

ALLISON KOENECKE

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Education

Stanford University

Stanford, CA

Ph.D. Candidate in Computational & Mathematical Engineering

Sep 2016 – Jun 2021

- *Fellowships:* NSF Graduate Fellowship, Gene Golub Fellowship, EDGE Doctoral Fellowship
- *Relevant Coursework:* Machine Learning, Causal Inference, Stochastic Methods, NLP, Distributed Algorithms, Optimization, Game Theory, Social Data, Numerical Linear Algebra, Numerical Partial Differential Equations

Massachusetts Institute of Technology

Cambridge, MA

S.B. in Mathematics with Computer Science, Minor in Economics

Sep 2010 – Jun 2014

- *Relevant Coursework:* Statistics, Econometrics, Information Theory, Systems Engineering, Complex Analysis

Work Experience

Google

San Francisco, CA

Quantitative Analyst Intern

Jun – Sep 2017, Jun – Sep 2019

- Evaluated feature selection methods on Google Trends search categories using synthetic and health-related outcomes
- Built nowcasting model in R for the Colombian Ministry of Finance to estimate GDP using Google Trends
- Analyzed Google Consumer Survey data on Brexit voting patterns, and on consumer perception and expectation of inflation, to quantify bias relative to offline polls; this work substantiated GCS data collection as a useful service
- Wrote Python webscraper for images and metadata, powering neural network to detect particular illicit commodities sales

Microsoft

Sunnyvale, CA

Artificial Intelligence & Research Intern

Jun 2018 – Jan 2019

- Built deep neural networks in Keras to forecast Microsoft revenue time series 30% more accurately than the production baseline by invoking curriculum learning as applied to encoder-decoder LSTMs and dilated CNNs
- Won Best Paper Award at 2019 ECML PKDD Workshop on Mining Data for Financial Applications
- Authored an R tutorial on sequential market basket analyses for Azure customers

Facebook

Menlo Park, CA

Data Science Intern

Jun – Aug 2016

- Analyzed seasonality trends in event creation rates and user interactions with events, and ran predictive time series models using SQL and R; determined optimal notifications for event creation times to drive product improvements
- Created internal dashboards of popular photos and keywords for events using Python to track daily user behavior

NERA Economic Consulting

New York, NY

Antitrust & Competition Group Associate Analyst

Jan 2013; Jun – Aug 2013; Jun 2014 – Mar 2016

- Managed team of six research analysts; led client meetings to understand data storage and market dynamics
- Used SAS, Python, SQL, and Stata on TB-sized datasets for companies undergoing mergers to conduct robust statistical analyses, such as creating pricing pressure indices, running regression models, and forming divestiture packages

Research & Teaching Experience

Stanford University

Stanford, CA

Research Assistant

Sep 2017 – Present

- *Fairness:* quantified racial disparities in Automated Speech Recognition systems built by Amazon, Apple, Google, IBM, and Microsoft. First-authored PNAS paper was covered by the [New York Times](#); see [fairspeech.stanford.edu](#) for details
- *Health Research and Policy:* evaluated treatment effect of alpha blockers on mechanical ventilation (covered in [Forbes](#)); other research includes simulating prematurely stopped clinical trials, estimating game-theoretic switching costs of fee-for-service vs. capitation healthcare payments, and evaluating online climate change sentiment post-disaster

The Challenges of Global Poverty (MIT edX Economics Course 14.73x)

Cambridge, MA

MIT Teaching Assistant

Jan – Jun 2014

- Worked under Nobel laureate Profs. Esther Duflo and Abhijit Banerjee to develop an online curriculum by running office hours, moderating the discussion forum, and ensuring overall MOOC quality

Skills & Interests

Languages: English (Native), Mandarin Chinese (Fluent), Shanghainese Chinese (Basic), French (Basic)

Technical: Python, R, SQL, SAS, Stata, MATLAB, ArcGIS, Julia, LaTeX, Microsoft Office

Mentorship: Women in Mathematics, Statistics, and Computational Engineering (Founder & President, 2018 – Present); Stanford Women in Math Mentoring (Mentor, 2017 – Present)