

# Nikita Korolko

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CONTACT INFORMATION      Email: [nikita.korolko@alum.mit.edu](mailto:nikita.korolko@alum.mit.edu)  
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WORK EXPERIENCE      **Waymo/Alphabet**, Mountain View, CA      **July 2023 - Present**  
*Product Data Science & Commercialization*

Senior Staff Data Scientist

- Created core algorithm for real-time orchestration of the fleet of self-driving vehicles. (Patent is filed).
- Conducted state-of-the-art modeling and optimization research for commercial operations of Waymo ride-hailing service.
- Designed and deployed to production mid-frequency time-series forecasting pipelines.

**Citadel Securities**, Chicago, IL      **July 2019 - June 2023**

*Systematic Equities Riskbook, Statistical Arbitrage*

Quantitative Researcher

- Created multiple intraday and daily alpha signals based on various alternative datasets. Conducted all stages of alpha research: searched for new data and publications; generated original features; performed feature selection, fitting and evaluation; developed production code; maintained and improved the signals. Mentored junior team members.
- Designed computationally efficient and accurate approximations of multi-period portfolio optimization problems incorporating non-linear risk metrics, market impact models and transaction costs.

**Uber Technologies HQ**, San Francisco, CA      **July 2017 - June 2019**

*Marketplace Optimization & Demand Intelligence*

Data Scientist

- Constructed rider demand functions at high spatial-temporal granularity using large-scale ML and OR techniques. Designed optimization methods for solving real-time trip price optimization problems at industrial scale. Developed a method to protect optimization algorithms from noise and errors in input data.
- Using data anomaly detection techniques I identified and investigated users payment fraud spanned across four major US cities with extensive costs to the platform.

**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 for the company.

**Mitsubishi Electric Research Laboratories**, Cambridge, MA      **Summer 2014**

*Data Analytics Group*

Operations Research Scientist (Intern)

Used time-series methods to develop accurate load forecasts for the power grid. Designed robust optimization pricing methodologies for EV charging in uncertain electricity markets.

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

- COMPUTER SKILLS
- Programming: Python (pandas/numpy, prophet, scikit-learn, matplotlib), Git/SVN, SQL
  - Scientific computing/Analytics: R/RStudio, TensorFlow, Matlab
  - Mathematical modeling: Gurobi, CPLEX, IpOpt, JuMP/JuMPeR

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.
- “Multiperiod 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.

HONORS

- *The Kuhn Award issued by Naval Research Logistics journal.* Project: “Dynamic Pricing and Matching in Ride-Hailing Platforms”
- Russian Academy of Science Scholarship (Lyapunov), Sobolev Institute of Mathematics
- Baker Hughes Scholarship