

## Current Affiliation

- Herman Goldstine Memorial Postdoctoral Fellow** Westchester County, NJ  
*IBM Thomas J. Watson Research Center* September 2020 - Present  
 (The Goldstine Fellowship is awarded annually to at most two candidates in all areas of mathematical and computer sciences.)

## Education

- Princeton University** Princeton, NJ  
*Ph.D., Operations Research and Financial Engineering* September 2015 - August 2020  
 – **Thesis:** Semidefinite Representations in Semialgebraic Optimization and Dynamics-Oriented Learning
- Ecole Polytechnique** Paris, France  
*B.S. and M.S. in Applied Mathematics and Computer Science* September 2012 - August 2015

## Publications

- Piecewise-Linear Motion Planning amidst Static, Moving, or Morphing Obstacles** (Joint work with Jean-Bernard Lasserre and Vikas Sindhvani). Submitted.
- On Sum of Squares Representation of Convex Forms and Generalized Cauchy-Schwarz Inequalities.** SIAM Journal on Applied Algebra and Geometry, 4(2), 377–400, 2020.
- Learning Dynamical Systems with Side Information** (joint work with A. Ahmadi). Proceedings of Machine Learning Research vol 120:1–10, 2020.
- Time-Varying Semidefinite Programs** (joint work with A. Ahmadi). To appear in Mathematics of Operations Research, 2020.
- On Algebraic Proofs of Stability for Homogeneous Vector Fields** (joint work with A. Ahmadi). IEEE Transactions on Automatic Control 65.1 : 325-332, 2019.
- Teleoperator Imitation with Continuous-time Safety** (joint work with J. Varley and V. Sindhvani). In the Proceedings of the Robotics: Science and Systems (RSS), 2019.
- A Globally Asymptotically Stable Polynomial Vector Field with Rational Coefficients and no Local Polynomial Lyapunov Function** (joint work with A. Ahmadi). Systems & Control Letters 121: 50-53 2018.

## Selected Talks

- Algebra and Geometry of Polynomials: Theory and Applications  
 - Keynote Speaker at the Canadian Undergraduate Mathematics Conference Queens University, Canada 2019.
- On Sum of Squares Representation of Convex Forms and Generalized Cauchy-Schwarz Inequalities  
 - Oberwolfach Research Institute for Mathematics Oberwolfach, Germany 2020  
 - Laboratory for Information & Decision Systems MIT, MA 2020  
 - “Geometry of Real Polynomials, Convexity and Optimization” Workshop Banff, Canada 2019
- Learning Dynamical Systems with Side Information  
 - Learning for Dynamics & Control Berkeley, CA 2020.
- Time-Varying Semidefinite Programs  
 - Internal MURI Workshop Austing, TX 2019  
 - MOPTA Bethlehem, PA 2019  
 - ISMP Bordeaux, France 2018  
 - AFOSR, Dynamics and Control Program Review Arlington, VA 2018  
 - INFORMS Annual Meeting Houston, TX 2017  
 - SIAM Pittsburgh, PA 2017
- Algebraic Proofs of Stability: Review and Converse Results  
 - Multidisciplinary Optimization Seminar Toulouse, France 2019  
 - SIAM DS19 Snowbird, UT 2019  
 - “Optimal Power Flow Problem and Stability Assessment of Power Systems” workshop Paris, France 2018

## Awards

- IBM Herman Goldstine Postdoctoral Fellowship in Mathematical Sciences (2020-2021)
- Honorable mention in the 2019 INFORMS Optimization Society Student Paper Prize Competition
- Best Poster Award of the Princeton Day of Optimization (2018)
- French Government's Major-Excellence Scholarship (2012)

## Industry Experience

- **Google** New York, NY  
*Google Brain Team - Intern* *June 2018 - September 2018*
  - Developed a framework for imitation learning with stability guarantees
- **Susquehanna International Group** Philadelphia, PA  
*Quant. Research - Intern* *June 2016 - August 2016*
  - Collaborated with the Options Team to automate corrections to short term volatility predictions
- **JPMorgan** London, UK  
*Quant. Research - Intern* *Mars 2015 - August 2015*
  - Improved the accuracy of the Exotic Rates pricing system
  - Reduced the risk analysis software process time by a factor of **2.5**
- **Infosys** Hyderabad, India  
*Software Engineer - Intern* *June 2014 - August 2014*
  - Developed a web security scanner that analyzes the content (DOM elements) of a web page and monitors HTTP traffic to enhance the security against XSS and CSRF attacks

## Professional Activities

- Program committee for the 3rd Conference on Learning for Dynamics and Control** ETH Zurich, 2021
- Reviewer for Operations Research and Mathematical Programming journals**
- Session Organizer** INFORMS 2019
- Volunteer Math Expert in the Julia Robinson Math Festival** Princeton University 2018
- Volunteer in the Princeton Day of Optimization**
- Assistant in Instruction** Princeton University
  - Graduate level course in Advanced Optimization Spring 2017
  - Sophomore level course in Fundamentals of Statistics Spring 2016
  - Junior level course in Computing and Optimization for the Physical and Social Sciences Fall 2016 & 2017

## Skills

**Programming:** Python, C++, Matlab, Julia

**Languages:** English (Highly proficient), French (Bilingual), Arabic (Bilingual)

## Extracurricular Activities:

- Head of IT staff of X-Projets (Junior enterprise of Ecole Polytechnique)
- Attended London Model United Nations conference and acted as a delegate from Turkey: Collaborated with a working group to create a comprehensive paper on Middle East crisis