Computational Experiments)
Grant Head: prof. A. Somov (a.somov@skoltech.ru)



Teaching Experience

- 02.2024 **Spring ML School [ML2024]**
 Conducting the mini-course *On a way to faster diffusion models with Schrodinger Bridges*
- 11.2023-12.2023 **Yandex School of Data Analysis [YSDA]**
 Course teaching: *Foundations of Generative Artificial Intelligence* (jointly with prof. E. Burnaev)
- 08.2023 **SMILES Machine Learning Summer School 2023 [Skoltech]**
 Conducting the *Mini-course on Neural Optimal Transport*
- 07.2023 **AIRI Summer School 2023 [AIRI]**
 Conducting the *Mini-course on Neural Optimal Transport*
- 07.2022 **AIRI Summer School & Conference 2022 [AIRI]**
 Conducting the *Tutorial on Neural Optimal Transport*
- 09.2019 **Machine Learning Summer School 2019 [Skoltech]**
 Conducting the *Tutorial on the Theory of Deep Learning*
- 2019,2020, 2021,2022 **Skolkovo Institute of Science and Technology [Skoltech]**
 Teaching Assistant on *Machine Learning* Course
Lecturer: prof. E. Burnaev (e.burnaev@skoltech.ru)
Co-lecturer: prof. A. Zaytsev (a.zaytsev@skoltech.ru)



Education

- 03.2023 **Federal Research Center "Computer Science and Control" of the Russian Academy of Sciences [FRC CSC RAS]**
Dissertation council 24.1.224.01.
 Defended PhD thesis (candidate of physical and mathematical sciences, 1.2.2 – mathematical modeling, numerical methods, software systems).
Scientific advisor: prof. E. Burnaev (e.burnaev@skoltech.ru)



Skolkovo Institute of Science and Technology [Skoltech/CDS]
Ph.D. program in Computational Science and Engineering
 11.2018 - 10.2022
 Prepared PhD thesis: Parametric methods for computing optimal transport maps, distances and barycenters.
Scientific advisor: prof. E. Burnaev (e.burnaev@skoltech.ru)



**National Research University
 Higher School of Economics [HSE/CS/DS]**
Faculty of Computer Science, Department of Data Science
 09.2016 - 06.2018
 Master, GPA 8.44/10
Thesis: Experts' Aggregating Algorithm for Long-Term Prediction
Scientific advisor: prof. E. Burnaev (e.burnaev@skoltech.ru)



Yandex School of Data Analysis [YSDA]
Department of Data Analysis
 09.2013 - 05.2016
 Regular Student, GPA 4.5/5



**National Research University
 Higher School of Economics [HSE/Math]**
Faculty of Mathematics
 09.2012 - 06.2016
 Bachelor, GPA 8.5/10
Thesis: Local Rules for Self-Similar Tiling of the Plane
Scientific advisor: prof. N. Vereshchagin



Extra-Curriculum Courses

10.2021	Statistics, Artificial Intelligence, Machine Learning, Probability, Learning Theory Event [SAMPLE 2021] <i>Russia, Gelendzhik</i> Participation	
09.2020	SMILES Machine Learning Summer School 2020 <i>Online (Zoom)</i> Participation & <u>Poster:</u> Wasserstein-2 Generative Networks	
02.2020	Math of Machine Learning School 2020 <i>Online (Zoom)</i> Participation & <u>Poster:</u> Wasserstein-2 Generative Networks	
09.2019	Machine Learning Summer School 2019 [Skoltech] <i>Moscow, Russia</i> Participation	

Professional Interests

1. **Optimal Transport (OT, 2019 - ...):** computational OT; parametric methods for OT (based on neural networks); computation of Wasserstein distances, maps and barycenters; learning Schrodinger bridges from data; OT for generative modeling, domain adaptation and image processing; generalization & sample complexity.
2. **Generative Models (2019 - ...):** generative adversarial networks (GANs): discrepancy measures, generalization bounds, approximation properties, methods to deal with the mode dropping & collapse; diffusion models: connections to Schrodinger bridges (Entropic OT), speeding up the inference, theoretical guarantees.
3. **Online Machine Learning (OML, 2017 - 2021):** prediction with experts' advice; aggregating algorithms; delayed feedback and long-term forecasting; adaptive algorithms; time-series prediction; regret bounds.
4. **Topological Data Analysis (TDA, 2019 - 2021):** canonical form invariants of objective functions (barcodes); barcodes for analysis of loss surfaces of neural networks; TDA for assessing the quality generative models.

Published Papers (Part I: Machine Learning)

16×A* conference papers, 3×Q1 + 1×Q2 journal papers, 5 other papers.

- [1] Arip Asadulaev, Alexander Korotin, Vage Egiazarian, Petr Mokrov, and Evgeny Burnaev. “Neural Optimal Transport with General Cost Functionals”. In: *The Twelfth International Conference on Learning Representations*. 2024. URL: <https://openreview.net/forum?id=gIiz7tBtYZ>.
- [2] Arip Asadulaev, Vitaly Shutov, Alexander Korotin, Alexander Panfilov, Vladislava Kontsevaya, and Andrey Filchenkov. “A Minimalist Approach for Domain Adaptation with Optimal Transport”. In: *Conference on Lifelong Learning Agents*. PMLR. 2023, pp. 1009–1024.
- [3] S Barannikov, A Korotin, D Oganessian, D Emtsev, and E Burnaev. “Barcodes as summary of loss function topology”. In: *Doklady Rossijskoj akademii nauk. Matematika, informatika, processy upravleniâ* 514.2 (2023), pp. 196–211.
- [4] Serguei Barannikov, Ilya Trofimov, Grigorii Sotnikov, Ekaterina Trimbach, Alexander Korotin, Alexander Filipov, and Evgeny Burnaev. “Manifold Topology Divergence: a Framework for Comparing Data Manifolds.” In: *Advances in Neural Information Processing Systems* 34 (2021).
- [5] Milena Gazdieva, Alexander Korotin, Daniil Selikhanovych, and Evgeny Burnaev. “Extremal domain translation with neural optimal transport”. In: *Advances in Neural Information Processing Systems* 36 (2024).
- [6] Nikita Gushchin, Alexander Kolesov, Alexander Korotin, Dmitry P Vetrov, and Evgeny Burnaev. “Entropic neural optimal transport via diffusion processes”. In: *Advances in Neural Information Processing Systems* 36 (2024).
- [7] Nikita Gushchin, Alexander Kolesov, Petr Mokrov, Polina Karpikova, Andrei Spiridonov, Evgeny Burnaev, and Alexander Korotin. “Building the Bridge of Schrödinger: A Continuous Entropic Optimal Transport Benchmark”. In: *Advances in Neural Information Processing Systems* 36 (2024).
- [8] Alexander Korotin, Vage Egiazarian, Arip Asadulaev, Alexander Safin, and Evgeny Burnaev. “Wasserstein-2 Generative Networks”. In: *International Conference on Learning Representations*. 2021. URL: https://openreview.net/forum?id=bEoxzW_EXsa.
- [9] Alexander Korotin, Vage Egiazarian, Lingxiao Li, and Evgeny Burnaev. “Wasserstein Iterative Networks for Barycenter Estimation”. In: *Thirty-Sixth Conference on Neural Information Processing Systems*. 2022. URL: <https://openreview.net/forum?id=GiEnzxTnaMN>.
- [10] Alexander Korotin, Nikita Gushchin, and Evgeny Burnaev. “Light Schrödinger Bridge”. In: *The Twelfth International Conference on Learning Representations*. 2024. URL: <https://openreview.net/forum?id=WhZoCLRWYJ>.
- [11] Alexander Korotin, Alexander Kolesov, and Evgeny Burnaev. “Kantorovich Strikes Back! Wasserstein GANs are not Optimal Transport?” In: *Thirty-sixth Conference on Neural Information Processing Systems Datasets and Benchmarks Track*. 2022. URL: <https://openreview.net/forum?id=VtEEpi-dGlt>.
- [12] Alexander Korotin, Lingxiao Li, Aude Genevay, Justin M Solomon, Alexander Filippov, and Evgeny Burnaev. “Do Neural Optimal Transport Solvers Work? A Continuous Wasserstein-2 Benchmark”. In: *Advances in Neural Information Processing Systems* 34 (2021).
- [13] Alexander Korotin, Lingxiao Li, Justin Solomon, and Evgeny Burnaev. “Continuous Wasserstein-2 Barycenter Estimation without Minimax Optimization”. In: *International Conference on Learning Representations*. 2021. URL: <https://openreview.net/forum?id=3tFAs5E-Pe>.
- [14] Alexander Korotin, Daniil Selikhanovych, and Evgeny Burnaev. “Kernel Neural Optimal Transport”. In: *International Conference on Learning Representations*. 2023. URL: https://openreview.net/forum?id=Zuc_MHtUma4.
- [15] Alexander Korotin, Daniil Selikhanovych, and Evgeny Burnaev. “Neural Optimal Transport”. In: *International Conference on Learning Representations*. 2023. URL: <https://openreview.net/forum?id=d8CBRLWNkqH>.
- [16] Alexander Korotin, Vladimir V’yugin, and Evgenii Burnaev. “Online algorithm for aggregating experts’ predictions with unbounded quadratic loss”. In: *Russian Mathematical Surveys* 75.5 (2020), p. 974.
- [17] Alexander Korotin, Vladimir V’yugin, and Evgeny Burnaev. “Adaptive hedging under delayed feedback”. In: *Neurocomputing* 397 (2020), pp. 356–368.
- [18] Alexander Korotin, Vladimir V’yugin, and Evgeny Burnaev. “Aggregating strategies for long-term forecasting”. In: *Proceedings of the Seventh Workshop on Conformal and Probabilistic Prediction and Applications*. Ed. by Alex Gamberman, Vladimir Vovk, Zhiyuan Luo, Evgueni Smirnov, and Ralf Peeters. Vol. 91. Proceedings of Machine Learning Research. PMLR, Nov. 2018, pp. 63–82. URL: <http://proceedings.mlr.press/v91/korotin18a.html>.
- [19] Alexander Korotin, Vladimir V’yugin, and Evgeny Burnaev. “Mixability of integral losses: A key to efficient online aggregation of functional and probabilistic forecasts”. In: *Pattern Recognition* 120 (2021), p. 108175.

- [20] Alexander Korotin, Vladimir V'yugin, and Evgeny Burnaev. "Mixing past predictions". In: ed. by Alexander Gammernan, Vladimir Vovk, Zhiyuan Luo, Evgueni Smirnov, and Giovanni Cherubin. Vol. 128. Proceedings of Machine Learning Research. PMLR, Sept. 2020, pp. 171–188. URL: <http://proceedings.mlr.press/v128/korotin20a.html>.
- [21] Petr Mokrov, Alexander Korotin, Alexander Kolesov, Nikita Gushchin, and Evgeny Burnaev. "Energy-guided Entropic Neural Optimal Transport". In: *The Twelfth International Conference on Learning Representations*. 2024. URL: <https://openreview.net/forum?id=d6tUsZeVs7>.
- [22] Petr Mokrov, Alexander Korotin, Lingxiao Li, Aude Genevay, Justin M Solomon, and Evgeny Burnaev. "Large-scale wasserstein gradient flows". In: *Advances in Neural Information Processing Systems* 34 (2021).
- [23] Litu Rout, Alexander Korotin, and Evgeny Burnaev. "Generative Modeling with Optimal Transport Maps". In: *International Conference on Learning Representations*. 2022. URL: <https://openreview.net/forum?id=5JdLZg346Lw>.
- [24] Dmitry Smolyakov, Alexander Korotin, Pavel Erofeev, Artem Papanov, and Evgeny Burnaev. "Meta-learning for resampling recommendation systems". In: *Eleventh International Conference on Machine Vision (ICMV 2018)*. Vol. 11041. International Society for Optics and Photonics. 2019, 110411S.
- [25] Александр Коротин, Владимир Вьюгин, and Евгений Бурнаев. "Агрегирующий алгоритм для долгосрочного прогнозирования". In: *Сборник трудов 41-ой конференции «Информационные технологии и системы»* (2017). URL: http://itas2017.iitp.ru/media/papers/1570387691_r09qx47.pdf.

Accepted papers (in the process of publication)

2×A* conference papers.

- [1] Nikita Gushchin, Sergei Kholkin, Evgeny Burnaev, and Alexander Korotin. *Light and Optimal Schrödinger Bridge Matching*. 2024. arXiv: 2402.03207 [cs.LG].
- [2] Alexander Kolesov, Petr Mokrov, Igor Udovichenko, Milena Gazdieva, Gudmund Pammer, Evgeny Burnaev, and Alexander Korotin. "Estimating Barycenters of Distributions with Neural Optimal Transport". In: *arXiv preprint arXiv:2402.03828* (2024).

Papers [2, 1] will be published in the proceedings of ICML-2024.

Published Papers (Part II: Machine Learning & Data Analysis for Affective computing)

1×Q1 journal paper, 1×Q2 journal paper, 4 other papers *during 2019-2021*.

- [1] Simon Abramov, Alexander Korotin, Andrey Somov, Evgeny Burnaev, Anton Stepanov, Dmitry Nikolaev, and Maria Titova. "Analysis of Video Game Players' Emotions and Team Performance: an eSports Tournament Case Study". In: *IEEE Journal of Biomedical and Health Informatics* (2021).
- [2] Nikita Khromov, Alexander Korotin, Andrey Lange, Anton Stepanov, Evgeny Burnaev, and Andrey Somov. "Esports Athletes and Players: a Comparative Study". In: *IEEE Pervasive Computing* 18.3 (2019), pp. 31–39.
- [3] Alexander Korotin, Nikita Khromov, Anton Stepanov, Andrey Lange, Evgeny Burnaev, and Andrey Somov. "Towards Understanding of eSports Athletes' Potentialities: The Sensing System for Data Collection and Analysis". In: *2019 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation*. IEEE. 2019, pp. 1804–1810.
- [4] Alexander Korotin, Anton Stepanov, Andrey Lange, Dmitry Nikolaev, Simon Abramov, Nikita Klyuchnikov, Evgeny Burnaev, and Andrey Somov. "Assessment of Video Games Players and Teams Behaviour via Sensing and Heterogeneous Data Analysis: Deployment at an eSports Tournament". In: *International Summit Smart City 360*. Springer. 2020, pp. 409–421.
- [5] Anton Stepanov, Andrey Lange, Nikita Khromov, Alexander Korotin, Evgeny Burnaev, and Andrey Somov. "Sensors and Game Synchronization for Data Analysis in eSports". In: *2019 IEEE 17th International Conference on Industrial Informatics (INDIN)*. Vol. 1. IEEE. 2019, pp. 933–938.
- [6] Boris B Velichkovsky, Nikita Khromov, Alexander Korotin, Evgeny Burnaev, and Andrey Somov. "Visual Fixations Duration as an Indicator of Skill Level in eSports". In: *IFIP Conference on Human-Computer Interaction*. Springer. 2019, pp. 397–405.

Papers under Review & Preprints (Machine Learning)

- [1] Milena Gazdieva, Arip Asadulaev, Alexander Korotin, and Evgeny Burnaev. *Unbalanced and Light Optimal Transport*. 2024. arXiv: 2303.07988 [cs.LG].
- [2] Milena Gazdieva, Litu Rout, Alexander Korotin, Alexander Filippov, and Evgeny Burnaev. “Unpaired Image Super-Resolution with Optimal Transport Maps”. In: *arXiv preprint arXiv:2202.01116* (2022).
- [3] Alexander Kolesov, Petr Mokrov, Igor Udovichenko, Milena Gazdieva, Gudmund Pammer, Anastasis Kratsios, Evgeny Burnaev, and Alexander Korotin. “Energy-Guided Continuous Entropic Barycenter Estimation for General Costs”. In: *arXiv preprint arXiv:2310.01105* (2023).
- [4] Nikita Kornilov, Alexander Gasnikov, and Alexander Korotin. “Optimal Flow Matching: Learning Straight Trajectories in Just One Step”. In: *arXiv preprint arXiv:2403.13117* (2024).
- [5] Maksim Nekrashevich, Alexander Korotin, and Evgeny Burnaev. “Neural Gromov-Wasserstein Optimal Transport”. In: *arXiv preprint arXiv:2303.05978* (2023).

Presentations at Scientific Conferences

05.2023 [x2]	The 11th International Conference on Learning Representations [ICLR 2023] <i>Rwanda, Kigali</i> Spotlight: Neural Optimal Transport Poster: Kernel Neural Optimal Transport	
12.2022 [x2]	Neural Information Processing Systems [NeurIPS 2022] <i>Online</i> Poster: Wasserstein Iterative Networks for Barycenter Estimation Poster: Kantorovich Strikes Back! Wasserstein GANs are not Optimal Transport?	
04.2022	The 10th International Conference on Learning Representations [ICLR 2022] <i>Online (Zoom)</i> Poster: Generative Modeling with Optimal Transport Maps	
12.2021 [x3]	Neural Information Processing Systems [NeurIPS 2021] <i>Online (Zoom)</i> Poster: Large-Scale Wasserstein Gradient Flows Poster: Do Neural Optimal Transport Solvers Work? A Continuous Wasserstein-2 Benchmark Poster: Manifold Topology Divergence: a Framework for Comparing Data Manifolds	
05.2021 [x2]	The 9th International Conference on Learning Representations [ICLR 2021] <i>Online (Zoom)</i> Poster: Wasserstein-2 Generative Networks Poster: Continuous Wasserstein-2 Barycenter Estimation without Minimax Optimization	
12.2020	11th International Conference on Sensor Systems and Software [EAI S-CUBE 2020] <i>Online (Zoom)</i> Presentation: Assessment of Video Games Players and Teams Behaviour via Sensing and Data Analysis: Deployment at an eSports Tournament	

- 06.2018 **The 7th Symposium on Conformal and Probabilistic Prediction and Applications [COPA 2018]**
Maastricht, The Netherlands
Presentation: Aggregating Strategies for Long-term Forecasting
- 09.2017 **Information Technologies and Systems 2017 [ITaS 2017]**
Russia, Ufa
Presentation: Aggregation Algorithm for Long-term Prediction



Presentations at Scientific Workshops

- 11.2022 **Fall into ML: conference and school on ML [ML2022]**
Moscow, Russia
Presentation & poster: Neural Optimal Transport
- 11.2023 **Fall into ML: conference and school on ML [ML2022]**
Moscow, Russia
Presentation & poster: Kantorovich Strikes Back! Wasserstein GANs are not Optimal Transport?
- 10.2019 [x2] **Huawei Machine Learning Workshop 2020**
Sochi, Russia
Presentation: Generative Models [**Best presentation award**]
Presentation: AI + IoT for eSports



Reviewing for Conferences & Journals

Since 2020-2021, I regularly do reviews for top Machine Learning/Artificial Intelligence conferences and journals. In particular, I won the **best reviewer award** at NeurIPS 2022 conference.



Students under Supervision

Currently, I supervise several **MS** and students.

- David Li (**MS**, 2023-2025): *Methods to speed up the inference in conditional image-to-image diffusion models.*
- Sergey Karpukhin (**MS**, 2023-2025): *Efficient energy-based methods for learning entropic optimal transport.*
- Sergey Kushneryuk (**MS**, 2023-2025): *Adversarial methods for training diffusion models.*
- Roman Tarasov (**MS**, 2023-2025): *Improved neural optimal transport solvers.*

Also, I co-supervise (with prof. E. Burnaev) several **MS** and **PhD** students.

- Nikita Gushchin (**PhD**, 2022-2025): *Efficient methods for solving entropic optimal transport problems;*
- Milena Gazdieva (**PhD**, 2022-2025): *Parametric methods for computing OT mappings for imaging tasks;*
- Alexander Kolesov (**PhD**, 2022-2025): *Scalable Generative modeling approaches based on schrodinger bridges;*
- Petr Mokrov (**PhD**, 2022-2025): *Methods for solving optimal transport problems with general costs;*
- Maxim Nekrashevich (**MS**, 2022-2024): *Neural Gromov-Wasserstein Optimal Transport;*
- Nikita Andreev (**MS**, 2022-2024): *Progressively Growing Neural Optimal Transport;*
- Kirill Tamogashev (**MS**, 2022-2024): *Adversarial methods for voice style transfer;*
- Xavier Aramayo (**MS**, 2022-2024): *Light Continuous Entropic Gromov-Wasserstein OT Solvers;*

9. Sergey Kholkin (MS, 2023-2024): *Fast Algorithms for Diffusion Schrodinger Bridges*;

Alumni.

1. Polina Karpikova (MS, 2022-2023): *Diverse Image Inpainting using Neural Optimal Transport* (Grade: **A**);
2. Nikita Glukhov (MS, 2022-2023): *Optimal Transport for Semi-supervised Data Translation Tasks* (Grade: **A**);

Results of Participation in Olympiads and Competitions

2011-2012 **All-Russian School Olympiad in Mathematics**
Russia, Smolensk [Final Stage]
Result: Prizewinner (Diploma, II-III degree)



2011-2012 **International Math Tournament of Towns**
Russia, Moscow [Final Stage]
Result: Prizewinner (Diploma, II degree)



2010-2011 **All-Russian School Olympiad in Mathematics**
Russia, Veliky Novgorod [Final Stage]
Result: Prizewinner (Diploma, II-III degree)



04.2010 **All-Russian Scientific Conference of Young Researchers**
"Step into the Future"
Russia, Moscow [Final Stage]
Presentation: Barycentric Method in Geometric Problems
Result: Prizewinner (Diploma, III degree)



Scholarships & Awards

2019, 2021 **The Ilya Segalovich Award of Yandex [x2]**
for students delivering cutting-edge research in Machine Learning
Awardee



2012-2014 **"Alpha Chance" Students' Scholarship**
for Prizewinners of the All-Russian School Olympiad
Awardee



Government Awards

2023 **National Award "AI Leaders"**
Award to young scientists for breakthrough research in the field of artificial intelligence.
Awardee



2011, 2012 **Award for Support of Talented Youth in Russia [x2]**
On the basis of decree No. 325 (April 6, 2006) of the President of Russia
Awardee



2010, 2012 **Award of the Governor for Gifted School Students of the Samara Region [x2]**
Awardee



Skills

1. Personal Skills

- (a) Responsibility, perseverance, purposefulness, sociability, leadership.

- (b) The experience of leading the team work.
- (c) The ability to clearly set the task, plan the stages of the solution and its timely submission.
- (d) The desire to regularly read and analyze scientific publications on relevant subjects.

2. Scientific Skills

- (a) Information retrieval, knowledge presentation, scientific writing.
- (b) Hypothesis formulation, experiment planning, formulation and proving theorems.

3. Mathematical Skills

- (a) **Fundamental mathematics:** probability theory, calculus, linear algebra, functional analysis, topology, math logic, geometry, optimal mass transport, etc.
- (b) **Computer science:** algorithms, machine learning, bayesian methods, deep learning, generative models, graphical models, convex optimization, computational complexity, online machine learning, social network analysis, topological data analysis, etc.
- (c) **Applied Mathematics:** mathematical statistics, econometrics, optimization, etc.

4. Programming Skills

- (a) **Python & Jupyter:** 6+ year experience of programming, including scientific Python; knowledge and experience in working with base Python libraries:
 - **Data mining:** numpy, scipy, matplotlib, seaborn, sympy, pandas, networkx, etc.
 - **Machine learning:** sklearn, statsmodels, xgboost, lightgbm, GPy, pyflux, catboost, etc.
 - **Deep learning:** pytorch.
 - **Images:** PIL (Image), gimpfu, etc.
 - **Internet content:** BeautifulSoup, Urllib, etc.
 - **Yandex:** MapReduce
- (b) **C++:** about 1 year experience of programming in the course of algorithms in Yandex School of Data Analysis in 2014.

5. Other Skills

The ability to describe and visualize any solution via different development tools: LaTeX, Microsoft office, Google Slides, GIMP, InkScape, etc.

Language Proficiency

1. **Russian** (Native)
2. **English** (Intermediate/Upper-Intermediate)