# Alexander Novikov

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## Education

- Ph.D. student in Machine Learning, Institute of Numerical Mathematics of the Russian Academy of Sciences, started at 2015.
- M.S. in Computer Science at Lomonosov Moscow State University, graduated in 2015, thesis “Computational method for approximating the partition function of a Markov random field”, advisor: Dmitry Vetrov, Bayesian methods research group. **1st place** award in faculty-wise thesis competition.
- Microsoft Machine Learning and Intelligence School, 2015.
- Summer School in Information Retrieval, 2013.
- Summer mathematical school, 2010.
- Second place in the Lomonosov Informatics Olympiad and third place in the Joint Interuniversity Mathematical Olympiad.
- Finished 10 MOOCs on machine learning, algorithms, writing papers, robotics, statistics, and testing.

## Selected publications

- **Novikov A.**, Podoprikhin D., Osokin A., Vetrov D., *Tensorizing neural networks. Advances in Neural Information Processing Systems 28 (NIPS)*, 2015 [arXiv, code]
- Garipov T., Podoprikhin D., **Novikov A.**, Vetrov D., *Ultimate tensorization: compressing convolutional and FC layers alike. Learning with Tensors: Why Now and How?*, NIPS-2016 workshop [arXiv, code]
- **Novikov A.**, Rodomanov A., Osokin A., Vetrov D., *Putting MRFs on a Tensor Train. International Conference on Machine Learning* (ICML), 2014. **Oral presentation** [pdf, code]
- **Novikov A.**, Trofimov M., Oseledets I., *Exponential Machines. Advances in non-convex analysis and optimization workshop on* ICML-2016. [arXiv, code]
- **Novikov A.**, Chernyshov V., Vetrov D., *Particle filter for tracking a TV screen in a video*. *Intellectualization of information processing* (IOI), Montenegro, 2012. **Oral presentation**.

# Reviews & presentations

- Reviewer for *IEEE Transactions on Neural Networks and Learning Systems* journal, 2016.
- Teaching assistant in “Bayesian methods for machine learning” and “Probabilistic graphical models” courses, Skoltech, 2016.
- Teacher at Summer mathematical school, 2016.
- Gave a tech talk *Tensor Train decomposition and its applications to graphical models*, in the Google headquarter, USA, 2014.
- Minisymposium presentation *Computationally efficient methods for MAP-inference and partition function estimation in MRF in TT format*, at SIAM Conference on Imaging Science, 2014.

# Awards

- 1st place (out of 20 teams from 8 countries), Data Science Game, 2015.
- 1st place award, faculty-wise thesis competition, 2015.

# Experience

- Institute of Numerical Mathematics RAS — September 2015 — present
  Ph.D. student
- Higher School of Economics — September 2016 — present
  Research Scientist
- Skolkovo Institute of Science and Technology — October 2014 — September 2015
  Junior Research Scientist
- Google USA, Mountain View, CA — July 2014 — October 2014
  Software Engineering Intern

# Links

- GitHub; the main contributor to Factorization Machines on TensorFlow.
- LinkedIn

# Research interests

- Deep Learning;
- Bayesian methods;
- Tensor Methods;
- Neural networks;
- Optimization.