

Matthew Kosko

Education:

George Washington University
M.S., Statistics

May 2022

University of Utah
PhD, Economics

December 2018

University of Pittsburgh
BS, Mathematics and Physics and Astronomy

May 2011

Technical Skills:

Languages: LaTeX, Python, R, SQL
Applications: Rstudio, Rshiny, Stata, Word, Excel, Powerpoint, Tableau
Operating Systems: Linux, Mac, Windows
R packages: tidyverse, caret, data.table, lme4
Python libraries: pandas, scikit-learn, numpy

Professional Experience:

Morning Consult

January 2019 – Present

Data scientist (January 2019- October 2019)

- Created an in-house, custom multilevel regression and poststratification (MRP) R package that allowed flexible imputation of small area survey results using Bayesian multilevel models.
- Coded a survey parser that inputs Word documents and outputs a Qualtrics-readable document for fast survey uploading. This function could parse survey logic and was the foundation of the company's current survey document parser.

Senior manager, Data Science (October 2019 - June 2021)

- Contributed to internal R packages, including:
 - Bootstrap confidence intervals for survey proportions as part of our standard Excel deliverables.
 - New client deliverables written in Rmarkdown and knitted to HTML that were more interactive and user-friendly than existing .pdf files.
- Applied machine learning and other statistical techniques to a variety of custom client requests:
 - In one project, applied CART models to survey data to help clients intuitively understand how demographic variables affected survey questions responses.

Director, Research Science (June 2021 - Present)

- Acted as a resource for commercial data science to both improve existing data science methods and create new ones.
 - Implemented a measure of variable importance for data science's ridge regression-based driver analysis.
 - Developed a variety of statistical tests for complex quantities like NPS so clients could detect changes in KPIs.
 - Built Bayesian models with Stan to estimate proportions used in survey weighting when those proportions were unavailable from census sources.

Hanover Research

November 2017 – January 2019

Content analyst (November 2017 - October 2018)

- Prepared market research reports for business clients using secondary research.
- As required by the individual project, R and Python were used to process, merge, and gain insights from large datasets, sometimes with tens of thousands or more observations, obtained from clients and public organizations.
- Visualized data with Tableau for deliverables and prepared internal visualizations with ggplot2.
- Conducted LDA topic modeling and provided a final deliverable to the client including the LDA modeling results along with a set of tables detailing the frequency of particular words, bigrams, and trigrams in order to give the client a clear understanding of what topics respondents repeatedly mentioned.

Content analyst, quantitative (October 2018 - January 2019)

- Integrated and analyzed data from the client and public sources.
- Statistical techniques included time series (ARIMA), linear and logistic regression, and unsupervised learning (hierarchical clustering).
- Produced deliverables in Tableau and Word.

USPCASW

December 2015 – November 2017

Research Assistant

- Coached and mentored a master's student from Mehran University of Engineering and Technology (MUET) in Jamshoro to design and conduct a survey on water usage.

- Undertook field research in Pakistan as part of my dissertation in the form of interviews with farmers, irrigation officials, and activists.

University of Utah

August 2013 - December 2015

Instructor/teaching assistant

- Led recitations for introductory micro and macroeconomics.
- Independently taught classes in economic history and money and banking to classes ranging in size from 10 to over 100 students.
- Decided on course content and structure of the course.
- Evaluated student work while simultaneously taking PhD-level courses.

Conference Presentations:

IPAMS-RIPS

- A.R. Richter, M.D. Kosko, A.A. Mosher, D.W. Puelz, UCLA; P.D. Massatt, F.E. Fritzen, G.B. Green, The Aerospace Corporation; Y. Landa, UCLA. All-in-View Satellite Dilution of Precision Formulas For GNSS Coverage Analysis And Optimization. In: The Institute of Navigation International Technical Meeting. January 2011

Mathematical Biology

- M. Kosko. Ants on Pheromone Trails in: The MAA Allegheny Section Conference at the University of Pittsburgh Johnstown. April 2010

ACIC

- M. Kosko. “Scalable Weighted Bootstrap Algorithms for Causal Inference with Large Real-World Data” in: The American Conference on Causal Inference. April 2022.

Publications:

- M. Kosko, L. Wang, M. Santacatterina. “A Fast Bootstrap Algorithm for Causal Inference with Large Data” in: Journal of Computational and Graphical Statistics (submitted). February 2023.
- “Drivers of Environmental Change.” (contributing author, to be published in 2019) In: The Global Environmental Outlook (GEO) 6. UN Environment’s flagship environmental assessment

Language:

English, Chinese (intermediate)