

Max VLADYMYROV, PhD

Senior Research Scientist at Google Research

SUMMARY

I have an extensive background in Machine Learning with more than ten years of both academic and industrial experience in research, first as a PhD graduate student, as well as a researcher at Yahoo Labs and Google Research. I have substantial experience in nonlinear optimization, dimensionality reduction, NLP and information retrieval, with papers published at top machine learning conferences, such as ICML and NeurIPS.

PERSONAL DATA

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PROFESSIONAL EXPERIENCE

Apr. 2020 to present: Senior Research Scientist
Google Research, Mountain View, CA

Apr. 2018 to Apr. 2020: Senior Software Engineer
Google Research, Mountain View, CA

Projects: Predicting user satisfaction using sequence modeling of behavioral signals. Problems of local minima in neural networks and optimization-inspired architecture search.

Keywords: NLP, LSTM, Attention, Transformers, Bert, local minima, nonconvex optimization, architecture search.

Apr. 2016 to Apr. 2018: Software Engineer
Google Research, Mountain View, CA

Role: Addressing the problems of presentation bias in ranking and triggering of Google Search results.

Keywords: Deep clustering, Mixture of Experts.

Sep. 2014 to Apr. 2016: Research Scientist
Yahoo! Labs, Sunnyvale, CA

Role: R&D of search problems, including ranking and query intent prediction. Development of new algorithmic solutions using word embeddings and other NLP models.

Keywords: Information retrieval, query intent prediction, search ranking.

Aug. 2009 to Aug. 2014: Graduate Research Assistant
Electrical Engineering and Computer Science, University of California, Merced.

Role: development and analysis of new techniques for large-scale nonlinear dimensionality reduction. The algorithms that I have developed are able to produce high-quality large-scale data visualization for millions of points on a single core computer.

Keywords: Manifold learning, Nonlinear optimization, MATLAB, C/C++.

Apr. 2009 to Aug. 2009: Senior Java developer
The Midnight Coders, Dallas, USA

Role: development, testing or web solutions and application intelligence.

Keywords: Java 6, ActionScript 3, Flex 3.2

Jul. 2008 to Apr. 2009: Java developer
 DataArt Labs, Kharkiv, Ukraine
Role: system architecture design and implementation, including data and object model design.
Keywords: Java 6, Hibernate, Spring, Flex 3.2, BlazeDS, ActionScript 3.0, PureMVC

EDUCATION

Aug. 2009 to Aug. 2014: PhD in Computer Science.
 University of California, Merced. GPA: 3.9/4.0
 Thesis: Large-scale methods for nonlinear manifold learning.

Sep. 2007 to July 2008: MS in Computer Science (summa cum laude).
 Kharkiv National University, Ukraine. GPA: 4.0/4.0
 Thesis: Design and optimization of cargo transportation delivery.

Sep. 2003 to July 2007: BS in Applied Mathematics (summa cum laude).
 Kharkiv National University, Ukraine. GPA: 3.9/4.0
 Thesis: Stability of some stochastic models in economics.

Sep. 2004 to July 2009: BS and MS in Intern. Econ. Relations (cum laude).
 Kharkiv National University, Ukraine. GPA: 3.7/4.0
 Thesis: Crisis of the global financial system and its impact on the development of the Ukrainian economy.

PUBLICATION LIST

- ▷ **Max Vladymyrov** (2019): "No Pressure! Addressing the Problem of Local Minima in Manifold Learning Algorithms", *33th Annual Conference on Neural Information Processing Systems (NeurIPS 2019)*, pp. 678-687. Acceptance rate: 21.1% (1428/6743).
- ▷ **Max Vladymyrov** and M. Á. Carreira-Perpiñán (2017): "Fast, accurate spectral clustering using locally linear landmarks" *International Joint Conference on Neural Networks (IJCNN 2017)*, pp. 3870-3879. Acceptance rate: 66.6% (621/933).
- ▷ **Max Vladymyrov** and M.Á. Carreira-Perpiñán (2016): "The variational Nyström method for large-scale spectral problems". *33th International Conference on Machine Learning (ICML 2016)*, pp. 211-220. Acceptance rate: 24.2% (322/1327).
- ▷ M.Á. Carreira-Perpiñán and **Max Vladymyrov** (2015): "A fast, universal algorithm to learn parametric nonlinear embeddings". *29th Annual Conference on Neural Information Processing Systems (NIPS 2015)*, pp. 253-261. Acceptance rate: 21.9% (403/1838).
- ▷ **Max Vladymyrov** (2014): "Large-scale methods for nonlinear manifold learning", *PhD thesis, Electrical Engineering and Computer Science, University of California, Merced.*
- ▷ **Max Vladymyrov** and M.Á. Carreira-Perpiñán (2014): "Linear-time training of nonlinear low-dimensional embeddings", *17th International Conference on Artificial Intelligence and Statistics (AISTATS 2014)*, pp. 968-977. Acceptance rate: 35.8% (120/335).
- ▷ **Max Vladymyrov** and M.Á. Carreira-Perpiñán (2013): "Locally linear landmarks for large-scale manifold learning". *24th European Conference on Machine Learning (ECML 2013)*, pp. 256-271. Acceptance rate: 25.0% (111/443).

- ▷ **Max Vladymyrov** and M.Á. Carreira-Perpiñán (2013): “Entropic affinities: properties and efficient numerical computation”. *30th International Conference on Machine Learning (ICML 2013)*, pp. 477–485. Acceptance rate: 23.5% (283/1204).
- ▷ **Max Vladymyrov** and M.Á. Carreira-Perpiñán (2012): “Partial-Hessian strategies for fast learning of nonlinear embeddings”. *29th International Conference on Machine Learning (ICML 2012)*, pp. 345–352. Acceptance rate: 27.2% (242/890).

SKILLS

- ▷ **Programming languages:** Python, Matlab, Java, C/C++.
- ▷ **Frameworks:** Jax, PyTorch, TensorFlow.

PROFESSIONAL SERVICE

- ▷ Program Committee member: *ICML (2018)*, *WWW (2016)*, *KDD (2015–2016)*, *IJCAI-ML (2015)*.
- ▷ Conference reviewer : *NeurIPS (2013-2016, 2018-2020)*, *ICCV (2017)*, *ECCV (2016)*, *WWW (2015)*, *SDM (2013)*.
- ▷ Journal reviewer: *PAMI*, *Connection Science*, *Neurocomputing*, *Pattern Recognition*, *Pattern Recognition Letters*, *IJNS*, *IEEE Transactions on Neural Networks and Learning Systems*.

LANGUAGES

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| ▷ Russian (native) | ▷ Ukrainian (native) | ▷ English (fluent) |
| ▷ Spanish (fluent) | ▷ Italian (intermediate) | ▷ Polish (basic) |