Ilan Morgenstern

Email: ilanmor@stanford.edu

Citizenship: Mexican and Polish
Languages: Spanish, English and Hebrew

Education

- **Stanford Graduate School of Business** — Palo Alto
  Ph.D. in Operations, Information and Technology — *2018 - present*
  - Advisors: Kostas Bimpikis and Daniela Saban.
- **Instituto Tecnológico Autónomo de México (ITAM)** — Mexico City
  Bachelor degrees in Applied Mathematics and Economics — *2010 - 2015*
  - Graduated with the highest honors and as the top-ranked student from both programs.
  - GPA: 9.87/10 (applied mathematics) and 9.78/10 (economics).
  - Thesis advisor: Diego Domínguez.

Publications

- Morgenstern, Ilan & Domínguez, Diego. A characterization of the random arrival rule for bankruptcy problems. *Economics Letters*, 174, 2019, pp. 214-217

Work and Research Experience

- **McKinsey & Company** — Mexico City
  Business Analyst — *2016 - 2018*
  - Collaborated in the creation of an advanced analytics platform for a large consumer goods company, which has enabled data-driven decision making in their revenue management area, based on the use of econometric models and machine learning algorithms.
  - Identified improvement opportunities to reduce inventory costs by 20-25% across five production plants for an automotive parts manufacturer, using statistical models to optimize target stocks.
- **Instituto Nacional Electoral**[1] — Mexico City
  Quick-count Committee Collaborator — *2015*
  - Developed a voting trends forecasting model based on Bayesian statistics along with Prof. Raúl Rueda (UNAM), as part of the quick-count exercise conducted by the Institute in the 2015 Mexican national election. The results of our model were communicated to the public a few hours after voting stations closed by the Instutute's chief counsellor.
- **The Abdul Latif Jameel Poverty Action Lab (J-PAL)** — Mexico City
  Research Assistant for Prof. Enrique Seira — *2012 - 2015*
  - Analyzed the results of a randomized controlled trial that measured the impact of offering various payment plans in pawnshop loans, and compared them with a simulation model to contrast observed vs. "rational" behavior.
- **Institute of Pure and Applied Mathematics - UCLA** — Los Angeles
  Project Manager in the RIPS program (Research in Industrial Projects for Students) — *2014*
  - Created an algorithm to match genocide survivors' video testimonials from the USC Shoah Foundation with related Wikipedia articles in order to display relevant information next to the video clip, complementing the users' learning experience.
  - Served as the team's project manager. The team was composed of four students, an academic mentor, and a technical mentor from the USC Shoah Foundation.
  - Presented a poster about this project in the 2015 Joint Mathematics Meetings and received an outstanding presentation award.

[1] Mexican Government agency responsible for organizing federal elections.

Awards & Honors

- **The Robert J. and Doreen D. Marshall Scholarship Fund Fellowship** — Palo Alto
  Stanford Graduate School of Business — *2018*
- **Ex-ITAM thesis award** — Mexico City
  Instituto Tecnológico Autónomo de México — *2017*
  - Prize awarded annually to ITAM's best undergraduate theses. I received first place and honorable mention for the applied mathematics and economics programs respectively.
- **Sotero Prieto thesis award** — Aguascalientes, Mexico
  Mexican Mathematical Society — *2016*
  - Prize awarded to the best mathematics undergraduate theses in Mexico every year. I received an honorable mention for my thesis on bankruptcy problems.
- **IMEF-EY research prize** — Monterrey, Mexico
  Mexican Institute of Finance Executives (IMEF) — *2016*
  - Prize awarded to distinctive research in economics or finance by the Mexican Institute of Finance Executives (IMEF) and EY Mexico. I received a special mention in the undergraduate thesis category.
- **Outstanding poster presentation award** — San Antonio
  Joint Mathematics Meetings Poster Session — *2015*
- **Scholarship for Academic Excellence** — Mexico City
  ITAM — *2010*
- **First place in the state Math Olympiad** — Mexico City
  Universidad Nacional Autónoma de México (UNAM) — *2008*

Conferences

- **INFORMS annual meeting** — Seattle
  Presentation — *2019*
- **INFORMS Revenue Management and Pricing Conference** — Palo Alto
  Participant — *2019*
- **Marketplace Innovation Workshop** — Palo Alto
  Participant — *2019*
- **26$^{\text{th}}$ Summer School in Economic Theory** — Jerusalem
  Participant — *2015*
- **Joint Mathematics Meetings** — San Antonio
  Poster presentation — *2015*

Other Activities

- **Management Science**
  Reviewer — *2019*
- **Gaceta de Economía (ITAM's economics journal)** — Mexico City
  Editor — *2015*
- **Laberintos e Infinitos (ITAM's mathematics magazine)** — Mexico City
  Collaborator and writer — *2013-2015*

Application to the NBER PhD Workshop on the Economics of Artificial Intelligence

Ilan Morgenstern

I'm a second-year student in the Operations, Information and Technology department at Stanford GSB, where I'm advised by Profs. Kostas Bimpikis and Daniela Saban. I'm interested in conducting research on the intersection of economics and operations research related to data privacy and, more broadly, the effect of new technologies in our society.

My current research project analyzes price competition and market dynamics between two firms: one long-lived that can exploit consumer data obtained today for price discrimination in the future, and one short-lived that has no incentives to store consumer data and serve as privacy-preserving alternative for consumers. We study this market in two different contexts: with naïve and with forward-looking consumers. You may find an abstract that summarizes some of our findings on the next page.

This work is related to the literature on the economics of privacy and data regulation (e.g., Goldfarb and Tucker 2011, 2012; Acquisti et. al. 2016), which are relevant in the community of the economics of AI. Moreover, attending the NBER PhD Workshop on the Economics of Artificial Intelligence would be a great opportunity for me to learn about the latest research being done in the field, network with researchers with similar interests, and to potentially start new collaborations.

The Welfare Effects of Strategic Data-sharing in Competitive Markets

Kostas Bimpikis, Ilan Morgenstern and Daniela Saban

Technological advances in recent years have provided unprecedented opportunities for some firms to learn information about consumers based on previously collected data, such as their purchase history. This potentially creates incentives for consumers to delay or altogether forgo transacting with a firm that may later use the data generated from previous transactions against them. Nonetheless, this depends crucially on whether consumers are aware of what firms can do with their data in the future, and therefore develop privacy concerns.

To understand the impact of firms collecting and using past consumer data has on market outcomes, we consider a model with two firms, one short-lived and one long-lived. The long-lived firm can use information she derives from past transactions to price discriminate their customers in future transactions. We characterize and compare the equilibrium outcomes in three contexts: i) with naïve consumers, that are not aware of the firm's ability to use data for price discrimination, ii) with forward-looking consumers, that are aware of this, and iii) with data regulation, where the long-lived firm cannot use data from previous transactions for price discrimination.

We find that allowing the long-lived firm to gather and use data for price discrimination can make consumers better off, even if they are naïve. The value of data creates incentives for the long-lived firm to offer a discount relative to the short-lived firm's price, increasing the competitive pressure on the short-lived firm. This reduction in prices can offset the adverse effect of future price discrimination. In addition, the long-lived firm prefers to be able to use data for price discrimination over facing regulation, even if consumers are forward-looking – that is, the long-lived firm would prefer to be transparent about her data processing abilities (thus transforming naïve consumers into forward-looking ones) over facing regulation.

Finally, we compare these results with those in a setting without competition (i.e., where the long-lived firm is a monopolist) and show that, without competition, data regulation is beneficial for consumers in parametric regimes where the opposite occurs with competition. Therefore, the argument of whether to regulate the firm's ability to collect and use data should not depend only on the degree of consumer sophistication, but also on the level of competition she faces.