

CURRICULUM VITAE



Name	Sergey Igorevich Nikolenko
Born	August 11, 1984 (Pskov, USSR)
Address	pr. Zagorodny, d. 17, kv. 4, St.-Petersburg, Russia, 191002
E-mail	snikolenko@gmail.com , sergey@logic.pdmi.ras.ru
Web page	http://logic.pdmi.ras.ru/~sergey/
Research interests	<ul style="list-style-type: none">> Machine learning: deep learning, generative models, probabilistic graphical models, natural language processing, computer vision, recommender systems> Algorithms for networking: buffer management, packet classifier optimization, scheduling, competitive analysis> Theoretical computer science: theoretical cryptography, proof theory, SAT> Algebra

Research Stats

(updated October 2023; full list: <https://logic.pdmi.ras.ru/~sergey/papers.html>)

		h-index	Total
Web of Science	ResearcherID: I-7696-2013 (ORCID 0000-0001-7787-2251)	17	133
Scopus	ScopusID: 13608710100	23	153
DBLP	http://dblp.uni-trier.de/pers/hd/n/Nikolenko:Sergey_I=.html		148
Google Scholar	https://scholar.google.com/citations?user=_lk95cEAAAAJ	36	~250

Education

1991-1994	Secondary school #5, Pskov, Russia.
1994-1998	Pskov Technical Lyceum, Pskov, Russia, <i>cum laude</i> (Gold Medal)
1998-1999	University High School, Greeley, CO, USA, <i>cum laude</i> (maximal GPA)
1999-2000	Pskov Polytechnical Institute, Pskov, Russia
2000-2005	St.-Petersburg State University, St.-Petersburg, Russia, Department of Mathematics and Mechanics, <i>cum laude</i> (maximal GPA)
2005-2008	Ph.D. Student, Steklov Mathematical Institute at St. Petersburg (PDMI RAS)
2009	Ph.D. from the Steklov Mathematical Institute at St. Petersburg (PDMI RAS)
2022	Sc.D. from the St. Petersburg State University

Work experience

2006-2007		Engineering intern, <i>Google Inc.</i> (software development)
2006-2010		Assistant Professor, <i>SPSU IFMO</i> , St. Petersburg (teaching)
2008-2010		Senior Researcher, <i>Speech Technology Center</i> , St. Petersburg (research and development of speech recognition systems)
2011-2012		Senior Researcher, <i>Algorithmic Biology Lab</i> , <i>St. Petersburg Academic University</i> (research in genome assembly algorithms and software)

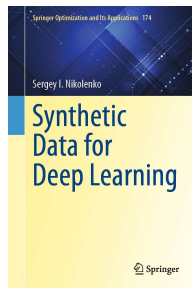
2011-2014	 Surfingbird	Research Director, <i>Surfingbird</i> , Moscow (R&D in recommender systems)
2015-2016		Senior Data Scientist, <i>Deloitte Analytics Institute</i> , Moscow (data analysis, research in machine learning)
2008-2018		Adjunct Professor, <i>St. Petersburg Academic University</i> (teaching, academic research)
2018-2020		Lab Leader, <i>Samsung AI Center</i> , Moscow (research, R&D leadership and management)
2013-2021		Assistant Professor, <i>NRU Higher School of Economics</i> , St. Petersburg (teaching, academic research)
2017-now		Chief Research Officer, <i>Neuromation</i> (research, R&D leadership and management)
2018-now		Assistant Professor, <i>St. Petersburg State University</i> (teaching self-developed courses on ML, DL, probabilistic modeling)
2018-now		Head of AI, <i>Synthesis AI</i> (research, R&D leadership and management in synthetic data)
2008-now		Head of AI Laboratory, Senior Researcher <i>Steklov Mathematical Institute at St. Petersburg (PDMI RAS)</i> (research, R&D leadership and management)

Research Leadership

Led over 30 major research projects. Industrial projects (Neuromation, Synthesis AI) on machine learning, in particular computer vision, generative models, medical imaging, natural language processing and more (details may be confidential). Academic projects at PDMI RAS include:

- Huawei research project on algorithms for networking (2022-2023)
- Huawei research project on algorithms for perfect hash functions (ongoing)
- Russian Science Foundation grant 17-11-01276 “Networking and distributed systems and algorithms and related fundamental problems” (2017-2019, renewed for 2020-2021)
- Huawei research project on algorithms for networking (2020-2021)
- Russian Foundation for Basic Research 18-54-74005 “Detection and characterization of cell subpopulations with machine learning on single-cell spatial metabolomics data” (2018-2020)
- Samsung research projects at PDMI RAS on machine learning, every year in 2014-2020
- Russian Presidential Grants for Young Ph.D.'s: MK-7287.2016.1 (2016-2017), MK-6628.2012.1 (2012-2013), MK-4089.2010.1 (2010-2011)
- Russian Foundation for Basic Research grant 12-01-00450-a (2012-2013)
- PDMI RAS representative for Governmental Contract 02.740.11.5192 (2010-2011)

Books



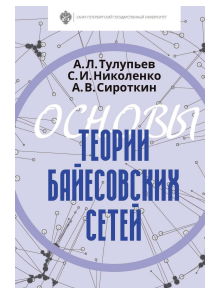
S.I. Nikolenko
Synthetic Data for Deep Learning
Springer, 2021



S.I. Nikolenko, A. Kadurin, E. Arkhangelskaya
Deep Learning
Piter, 2017



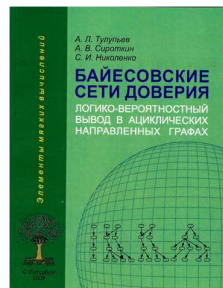
A.L. Tulupuyev, S.I. Nikolenko, A.V. Sirotkin
Bayesian Networks
Nauka, 2006



A.L. Tulupuyev, S.I. Nikolenko, A.V. Sirotkin
Foundations of Bayesian Networks Theory
SPSU Press, 2019



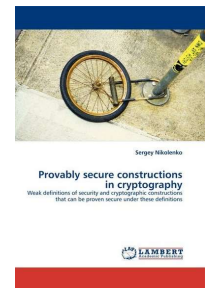
S.I. Nikolenko, A.L. Tulupuyev
Learning Systems
MCCME Press, 2009



A.L. Tulupuyev, A.V. Sirotkin, S.I. Nikolenko
Bayesian belief networks
SPSU Press, 2009



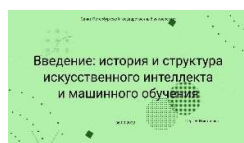
S.I. Nikolenko
Mechanism design theory
Intuit, 2009



S.I. Nikolenko
Provably Secure Constructions in Cryptography
Lambert, 2011

Lecture courses available on video (in Russian)

YouTube channel: <https://www.youtube.com/c/SergeyNikolenko>



Machine Learning (3 semesters)

St. Petersburg State University, 2022-2023

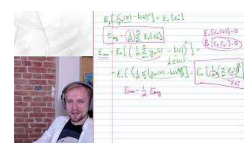
<https://logic.pdmi.ras.ru/~sergey/teaching/mlspsu2022.html>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHF4weKgjKvhiRZMA8VludB>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHG0lCmTb9OQ33dR5sZHm5CB>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHH1DSiZfVqDrYyEt0CsKLi6>



Machine Learning (3 semesters)

St. Petersburg State University, 2021-2022

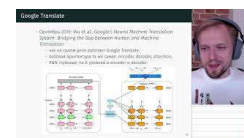
<https://logic.pdmi.ras.ru/~sergey/teaching/mlspsu2021.html>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHG0qr3qnLEuXtg7JGNGC1j>
https://www.youtube.com/playlist?list=PLwdBkWBW0oHHENVCYw_XDAKyeO7MID80C
https://www.youtube.com/playlist?list=PLwdBkWBW0oHE_-r_INedV78ZmVyMz5VlB



Machine Learning (3 semesters)

St. Petersburg State University, 2020-2021

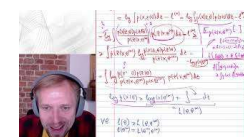
<https://logic.pdmi.ras.ru/~sergey/teaching/mlspsu2020.html>
https://www.youtube.com/playlist?list=PLwdBkWBW0oHEUmY07a0G5jabP_fwfG0et



Machine Learning, Deep Learning (2 semesters)

NRU Higher School of Economics, 2020 (29 lectures)

<https://logic.pdmi.ras.ru/~sergey/teaching/mlhse2020.html>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHFDCTvO6R8l3V3Pe2ophxpD>



Graphical Models and Deep Learning (2 semesters)

St. Petersburg State University, 2020 (32 lectures)

<https://logic.pdmi.ras.ru/~sergey/teaching/mlspsu2019.html>
<https://www.youtube.com/playlist?list=PLwdBkWBW0oHEE-eO3EmAXCtrpOHIWlzbT>

Selected conference papers

	E. Tulchinskii, K. Kuznetsov, L. Kushnareva, D. Cherniavskii, S.I. Nikolenko, I. Piontkovskaya, S. Barannikov, E. Burnaev. Intrinsic Dimension Estimation for Robust Detection of AI-Generated Texts. Proc. NeurIPS 2023 .		K. Yakovlev, G. Polyakov, I. Alimova, A. Podolskiy, A. Bout, S.I. Nikolenko, I. Piontkovskaya. Sinkhorn Transformations for Single-Query Postprocessing in Text-Video Retrieval. Proc. SIGIR 2023 , pp. 2394–2398
	K. Yakovlev, A. Podolskiy, A. Bout, S.I. Nikolenko, I. Piontkovskaya. GEC-DePenD: Non-Autoregressive Grammatical Error Correction with Decoupled Permutation and Decoding. Proc. ACL 2023 , pp. 1546–1558		A. Huang, Q. Yang, S.I. Nikolenko, M. Ongpin, I. Gossoudarev, N.Y. Duong, K. Lepikhin, S. Vishnyakov, Y. Chu-Farseeva, A. Farseev. SoCraft: Advertiser-level Predictive Scoring for Creative Performance on Meta. Proc. WSDM 2023 , pp. 1132–1135
	Q. Yang, C. Tzelepis, S.I. Nikolenko, I. Patras, A. Farseev. "Just To See You Smile": SMILEY, a Voice-Guided GAN. Proc. WSDM 2023 , pp. 1196–1199		D. Abulkhanov, N. Sorokin, S.I. Nikolenko, V. Malykh. LAPCA: Language-Agnostic Pretraining with Cross-Lingual Alignment. Proc. SIGIR 2023 , pp. 2098–2102
	Q. Yang, S.I. Nikolenko, A. Huang, A. Farseev. Personality-Driven Social Multimedia Content Recommendation. Proc ACM Multimedia 2022 , pp. 7290–7299		I. Shenbin, A. Alekseev, E. Tutubalina, V. Malykh, S.I. Nikolenko. RecVAE: A New Variational Autoencoder for Top-N Recommendations with Implicit Feedback. Proc. WSDM 2020 , pp. 528–536
	I. Anokhin, P. Solovev, D. Korzhenkov, A. Kharlamov, T. Khakhulin, A. Silvestrov, S.I. Nikolenko, V. Lempitsky, G. Sterkin. High-Resolution Daytime Translation Without Domain Labels. Proc. CVPR 2020 , pp. 7488–7497		A. Savchenko, A. Alekseev, S. Kwon, E. Tutubalina, E. Myasnikov, S.I. Nikolenko. <i>Ad Lingua</i> : Text Classification Improves Symbolism Prediction in Image Advertisements. Proc. COLING 2020 , pp. 1886–1892
	S. Golovanov, R. Kurbanov, S.I. Nikolenko, K. Truskovskiy, A. Tselousov, T. Wolf. Large-Scale Transfer Learning for Natural Language Generation. Proc. ACL 2019 , pp. 6053–6058		S. Golovanov, A. Tselousov, R. Kurbanov, S.I. Nikolenko. Lost in Conversation: A Conversational Agent Based on the Transformer and Transfer Learning. The NeurIPS '18 Competition , pp. 295–315
	A. Alekseev, S.I. Nikolenko, E. Tutubalina, I. Shenbin, V. Malykh. AspeRa: Aspect-Based Rating Prediction Model. Proc. ECIR 2019 , LNCS vol. 11438, pp. 163–171		V. Demianiuk, K. Kogan, S.I. Nikolenko. Approximate Classifiers with Controlled Accuracy. Proc. INFOCOM 2019 , pp. 2044–2052
	V. Demianiuk, S. Gorinsky, S.I. Nikolenko, K. Kogan. Robust Distributed Monitoring of Traffic Flows. Proc. ICNP 2019 , pp. 1–11		D. Polykovskiy, D. Soloviev, S.I. Nikolenko. Concorde: Morphological Agreement in Conversational Models. Proc. ACML 2018 , PMLR, vol. 95, 2018, pp. 407–421
	V. Demianiuk, S.I. Nikolenko, P. Chuprikov, K. Kogan. New Alternatives to Optimize Policy Classifiers. Proc. ICNP 2018 , pp. 121–131		V. Demianiuk, S. Gorinsky, S.I. Nikolenko, K. Kogan. Distributed Counting along Lossy Paths Without Feedback. Proc. SIROCCO 2018 , LNCS vol. 11685, pp. 30–33
	P. Chuprikov, A. Davydow, K. Kogan, S.I. Nikolenko, A.V. Sirotkin. Formalizing Compute-Aggregate Problems in Cloud Computing. Proc. SIROCCO 2018 , LNCS vol. 11685, pp. 377–391		S.I. Nikolenko, K. Kogan, A. Fernández Anta. Network Simplification Preserving Bandwidth and Routing Capabilities. Proc. INFOCOM 2017
	A. Davydow, P. Chuprikov, S.I. Nikolenko, K. Kogan. Throughput Optimization with Latency Constraints. Proc. INFOCOM 2017		P. Chuprikov, S.I. Nikolenko, K. Kogan. On Demand Elastic Capacity Planning for Service Auto-scaling. Proc. INFOCOM 2016
	K. Kogan, S.I. Nikolenko, P. Eugster, A. Shalimov, O. Rottenstreich. FIB Efficiency in Distributed Platforms. Proc. ICNP 2016		S.I. Nikolenko. Topic Quality Metrics Based on Distributed Word Representations. Proc. SIGIR 2016 , pp. 1029–1032
	S. Koltsov, O. Koltsova, S.I. Nikolenko. Latent Dirichlet Allocation: Stability and Applications to Studies of User-Generated content. Proc. WebSci 2014 , pp. 161–165		P. Chuprikov, S.I. Nikolenko, K. Kogan. Priority Queueing with Multiple Packet Characteristics. Proc. INFOCOM 2015 , pp. 1418–1426
	K. Kogan, S.I. Nikolenko, O. Rottenstreich, W. Culhane, P. Eugster. SAX-PAC (Scalable And eXpressive Packet Classification). Proc. SIGCOMM 2014 , pp. 15–26		S.I. Nikolenko, A.V. Sirotkin. A New Bayesian Rating System for Team Competitions. Proc. ICML 2011 , pp. 601–608.

Selected journal papers

	<p>K. Khrabrov, I. Shenbin, A. Ryabov, A. Tsy-pin, A. Telepov, A. Alekseev, A. Grishin, P. Strashnov, P. Zhilyaev, S.I. Nikolenko, A. Kadurin. nablDFT: Large-Scale Conformational Energy and Hamiltonian Prediction benchmark and dataset. Physical Chemistry Chemical Physics, vol. 24, 2022, pp. 25853-25863</p>		<p>Q. Yang, A. Farseev, S.I. Nikolenko, A. Filchenko. Do we behave differently on Twitter and Facebook: Multi-view social network user personality profiling for content recommendation. Frontiers in Big Data, vol. 5, 2022, pp. 931206</p>
	<p>A. Yakubovich, A. Odinkov, S.I. Nikolenko, Y. Jung, H. Choi. Computational Discovery of TTF Molecules with Deep Generative Models. Frontiers in Chemistry, vol. 9, 2021</p>		<p>V. Demianiuk, K. Kogan, S.I. Nikolenko. Approximate Packet Classifiers With Controlled Accuracy. IEEE Transactions on Networking, vol. 29, no. 3, 2021, pp. 1141-1154</p>
	<p>A. Davydov, P. Chuprikov, S.I. Nikolenko, K. Kogan. Competitive buffer management for packets with latency constraints. Computer Networks, vol. 189, no. 22, Article ID 107942, 2021</p>		<p>P. Chuprikov, A. Davydov, K. Kogan, S.I. Nikolenko, A.V. Sirotkin. Formalization and taxonomy of compute-aggregate problems for cloud computing applications. Computer Networks, vol. 189, no. 22, Article ID 107915, 2021</p>
	<p>V. Demianiuk, S. Gorinsky, S.I. Nikolenko, K. Kogan. Robust Distributed Monitoring of Traffic Flows. IEEE Transactions on Networking, vol. 29, no. 1, 2021, pp. 275-288</p>		<p>L. Rappez, A. Rakhlin, A. Rigopoulos, S.I. Nikolenko, T. Alexandrov. DeepCycle reconstructs a cyclic cell cycle trajectory from unsegmented cell images using convolutional neural networks. Molecular Systems Biology, vol. 16, no. 10, 2020, pp. e9474.</p>
	<p>D. Polykovskiy, A. Zhebrak, B. Sanchez-Lengeling, S. Golovanov, O. Tatanov, S. Belyaev, R. Kurbanov, A. Artamonov, V. Aladinsky, M. Veselov, A. Kadurin, S.I. Nikolenko, A. Aspuru-Guzlik, A. Zhavoronkov. Molecular Sets (MOSES): A Benchmarking Platform for Molecular Generation Models. Frontiers in Pharmacology, vol. 84, 2020</p>		<p>R. Shayakhmetov, M. Kuznetsov, A. Zhebrak, A. Kadurin, I. Baskov, S.I. Nikolenko, A. Aliper, D. Polykovskiy. Molecular Generation for Desired Transcriptome Changes with Adversarial Autoencoders. Frontiers in Pharmacology, vol. 11, Article ID 269, 2020</p>
	<p>K. Kogan, D. Menikkumbura, G. Petri, Y. Noh, S.I. Nikolenko, A.V. Sirotkin, P. Eugster. Towards Software-Defined Buffer Management. IEEE Transactions on Networking, vol. 28, no. 5, 2020, pp. 2337-2349</p>		<p>V. Demianiuk, S.I. Nikolenko, P. Chuprikov, K. Kogan. New Alternatives to Optimize Policy Classifiers. IEEE Transactions on Networking, vol. 28, no. 3, 2020, pp. 1088-1101</p>
	<p>P. Chuprikov, S.I. Nikolenko, K. Kogan. Towards Declarative Self-Adapting Buffer Management. ACM SIGCOMM Computer Communication Review, vol. 50, no. 3, 2020, pp. 30-37</p>		<p>K. Ovchinnikova, A. Rakhlin, L. Stuart, S.I. Nikolenko, T. Alexandrov. ColocML: Machine learning quantifies colocalization between mass spectrometry images. Bioinformatics, Article ID btaa085, 2020</p>
	<p>P. Chuprikov, S.I. Nikolenko, K. Kogan, A. Davydov. Priority Queuing for Packets with Two Characteristics. IEEE Transactions on Networking, vol. 26, no. 1, 2018, pp. 342-355</p>		<p>P. Eugster, A. Kesselman, K. Kogan, S.I. Nikolenko, A.V. Sirotkin. Admission Control in Shared Memory Switches. Journal of Scheduling, vol. 21, no. 5, 2018, pp. 533-543</p>
	<p>D. Kuzminykh, D. Polykovskiy, A. Kadurin, A. Zhebrak, I. Baskov, S.I. Nikolenko, R. Shayakhmetov, A. Zhavoronkov. 3D Molecular Representations Based on the Wave Transform for Convolutional Neural Networks. Molecular Pharmaceutics, vol. 15, no. 10, 2018, pp. 4378-4385</p>		<p>A. Palmer, P. Phapale, I. Chernyavsky, R. Lavigne, D. Fay, A. Tarasov, V. Kovalev, J. Fuchser, S.I. Nikolenko, C. Pineau, M. Becker, T. Alexandrov. FDR-controlled metabolite annotation for high-resolution imaging mass spectrometry. Nature Methods, vol. 14, 2017, pp. 57-60.</p>
	<p>K. Kogan, S.I. Nikolenko, P. Eugster, A. Shalimov, O. Rottenstreich. Efficient FIB Representations on Distributed Platforms. IEEE Transactions on Networking, vol. 25, no. 6, 2017, pp. 3309-3322</p>		<p>S.I. Nikolenko, O. Koltsova, S. Koltsov. Topic Modelling for Qualitative Studies. Journal of Information Science, vol. 43, no. 1, 2017, pp. 88-102.</p>
	<p>S. Bodrunova, O. Koltsova, S. Koltsov, S.I. Nikolenko. Who's Bad? Attitudes Toward Resettlers From the Post-Soviet South Versus Other Nations in the Russian Blogosphere. International Journal of Communication, vol. 11, 2017, pp. 3242-3264.</p>		<p>P. Eugster, K. Kogan, S.I. Nikolenko, A.V. Sirotkin. Heterogeneous Packet Processing in Shared Memory Buffers. Journal of Parallel and Distributed Computing, vol. 99, 2017, pp. 1-12</p>
	<p>K. Kogan, S.I. Nikolenko, O. Rottenstreich, W. Culhane, P. Eugster. Exploiting Order Independence for Scalable and Expressive Packet Classification. IEEE Transactions on Networking, vol. 24, no. 2, 2016, pp. 1251-1264</p>		<p>O. Koltsova, S. Koltsov, S.I. Nikolenko. Communities of co-commenting in the Russian LiveJournal and their topical coherence. Internet Research, vol. 26, no. 3, 2016, pp. 710-732</p>
	<p>K. Kogan, A. López-Ortiz, S.I. Nikolenko, A.V. Sirotkin. Online Scheduling FIFO Policies with Admission and Push-Out. Theory of Computing Systems, vol. 58, no. 2, 2016, pp. 322-344</p>		<p>K. Kogan, A. López-Ortiz, S.I. Nikolenko, G. Scalosub, M. Segal. Large profits or fast gains: A dilemma in maximizing throughput with applications to network processors. Journal of Network and Computer Applications, vol. 74, 2016, pp. 3143</p>
	<p>R. Leon-Zayas, M. Novotny, S. Podell, C. Shepard, E. Berkenpas, S.I. Nikolenko, P.A. Pevzner, E. Lasken, D. Bartlett. Single Cells within the Puerto Rico Trench Suggest Hadal Adaptation of Microbial Lineages. Applied and Environmental Microbiology, vol. 81, no. 24, 2015, pp. 8265-8276</p>		<p>T. Alexandrov, I. Chernyavsky, M. Becker, F. von Eggeling, S.I. Nikolenko. Analysis and Interpretation of Imaging Mass Spectrometry Data by Clustering Mass-to-Charge Images According to Their Spatial Similarity. Analytical Chemistry, vol. 85, no. 23, 2014, pp. 11189-11195</p>
	<p>S.I. Nikolenko, A. Korobeynikov, M. Alekseyev. BayesHammer: Bayesian clustering for error correction in single-cell sequencing. BMC Genomics, vol. 14, Suppl. 1, 2013, pp. S7</p>		<p>A. Bankevich, S. Nurk, D. Antipov, A. Gurevich, M. Dvorkin, A.S. Kulikov, V.M. Lesin, S.I. Nikolenko, S. Pham, A.D. Pribelski, A. Pyshkin, A.V. Sirotkin, N. Vyahhi, G. Tesler, M. Alekseyev, P.A. Pevzner. SPAdes: A New Genome Assembly Algorithm and Its Applications to Single-Cell Sequencing. Journal of Computational Biology, vol. 19, no. 5, 2012, pp. 455-477</p>
	<p>S.I. Nikolenko, N. Semenov, K. Zainouline. Motivic decomposition of anisotropic varieties of type F4 into generalized Rost motives. Journal of K-Theory, vol. 3, 2009, pp. 85-102</p>		<p>E.A. Hirsch, A. Kojevnikov, A.S. Kulikov, S.I. Nikolenko. Complexity of Semialgebraic Proofs with Restricted Degree of Falsity. Journal of Satisfiability, vol. 6, 2008, pp. 53-69</p>