

ARYAN IDEN KHOJANDI

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EDUCATION

Massachusetts Institute Of Technology (MIT)

Master of Engineering: EECS

Bachelor of Science: Mathematics, EECS, Physics (unofficial Major)

Relevant Coursework: DP & Stochastic Control, Machine Learning, Real Analysis (I, II), PDE, Stochastic Processes, Abstract Algebra (I, II), Numerical Methods, Optimization, Robotics, Quantum Computation, Quantum Physics (I - III), Stat. Physics

September 2010 - June 2016

September 2014 - June 2016

September 2010 - June 2014

Thomas Jefferson High School for Science and Technology (TJHSST)

Relevant Coursework: AI, Stat, Lin. Alg., Numerical Analysis, Diff. Eq., Quantum Phys., Multivar. Calc., Complex Analysis

September 2006 - June 2010

EMPLOYMENT AND RESEARCH EXPERIENCE

Nike, Inc.

Lead Data Scientist

August 2019 - Present

Boston, MA

- Oversee Fulfillment Optimization in Nike's endeavor to build a Digital-First Supply Chain at Scale
- Continue to evolve FO and to integrate with Demand Sensing & FO-adjacent functionalities in Nike's expanding node network, in collaboration with data scientists, software engineers, product managers, business/ops stakeholders, senior management
- Built machine-learning model to forecast in-store demand and integrated this demand-sensing capability with FO to enable effective Ship From Store
- In collaboration with a small engineering team, designed, built, and maintained an improved real-time, scalable, highly available, parallelized system capable of fulfilling peak-day traffic loads of 800K+ units with high performance
- Trained team members to take over most day-to-day matters regarding Fulfillment Optimization
- Mentored MIT LGO intern in building inventory-optimization tool and Digital Twin for simulating and optimizing E2E inventory-placement-and-fulfillment scenarios
- Cross-functional and cross-team role including owning Data Science for Replenishment Optimization predictions (2020), advising on other initiatives

Celect, Inc. (acquired by Nike on 6 August 2019)

Lead Data Scientist and Software Engineer

July 2016 - July 2019

Boston, MA

- Owned Data Science for and co-built Fulfillment Optimization product deployed in Production for multiple clients, saving clients \$20MM+ overall in avoided lost sales, avoided markdowns & reverse-logistics costs, lower fulfillment costs, etc.
- Published *Primal-Dual Algorithms For Order Fulfillment* in INFORMS Journal on Applied Analytics (formerly, INFORMS Interfaces); finalist for INFORMS Wagner Prize
- Patent granted for invention of online, multi-objective Fulfillment Optimization Primal-Dual algorithm that predicts and considers both eComm and in-store demand (plus other factors), and weights different objects in Nash-fair manner
- In a small team, designed, built, and maintained real-time, scalable, highly available, parallelized system capable of sustaining peak traffic loads with high performance
- Led several pre-Sales projects and engagements resulting in successful deals and revenue for Celect
- Trained and coordinated with client's Engineering team (20+ persons) in co-development effort over many months
- March-August 2019: Led Data Science for Plan Optimization (determination of breadth and depth of different product categories at different stores via optimization based on demand predictions and client business rules)
- November 2019 - mid 2020: Led Data Science for Allocation Optimization (determination of how to distribute inventory of various products at different stores, based on demand predictions and client business rules) (re-prioritized before Peak)
- Built time-series models to produce forecasts for demand of various products in different channels and nodes (e.g. distribution centers, brick-and-mortar stores), which could be leveraged to make decisions in inventory allocation and network design

Massachusetts Institute of Technology (MIT)

Researcher / Graduate Student

Fall 2014 - August 2016

Cambridge, MA

- Applied Markov Chain Monte Carlo inference on graphical models, using a prior distribution and a physics-based forward model, to obtain samples from the posterior distribution over material inside a volume of interest, based on sensor readings from interrogation of said volume with gamma rays
- Wrote efficient Gibbs sampler, using connection to the coloring problem, to identify problem-specific conditional independencies and exploit them for parallelization, resulting in a 20x speedup and rendering the problem tractable
- Trained neural networks to classify posterior samples into classes

- Experimented with classifier behavior under different sensor setups, including use of a classifier trained (on an unchanging intermediate representation) using samples from one sensor setup, on data from a different setup

KCG Holdings (legacy-Getco)

Quantitative Trading Intern

Summer 2014

Chicago, IL

- Generated and explored predictive signals for markup quality and price from a market-maker perspective in Commodities
- Investigated toxicity and general exchange characteristics (esp. reaction to trades) on various exchanges for American Equities

Massachusetts Institute of Technology (MIT)

Researcher

Summer 2013

Cambridge, MA

- Used mix of analytical/numerical methods to study capillary instabilities (e.g. Plateau-Rayleigh) in multi-layer cylinders
- Studied the breakup of seemingly-continuous streams into discrete particles because high-frequency elements are magnified, while the low-frequency ones are suppressed
- Potential applications in drug delivery, fiber-device manufacturing, etc.

Five Rings Capital, LLC

Winter Trading Intern

January 2013

New York, NY

- Developed and tested trading strategies (both algorithmic and manual/open-outcry) in Futures and Options trading simulations
- Wrote automated scripts to detect and use arbitrage opportunities, taking into account future price predictions, risk factors associated with the strategy (e.g. number of legs to the arbitrage that must succeed), position limits, etc.

Ecole Nationale Supérieure des Mines de Paris

Researcher / Summer Intern

Summer 2012

Paris, France

- Studied and implemented interior-point and exterior-penalty methods in Optimization for various sample problems

AWARDS/HONORS

- Daniel H. Wagner Prize for Excellence in Operations Research (2018): Finalist
- Siemens Competition in Mathematics, Science, and Technology: Finalist
- Intel Science Talent Search (STS): Semifinalist; Intel International Science and Engineering Fair (ISEF): 2nd in Physics
- US National Scholastic K-12 Blitz Chess Championship: 4th Place individual
- VA State Scholastic K-12 Chess Championship: 1st Place individual (for both Standard and Blitz)

LEADERSHIP AND SOCIAL

MIT Chess Team/Club Vice President and TJHSST Chess Team Captain

- Responsible for managing weekly meetings, organizing and hosting tournaments, obtaining funding
- Led team to 1st in VA Blitz, Standard Chess, 2nd in National Standard (2009, 2010), 1st in National Blitz (2009)

SKILLS AND INTERESTS/HOBBIES

- Proficient in Python, MATLAB, Postgres, Vertica; some experience with Java, C++; learn new languages quickly
- Language & Recreation: Fluent in French, Persian, and Azari Turkish; enjoy chess, skiing, tennis, soccer, bridge, squash