

Kirill Dyagilev

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Summary

I am a postdoctoral fellow with the Department of Computer Science at Johns Hopkins University, where I apply my passion for Machine Learning and Data Science to medical data sets. Prior to that, I obtained my PhD from the Electrical Engineering Department at Technion – Israel Institute of Technology. I have an excellent academic track record and years of experience as a part-time researcher with IBM and Microsoft. My interests lie in solving challenging problems in data-rich environments. I bring to the table my practical experience in working with big data and my knowledge of machine learning techniques.

Education

All of my degrees are from Technion – Israel Institute of Technology:

- **Ph.D.**, Electrical Engineering, 2014
Research areas: network formation games, machine learning in big data
- **M.Sc.**, summa cum laude, Electrical Engineering, 2009
Research areas: reinforcement learning
- **B.Sc.**, summa cum laude, Computer Engineering, 2003

Research Experience

Department of Computer Science, Johns Hopkins University, Postdoctoral Fellow
2014-Present

I developed, in collaboration with Prof. S. Saria, a novel ranking-based framework for automated scalable learning of disease severity scores. This project resulted in one poster presentation, one frontal presentation, and one journal paper.

Currently, I lead an interdisciplinary project that aims to leverage temporal information captured by medical billing claims to predict a patient's risk for future hospitalization. Our current method builds on non-negative matrix factorization techniques. Collaborators on this project include Prof. S. Saria (Dept. of Computer Science) and Prof. H. Kharazi and Prof. J. Weiner (Johns Hopkins School of Public Health).

Microsoft Research Israel, PhD Research Intern

March-June 2013

I investigated linguistic factors associated with propagation of political information in Twitter. This project was done in collaboration with Dr. E. Yom-Tov and resulted in one journal paper.

IBM Research Lab Israel, Machine Learning Group, PhD Research Intern

2009-2012

I analyzed large-scale mobile call data to identify social factors associated with the decision of a customer to churn, i.e., to transfer to another mobile phone provider. I then leveraged these factors to develop an efficient regression tree based churn predictor. This project was done in collaboration with Dr. E. Yom-Tov and resulted in one patent and several scientific publications.

Research Experience (cont.)

IBM Research Lab Israel, Analog and Mixed Signal Group, Part-time Engineer
2003-2007

I implemented major parts of an automatic design tool for analog circuits. The project resulted in patented technology and a product used internally at IBM.

Languages used: SKILL (an internal automation language of the Cadence design environment).

IBM Research Lab Israel, Analog and Mixed Signal Group, Undergraduate Intern
2000-2003

I assisted in the design of several basic analog circuits in the Cadence design environment.

Programming Skills

C/C++, Matlab, R, sed, Perl, Python, and IBM's parallel machine learning kit.

Selected Publications

Dyagilev K. and Saria S., "Learning (predictive) risk scores in the presence of censoring due to interventions", *Machine Learning, Special Issue on Machine Learning for Health and Medicine*, 2015.

Dyagilev K. and Saria S., "Learning a Severity Score for Sepsis: A Novel Approach based on Clinical Comparisons", *American Medical Informatics Association*, 2015.

Dyagilev K. and Yom-Tov E. "Linguistic Factors Associated with Propagation of Political Opinions in Twitter". *Social Science Computer Review*, 2014.

Dyagilev K., Mannor S. and Yom-Tov E. "On Information Propagation in Mobile Call Networks". *Journal of Social Networks Analysis and Mining*, 2013.

E. Arcaute, Dyagilev K., Johari R. and Mannor S. "Dynamics in Tree Formation Games". *Journal of Games and Economic Behavior*, 2013.

Dyagilev K., Mannor S. and Shimkin N. "Efficient Reinforcement Learning in Parameterized Models: Discrete Parameter Case." *European Workshop on Reinforcement Learning*, 2008.

Patents

Dyagilev K., Richter Y., Ronen A., Yom-Tov E. "Statistical analysis of data records for automatic determination of activity of non-customers", IBM corp., 2010.

Berger I., Dyagilev K., Ramm D., Sheinman B., Shlomo O. "Automated migration of analog and mixed-signal VLSI design", IBM corp., 2008.

Graduate Course Work

- Machine learning, including advanced courses on pattern recognition and online learning.
- Game theory, in general, and network formation games, in particular.
- Probability and stochastic processes; convex optimization, and reinforcement learning.

Miscellaneous Skills

Excellent teaching skills (served as a teaching assistant and a lecturer/instructor for several college-level courses, won teaching excellence prize). Proven record of self-learning abilities.

Languages

Fluent in English, Russian, and Hebrew.