

CONTACT
INFORMATION

UC-Berkeley
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Citizenship: **U.S. permanent resident**

PROFILE

Data Scientist and Economist (Ph.D.) with 11 years of experience in academia, industry, and consulting. Studied industrial organization and health economics employing a wide variety of **statistical** and **machine learning** methods.

- Extensive experience with causal inference, discrete choice analysis, experiments (A/B testing, synthetic controls), record linkage, surveys (design, implementation, and analysis), supervised and unsupervised machine learning algorithms
- Computer languages include **Python**, Java, R, GIS, SQL, Bash shell; version control with Git(Hub)
- Experience with **big data analytics**: analyzed **terabytes of data** using Hadoop/HDFS and Dask frameworks on CloudLab.us clusters
- Experience with packages such as Pandas, Numpy, Scipy, Statsmodels, Scikit-Learn, TensorFlow2, Geopandas, OSMnx, Rasterio, Matplotlib
- Experience with IRB applications and working with **HIPAA protected** health data
- 2 years of **industry and consulting experience**, including contributions to high-profile litigation cases
- Presented at numerous conferences and wrote papers for journal publications. Mentored 3 Masters' students. Collaborated with faculty, postdocs, and graduate students. Highly rated Data Science lecturer.

PROFESSIONAL AND
RESEARCH
EXPERIENCE**UC-Berkeley, Data Intensive Development Lab, Postdoctoral Fellow**

2020 - present

- **Advisor:** Joshua Blumenstock, Ph.D.
- **Projects:** Part 1: Provide real-time feedback for managing the spread of COVID-19 at local, national, and global scale. Focused on the impact of non-pharmaceutical policies on human mobility, and the usefulness of cellphone data in predicting the spread of the pandemic.
Part 2: Estimate health and economic impacts of global behavior change during COVID-19. We compile a novel dataset to empirically estimate the impact of changes in (a) non-pharmaceutical policy interventions, (b) mobility, and (c) other avoidance behavior on national growth rate of COVID-19 cases, COVID-19 deaths, and economic output for all countries in the world where GDP data is available.
- **Data:** aggregate-level cellphone data (Google, Facebook, SafeGraph); U.S. only: individual-level human mobility data (Infogroup), real-time eviction filings (court records), demographics and health data (U.S. Census, ACS, CDC).
- **Methods:** causal inference, predictions with regression analysis, principal component analysis, housing precarity risk model. Models deployed at scale with Hadoop/HDFS and Dask.

UC-Berkeley, School of Information, Lecturer

2020 - present

- **Teaching:** Applied Machine Learning for the M.S. in Data Science program

- **Topics:** Supervised learning: nearest neighbors, Naive Bayes, decision trees, cross-validation and ensemble learning, neural networks, support vector machines. Unsupervised learning: clustering analysis, Gaussian Mixture models, dimensionality reduction. Other topics: network analysis, recommender systems.

UW-Madison, Department of Applied Economics, Faculty Associate 2018 - 2020

- **Teaching:** Object Oriented Programming and Data Analytics with Python; Practicum for Applied Economists; Quantitative and Applied Economics Seminar.
- **Topics:** Data types, functions, classes, exceptions, IO files, data visualization, descriptive statistics, causal inference, cloud computing (incl. Bash), GIS with Python.
- **Assistant Program Director:** M.S. in Quantitative and Applied Economics program.

Analysis Group, Inc., Menlo Park, CA, Associate Economist 2017 - 2018

- **Litigation consulting:** Contributed to several high-profile litigation cases in the healthcare and tech industry: Des Roches, et al. v. Blue Shield and Magellan, Uber v. Google, Apple v. Qualcomm, FTC v. Qualcomm.
- **Research:** Contributed to manuscripts and posters documenting the effectiveness of Leptin Replacement Therapy in treating Generalized and Partial Lipodystrophy.
- **Data:** Claims (mental health, substance abuse, orthopedics), quasi-experimental and survey.
- **Methods:** Surveys (design, implementation, and analysis), discrete choice analysis (multinomial logistic and hierarchical Bayesian regressions), matching algorithms, Cox hazard models.

UW-Madison, Department of Applied Economics, Research Assistant 2012 - 2017

- **Advisor:** Guanming Shi, Ph.D.
- **Projects:** Modeled and analyzed the effect of competition and structural market changes on price dispersion in markets with firm capacity constraints and consumer brand loyalty. Explored the evolution of learning and uncertainty in the adoption of new technologies.
- **Data:** Individual-level data for conventional and genetically modified seed purchases (GFK).
- **Methods:** Two-stage game theory models, causal inference, quantile regressions, instrumental variables, bootstrapping, structural estimation, myopic v. dynamic Bayesian learning models.

University of Zürich, Department of Economics, Research Assistant Jan - Jun 2011

- **Advisor:** Armin Schmutzler, Ph.D.
- **Project:** Analyzed theoretical models on the relationship between competition and product innovation under different market structures.
- **Methods:** Two-stage game theory models (monopoly v. duopoly, Bertrand v. Cournot competition).

EPFL, Department of Computer Science, Research Assistant Jun - Sept 2010

- **Advisor:** Panos Papadimitratos, Ph.D.
- **Project:** On the Road - Reflections on the Security of Vehicular Communication Systems. Collected and analyzed vehicle theft data related to the car rental, fleet management, and construction markets in the U.S.
- **Methods:** Network analysis; computed several metrics such as network diameter under random and non-random attacks, the impact of attack survivability on network structure, and the global network efficiency as a measure of how effectively nodes exchange information.

DHL European Headquarters, Belgium, Intern

Jan - Sept 2009

- **Role:** Data Analyst in the Procurement Department; analyzed planned orders and demand-supply data; designed and developed metrics and reports, dashboards and analyses to drive key business decisions; provided weekly reporting of metrics to managers.

EDUCATION

UW-Madison, Ph.D. in Applied Economics 2012 - 2017
 University of Lausanne, Switzerland, M.S. in Economics 2009 - 2011
 Academy of Economic Studies of Bucharest, Romania, B.S. in Economics 2004 - 2008

**JOURNAL
PUBLICATIONS**

Competition, Price Dispersion and Capacity Constraints: The Case of the U.S. Corn Seed Industry, *European Review of Agricultural Economics*, 2021 (with G. Shi).

Public Mobility Data Enables COVID-19 Forecasting and Management at Local and Global Scales (under review at *Advanced Science*, with S. Annan-Phan, X.H. Tai, S. Mehra, S. Hsiang, J. Blumenstock, 2020).

in preparation:

Estimating Health and Economic Impacts of Global Behavior Change During the COVID-19 Pandemic (with S. Hsiang, J. Tseng, T. Chong + CDC team, 2020)

The Role of Birth and Contemporaneous Pollution Exposure on Health Outcomes (with D. Phaneuf, 2019).

Air Pollution and Cognitive Health. Evidence from Nairobi, Kenya (with E. Tjernstroem, M. FNU, A. Weiner-Kaplow, 2019).

Adoption v. Diffusion. The Evolution of Learning: The Case of the U.S. Soybean Seed Industry (with G. Shi, 2016).

**MANUSCRIPTS AND
POSTERS**

Longitudinal Matching. A Method for Generating Comparable Samples of Treatment and Treatment-Naive Patients with Progressive Conditions (Analysis Group Inc., 2018).

Effect of Leptin Replacement Therapy on Survival and Disease Progression in Generalized and Partial Lipodystrophy (study funded by Aegerion Pharmaceuticals Inc., 2018).

Patient Quality of Life and Benefits of Leptin Replacement Therapy in Generalized and Partial Lipodystrophy (study funded by Aegerion Pharmaceuticals Inc., 2018).

**TEACHING
EXPERIENCE****UC-Berkeley:**

Lecturer, Applied Machine Learning: Summer 2020, Fall 2020, Spring 2021

UW-Madison:

Lecturer, Practicum for Applied Economists: Fall 2019

Lecturer, Object Oriented Programming and Data Analytics with Python: Summer 2019

Lecturer, Quantitative and Applied Economics Seminar: Spring 2019

TA, World Hunger and Malnutrition: Spring 2017

TA, Applied Econometric Analysis I: Fall 2016

TA, Applied Microeconomic Theory: Fall 2014

Lecturer, Math Camp for Incoming M.S. and Ph.D. Students: Summer 2014

FELLOWSHIPS, SCHOLARSHIPS AND GRANTS	Research Grant, American Bar Association, Section of Antitrust Law, 2016 Ph.D. Summer Program (competitive), Edgeworth Economics, Washington, DC, 2016 Kenneth and Pauline Parsons Graduate Fellowship Fund, UW-Madison, 2016 Best Paper Presentation Award, UW-Madison, 2016 SASC Graduate Funds, University of Lausanne, 2010 - 2011 Hessen Summer School (competitive), Goethe University of Frankfurt am Main, Germany, 2008 WU Summer School (competitive), Vienna University of Economics and Business, Austria, 2007 Excellency in Research Award, Academy of Economic Studies of Bucharest, Romania, 2007	
SEMINAR AND CONFERENCE PRESENTATIONS	Association of Environmental and Resource Economics (virtual), 2020 UW-Madison, Healthcare Economics Group seminar, 2019 University of Connecticut, Department of Economics, 2017 European Association for Research in IO (Rising Stars section), Lisbon, Portugal, 2016 Agricultural and Applied Economic Association Meeting, Boston, Massachusetts, 2016 UW-Madison, Department of Economics, IO seminar, 2016	
PROFESSIONAL ACTIVITIES	Reviewer for the American Public Health Association (APHA), 2019 - Social Chair, THC Club of AAE Department, UW-Madison, 2015 - 2016 Seminar Organizer, THC Club of AAE Department, UW-Madison, 2014 - 2015	
LANGUAGE SKILLS	Romanian (native), English (fluent), French (basic)	
REFERENCES	Joshua Blumenstock, Ph.D. (Advisor) Associate Professor School of Information UC-Berkeley (510) 642-4583 jblumenstock@berkeley.edu	Guanming Shi, Ph.D. (Advisor) Professor Department of Applied Economics UW-Madison (608) 263-6250 gshi@wisc.edu
	Daniel Phaneuf, Ph.D. Henry C. Taylor Professor and Chair Department of Applied Economics UW-Madison (608) 262-4908 dphaneuf@wisc.edu	