

Nikita Korolko

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WORK EXPERIENCE

- Citadel Securities**, Chicago, IL **July 2019 -**
Market Maker Central Risk Book
Quantitative Researcher
Design and optimization of trading algorithms. Alpha search. Alternative data mining and processing. Portfolio optimization.
- Uber Technologies HQ**, San Francisco, CA **July 2017 - June 2019**
Marketplace Optimization & Demand Intelligence
Data Scientist
Construction of rider demand functions at high spatial-temporal granularity using large-scale ML and OR techniques. Design of optimization methods for solving real-time price optimization problems at industrial scale. Protection of optimization algorithms from noise and errors in input data.
- Tesla Motors**, Palo Alto, CA **Summer 2015**
Supply Chain Analytics and Optimization
Operations Research Scientist (Intern)
Designed an algorithm and software for highly efficient load packaging and optimization of inbound logistics that incurs multimillion annual savings
- MIT Sloan School of Management**, Cambridge, MA **2014–2015**
“The Analytics Edge” (MBA class) & “Optimization Methods” (Engineering class)
Teaching Assistant
Administered a class with 100 students, conducted recitations, office hours, created and graded problem sets and exams
- Mitsubishi Electric Research Laboratories**, Cambridge, MA **Summer 2014**
Data Analytics Group
Operations Research Scientist (Intern)
Developed accurate load forecasting algorithms for the power grid. Designed robust optimization pricing methodologies for EV charging in uncertain electricity markets
- MIT edX.org**, Cambridge, MA **Spring 2014**
Online class “The Analytics Edge”
Web Admin
- Sobolev Institute of Mathematics**, Novosibirsk, Russia **2011 - 2012**
Laboratory of Geometry and Function Theory
Research Fellow
Conducted research in a project “Properties of composition operators of Sobolev spaces on Riemannian and sub-Riemannian manifolds.”
- Novosibirsk State University**, Novosibirsk, Russia **2010 - 2011**
Department of Mechanics and Mathematics
Teaching Assistant
Conducted recitations in Mathematical Analysis, designed and implemented a novel training system to maximize students engagement in studying process

COMPUTER SKILLS

- Programming: Python (pandas, numpy, scikit-learn, matplotlib), C/C++, Hadoop, SQL
- Scientific computing/Analytics: R/RStudio, TensorFlow, Matlab
- Mathematical modeling: Gurobi, CPLEX, IpOpt, JuMP/JuMPeR

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA **2012 – 2017**

Operations Research Center & Laboratory for Information and Decision Systems

Ph.D. in Operations Research

Expertise in robust and adaptive optimization; machine learning and data analytics; data-driven decision making under uncertainty; optimal resource allocation; experimental design and logistics.

- Advisors: Dimitris Bertsimas, Patrick Jaillet
- PhD Thesis: [A Robust Optimization Approach to Online Problems](#)

Novosibirsk State University, Novosibirsk, Russia

2005 - 2011

Department of Mechanics and Mathematics

B.S. & M.S., Mathematics, (Summa Cum Laude)

Major: Mathematical Analysis

PUBLICATIONS &
WORKING PAPERS

“Covariate-Adaptive Optimization in Online Clinical Trials”, D. Bertsimas, N. Korolko and A. M. Weinstein, *Operations Research*, 2019.

“Identifying Exceptional Responders in Randomized Trials: An Optimization Approach”, D. Bertsimas, N. Korolko and A. M. Weinstein, *INFORMS J on Optimization*, 2019.

“Dynamic Pricing and Matching in Ride-Hailing Platforms”, C. Yan, N. Korolko, D. Woodard, H. Zhu, *Naval Research Logistics*, 2019.

“The K-Server Problem via Modern Optimization Lens”, D. Bertsimas, P. Jaillet and N. Korolko, *EJOR*, 2018.

“Multi-period Optimization for Fleet Defense: Centralized and Distributed Approaches”, D. Bertsimas, P. Jaillet and N. Korolko, submitted to *Operations Research*, 2017.

“Robust Optimization of EV Charging Schedules in Unregulated Electricity Markets”, N. Korolko, Z. Sahinoglu, *IEEE Trans. Smart Grid*, 2016.

“Modeling and Forecasting Self-Similar Power Load Due to EV Fast Chargers”, N. Korolko, Z. Sahinoglu and D. Nikovski, *IEEE Trans. Smart Grid*, 2016.

“Sobolev Spaces and Quasiconformal Mappings on Riemannian Manifolds”, N. Korolko, S. Vodopyanov, *XLIX International Students Conference “Student and Scientific and Technological Advance”*, 2011, 1st prize

“Composition Operators of Sobolev Spaces on Riemannian Manifolds,” N. Korolko, S. Vodopyanov, *International Educational Workshop in Geometrical Analysis, Gorno-Altaysk State University*, 2010.

ACTIVITIES

- Laboratory for Information and Decision Systems, MIT, Student Conference, Organization committee member, 2015
- Reviewer for the *IEEE Trans. on Smart Grid* journal, 2016–present
- Operations Research Center, MIT, Athletics chair, 2015–present
- Member of INFORMS, 2012–present
- Novosibirsk State University, Manager and sponsor of university blood donor campaign, 2012
- Social nonprofit organization “Science to the children (Russia), Head of the Math section, 2009–2011
- Novosibirsk State University, Member of the Academic Council, 2007–2011

HONORS

- Grant of the President for State Support of Young Scientists and Leading Scientific Schools. Project: “Fundamental problems of geometrical analysis”, 2011
- Federal grant “Scientific, Academic and Teaching staff of innovative Russia”, 2011
- Opportunity Grant, Public Affairs Section of the U.S. Embassy in Moscow, 2012
- V. Potanin Charitable Endowment Scholarship, 2007, 2008, 2011
- Russian Academy of Science Scholarship (Lyapunov), Sobolev Institute of Mathematics, 2010
- Baker Hughes Scholarship, 2010