

Nikita Zhivotovskiy

Personal Information

- Citizen of Russia.
- E-mail: nikita.zhivotovskiy@phystech.edu

Education

Bachelor of Applied Mathematics and Physics, 2011
Moscow Institute of Physics and Technology.
Department of Applied Mathematics and Control.
With Honors. Grade: 4.94/5.0

Master of Applied Mathematics and Physics, 2013
Moscow Institute of Physics and Technology
Department of Applied Mathematics and Control.
With Honors. Grade: 4.95/5.0

Courses at Yandex School of Data Analysis as an official part of the program.
Diploma: Concentration of measure in combinatorial bounds for generalization ability (in Russian) [[pdf version](#)]. Advisor: Pr. K. Vorontsov

PhD Student, September 2013 – September 2017
Moscow Institute of Physics and Technology
and Institute for Information Transmission Problems, RAS.
Advisors: V. Spokoyny, K. Vorontsov.
Thesis title: Minimax risk bounds in statistical learning.
Submitted in Autumn 2017 (in Russian) [[pdf version](#)]. Defended on 26th February 2018 at the Institute for Information Transmission Problems, RAS.

Postdoctoral Fellow , Since October 2017
Technion, Israeli Institute of Technology, Department of Mathematics.
Hosted by Shahar Mendelson.

Research topics

1. Statistical Learning theory: minimax analysis.
2. VC combinatorics: PAC-learning, sample compression schemes.
3. Empirical processes theory.
4. High dimensional probability, Random matrix theory and their applications.

Professional career and teaching

Junior researcher 2014 – present
Institute for Information Transmission Problems RAS.

Junior researcher November 2016 – November 2017, Since then on leave
Skolkovo Institute of Science and Technology.

Postdoctoral Fellow October 2017 – present
Technion, Israeli Institute of Technology, Department of Mathematics.

Teaching at Moscow Institute of Physics and Technology:
Introduction to Machine Learning, Teaching Assistant. Autumn 2013
Undergraduate Stochastic Processes, Seminars. Spring 2014, 16
Statistical Learning Theory, Lecturer. [[Course page](#)] Spring 2015, 16, 17
An Introduction High-Dimensional Probability, mini-course, Lecturer. Autumn 2017
Undergraduate Probability. Seminars. Autumn 2014

Undergraduate Abstract Algebra. Seminars. Spring 2015
Undergraduate Mathematical Statistics. Seminars. Autumn 2015, 16

Teaching at Higher School of Economics:
Graduate Stochastic Processes. Seminars. Autumn 2015

Teaching at Skolkovo Institute of Science and Technology:
Graduate course. High-dimensional Statistical Methods. Seminars. Spring 2017

Research interests

Awards and Scholarships Scholarship of government of Russian Federation. September 2014 — September 2015
Winner of all-Russian undergraduate student theses contest. June 2013

Publications:

[Including submitted papers. Authors are listed in alphabetical order]

1. G. Lugosi, S. Mendelson, N. Zhivotovskiy. Concentration of the spectral norm of Erdős-Renyi random graphs. [[arXiv page](#)] (*Under review Random Structures and Algorithms*)
2. A. Kupavskii, N. Zhivotovskiy. When are epsilon-nets small? [[arXiv page](#)] (*Under review JMLR*)
3. D. Belomestny, L. Iosipoi, N. Zhivotovskiy. Variance reduction via empirical variance minimization: convergence and complexity. [[arXiv page](#)] (*Under review Statistics and Computing*)
4. S. Hanneke, N. Zhivotovskiy. Localization of VC Classes: Beyond Local Rademacher Complexities [[arXiv page](#)]. (**Invited**) *Theoretical Computer Science*, 2017. [[journal page](#)]
Conference version in *Algorithmic Learning Theory (ALT), Lecture Notes in Computer Science, Springer*, 2016.
5. N. Zhivotovskiy. Combinatorial Bounds of Overfitting with Sub-logarithmic Order of Growth (in Russian). (**Invited**) *Proceedings of Moscow Institute of Physics and Technology*, pp. 42 – 54, 2015 [[pdf version](#)] .

Referred conference papers

1. N. Zhivotovskiy. Optimal learning via local entropies and sample compression. *Conference on Learning Theory (COLT), Journal of Machine Learning Research proceedings*, 2017. [[arXiv page](#)]
2. G. Blanchard, I. Tolstikhin, N. Zhivotovskiy. Permutational Rademacher Complexity: a New Complexity Measure for Transductive Learning. *Algorithmic Learning Theory (ALT), Lecture Notes in Computer Science, Springer*, 2015. [[arXiv page](#)]

Other

1. K. Vorontsov, N. Zhivotovskiy. The criterion of the exactness of combinatorial bounds of overfitting. *IIP-2012. M.: Torus Press*, pp. 25–28, 2012. Extended unpublished version (in Russian) [[pdf version](#)]

**Selected Visits,
Conferences,
Schools
and Workshops**

- Spring School of Research unit 1735, Germany. March 2018
- Research visit to Gabor Lugosi, UPF, Barcelona February 2018
- Research visit to Olivier Bousquet, Google Brain, Zurich August 2017
- Research visit to Combinatorial Geometry Group, EPFL, Lausanne August 2017
- Conference on Learning Theory, Amsterdam July 2017
- Research visits to Gabor Lugosi, UPF, Barcelona February, April 2017
- 27th Conference on Algorithmic Learning Theory October 2016
- Workshop on Inverse Problems, CIRM. France February 2016
- Workshop on Inverse Problems, CIRM. France February 2016
- 26th Conference on Algorithmic Learning Theory October 2015
- 45th Probability Summer School in Saint-Flour, France. July 2015
- Online Learning Summer School, University of Copenhagen. July 2015
- Visiting Max-Plank Institute for Intelligent Systems. Tübingen. June 2015
Cambridge, United Kingdom. June 2014
- Conference: Probability Theory and Statistics in High and Infinite Dimensions
- Workshop on the Mathematical Foundations of Learning Theory. June 2014
- Conference on Learning Theory, Barcelona, Spain. June 2014
- Spring School of Research unit 1735, Germany. March 2014, 2015
- Visiting Weierstrass Institute for Applied Analysis. Berlin. Oct.–Nov. 2013

Reviewer

COLT 2017, COLT 2018