Cornelia Ilin

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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 health economics and industrial organization employing a wide variety of **statistical** and **machine learning** methods.

- Extensive experience with causal inference, discrete choice analysis, longitudinal and time series analysis, experiments (A/B testing, synthetic controls), record linkage (vital records and hospital data), 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. Focus 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: 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); individual-level human mobility data (Infogroup, U.S. only), non-pharmaceutical policy interventions (CDC), GDP data (IMF).
- **Methods**: causal inference, predictive analysis (ML).

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 Quantitive 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

Global Health and Economic Impacts of Behavior Change During the COVID-19 Pandemic (*under review at Nature*, with J. Tseng, K.C. Coy, A.C. Ewing, T. Chong, S.M. Marks, I. Bolliger, N.M. Gonzalez, K. Bell, A.J. Hakim, S. Hsiang, 2021)

Public Mobility Data Enables COVID-19 Forecasting and Management at Local and Global Scales (*under review at Nature - Scientific Reports*, with S. Annan-Phan, X.H. Tai, S. Mehra, S. Hsiang, J. Blumenstock, 2021).

Adoption v. Diffusion. The Evolution of Learning: The Case of the U.S. Genetically Modified Soybean Seed Industry (*under review at PLOS One*, with G. Shi, 2021).

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

in preparation:
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).

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

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