Ali Shameli

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Education

◇ **Stanford University** 2015-2020

- Ph.D. and M.S. in Operations Research.
- Focus: Algorithms, optimization, and data analysis.
- Dissertation: Online Assignment Mechanisms with Applications in Resource Allocation.

◇ **Sharif University of Technology** 2011-2015

- B.Sc. in Computer Engineering.

Experience

◇ **Meta** 2021-Present
Applied Research Scientist, New York

- Project 1: Deep reinforcement learning for compiler optimization in collaboration with Facebook AI Research (FAIR)
  - Modeled the question of finding compiler flags that minimize the code size of an LLVM compiler as an RL problem.
  - Generated proper data for offline deep Q learning.
  - Experimented with model architectures that take advantage of the code's graph structure.
  - Achieved state of the art performance which beats classical compiler optimization models by around 5 percent.
- Project 2: Forecasting optimal spend plans for ad campaigns to maximize welfare
  - Worked on optimizing the fraction of budget that should be spent on each day for ad campaigns to maximize revenue.
  - Identified the signals that if predicted can help us find the theoretically optimal solution.
  - Implemented and evaluated several models for predicting the aforementioned signals.
  - After A/B testing the best performing model, achieved a 0.2 percent increase in sanitized ad value which translates to 80 million dollars additional annual revenue.
- Project 3: Experimentation
  - Developed a tool for reading and analysing AB tests.
  - Improved the performance of ad specific AB tests through better clustering of ad campaigns.

◇ **Massachusetts Institute of Technology** 2020-2021
Postdoctoral Associate, Cambridge

- Conducted research on data-driven decision making, online learning.
- Consulted with Accenture which involved working with and managing two other PhD students.

◇ **Citadel LLC** ..... Summer 2020
Quantitative Research Intern, Chicago

- · Tackled the problem of profit maximization under the presence of large transaction costs.
- · Given a collection of alphas, we aim to find a final prediction that best predicts the data.
- · Designed a novel approach that beats our benchmark by 3 percent.

◇ **Microsoft Research** ..... Summer 2019
Intern, Cambridge

- · Studied crowd sourcing platforms from a game theoretic perspective.
- · We modeled such platforms using a parametric continuous time Markov chain.
- · We then solved our model for revenue maximizing parameters.

◇ **Google Research, Mountain View** ..... Summer 2018
Intern, Mountain View

- · Worked on revenue maximization in ride sharing platforms.
- · We modeled and solved the problem to obtain an approximately optimal solution.
- · Implemented an ML model to estimate parameters for optimal route suggestion in Google maps.

◇ **Adobe, San Jose** ..... Summer 2017
Data Science Intern, San Jose

- · Modeled the click through rate of the platform as a non-convex multi armed bandit problem.
- · We approximately optimized the model and back tested our results on empirical data.

Selected Journal and Conference Publications

◇ **Sequential Submodular Maximization and Applications to Ranking an Assortment of Products**
with Arash Asadpour, Rad Niazadeh, and Amin Saberi
Full version appeared in Operations Research (2022).

◇ **Assignment Mechanisms under Distributional Constraints**
with Itai Ashlagi and Amin Saberi
Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms (2019).
Full version appeared in Operations Research (2020).

◇ **Nearly Optimal Pricing Algorithms for Production Constrained and Laminar Bayesian Selection**
with Nima Anari, Rad Niazadeh and Amin Saberi
Proceedings of the 20th ACM Conference on Economics and Computation (2019).
Full version submitted to Operations Research.

◇ **The Stationary Prophet Inequality Problem**
with Kristen Kessel, Amin Saberi and David Wajc
Proceedings of the 23th ACM Conference on Economics and Computation (2022).

◇ **Information Aggregation in Overlapping Generations**
with Mohammad Akbarpour and Amin Saberi
Proceedings of the 13th International Workshop on Internet and Network Economics (2017).
Recipient of the Best Paper Award.

◇ **How Gamification Affects Physical Activity: Large-scale Analysis of Walking Challenges in a Mobile Application**

with Tim Althoff, Amin Saberi and Jure Leskovec
Proceedings of the 26th World Wide Web Conference (2017).

Honors and Awards

- ◇ **Stanford Graduate Fellowship** 2017-2019
  First graduate student to receive this award in our department in two years.
- ◇ **Best Paper Award** 2017
  The 13^{th} Conference on Web and Internet Economics.
- ◇ **Stanford School of Engineering Fellowship** 2015-2016
- ◇ **Exceptional Talent Award** 2015
  Sharif University of Technology (and subsequently a Ph.D. admission without exam).
- ◇ **Summer Research Grant** 2014
  University of California Irvine.
- ◇ **Ranked 1 in terms of GPA** 2014
  Computer Engineering Department, Sharif University of Technology.
- ◇ **Gold Medal** 2010
  Iranian National Olympiad in Informatics.
- ◇ **Honorable Diploma** 2009
  International Conference of Tournament of Towns, Moscow.

Selected Applied Projects

- ◇ **Project Lead for Supply Chain Optimization for Accenture**
  - · As a postdoc at MIT, I was leading a team of 3 for modeling and optimizing the Accenture supply chain.
  - · We modeled the problem via a convex program and optimized it using GUROBI.
  - · One challenge we faced was how large the data was, and thus we had to come up with innovative ideas and approximations to make our optimization process much faster.
- ◇ **Music Recommendation System for Melodia**
  - · Melodia is a small startup focused on high quality music recommendation.
  - · I was in charge of designing the first version of their music recommendation algorithm.

Computer Skills

- ◇ **Programming Languages** Python, R, C, C++, C#.
- ◇ **Libraries** Pytorch, Pandas, Seaborn, Scikit-Learn.

Related Coursework

- ◇ **Management Science and Engineering** Stochastic Modeling, Approximation Algorithms, Reinforcement learning.
- ◇ **Computer Science** Machine Learning, Design of Algorithms, Convex Optimization, Numerical Computation, Artificial Intelligence, Advanced Programming, Convolutional Neural Networks.
- ◇ **Other** Theory of Probability, Theory of Statistics, Small Data, Matching and Market Design.