

CONTACT
INFORMATION

Stanford University
RegLab
559 Nathan Abbott Way
Stanford, CA 94305

(608) 338-4844
cilin@stanford.edu
<http://corneliailin.github.io>

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.

- Experience with supervised and unsupervised machine learning algorithms, causal inference, longitudinal and time series analysis, experiments, temporal record linkage (vital records and hospital data), surveys (design, analysis)
- Computer languages include **Python**, Java, GIS, SQL, Bash shell; version control with Git(Hub)
- Experience with **big data analytics**: analyzed data using Hadoop/HDFS and Dask frameworks on CloudLab.us clusters and Google Cloud Platform
- 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, including claims and electronic medical records
- 2 years of **industry and consulting experience** with contributions to high-profile litigation cases in the healthcare industry
- Presented at numerous conferences and wrote papers for journal publications. Mentored 5 Masters' level students. Collaborated with faculty, postdocs, and graduate students. Highly rated Data Science lecturer.

PROFESSIONAL AND
RESEARCH
EXPERIENCE

Stanford University, RegLab, Research Scientist

2021 - present

- Research: Guarding our Water Supply (in partnership with the EPA): explore how machine learning can be used to protect our waterways, landscapes, and human health with a focus on environmental justice and equity in California.
- Data: Satellite imagery to detect Concentrated Animal Feeding Operations (CAFOs), atmospheric data (wind patterns from NASA's MERRA-2 product), spatial data on rivers and lakes in the US (the National Hydrography Dataset), water pollutant discharge monitoring data (ICIS-NPDES), hospital discharge and emergency room data (CDPH), census tract data (Geolytics Neighborhood Change Database)
- Methods: image segmentation, temporal cluster matching for change detection of structures from satellite imagery, predictive analysis

UC-Berkeley, School of Information, Lecturer

2020 - present

- Teaching: Applied Machine Learning (M.S. in Data Science program)
- Topics: Supervised and unsupervised learning algorithms: KNN, Naive Bayes, decision trees, cross-validation and ensemble learning, logistic and linear regressions, neural networks, support vector machines, Gaussian mixture models, clustering analysis, dimensionality reduction. Other topics: network analysis.

- Applications using: A large set of high-resolution retina images to detect diabetic retinopathy, MIMIC-III clinical data, COVID-19 data (JHU), Open Street Maps data

UC-Berkeley, School of Information, **Postdoctoral Fellow** 2020 - 2021

- 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 non-pharmaceutical policy interventions, mobility, and other avoidance behaviors on growth rate of COVID-19 cases, COVID-19 deaths, and economic output for all countries in the world where GDP data is available.
- Data: COVID-19 data (JHU), Aggregate-level cellphone data (Google, Facebook, Safe-Graph); individual-level human mobility data (Infogroup), non-pharmaceutical policy interventions (CDC), quarterly GDP data (IMF).
- Methods: Causal inference, predictive analysis.

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)
- 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, 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 regression, instrumental variable, bootstrapping, structural estimation, myopic v. dynamic Bayesian learning models.

University of Zürich, Department of Economics, **Research Assistant** 2011

EPFL, Department of Computer Science, **Research Assistant** 2010

DHL European Headquarters, Belgium, **Intern** 2009

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| 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 | Public Mobility Data Enables COVID-19 Forecasting and Management at Local and Global Scales (<i>Nature - Scientific Reports</i> , volume 11, article number: 13531, with S. Annan-Phan, X.H. Tai, S. Mehra, S. Hsiang, J. Blumenstock, 2021). | |
| | Global Health and Economic Impacts of Behavior Change During the COVID-19 Pandemic (<i>under review</i> , <i>Nature</i> , 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) | |
| | Evolution of Learning in Technology Adoption: The case of the U.S. Soybean Seed Industry (<i>under review</i> , <i>PLOS One</i> , with G. Shi, 2021). | |
| | Competition, Price Dispersion and Capacity Constraints: The Case of the U.S. Corn Seed Industry, <i>European Review of Agricultural Economics</i> , 2021 (with G. Shi). | |
| | in preparation: The Role of Birth and Contemporaneous Pollution Exposure on Respiratory and Cardiovascular Conditions (with D. Phaneuf, 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: 2021(Spring, Summer, Fall), 2020 (Summer, Fall) | |
| | 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 | |

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| SEMINAR AND CONFERENCE PRESENTATIONS | Stanford Maternal and Child Health Research Institute Symposium, 2021 Association of Environmental and Resource Economics, 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) |