AARON MAURER

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SUMMARY

Statistician and Data Scientist with a zeal for leveraging programing and statistics to answer hard questions with big data. Looking for difficult problems to solve through thorough and thoughtful analysis.

Specialties: Nonparametric, Bayesian, and Classical Statistics; Large Scale Data Mining; Machine Learning; Mathematical Optimization; Econometric Modeling; Microsimulation

TECHNICAL SKILLS

Programing Languages	Python, Stata, SAS, R, SQL, Visual Basic, Some MATLAB
Programing Tools	Apache Spark, AWS, MapReduce, LaTeX, Git, SVN

EDUCATION

Masters of Science in Statistics   *Expected August 2015*
University of Chicago - Chicago, Illinois
Thesis: *Using Probabilistic Knockoffs of Binary Variables to Control the False Discovery Rate*
Selected Coursework: Machine Learning and Large-Scale Data Analysis, Bayesian Analysis, Nonparametric Inference, Convex Optimization, Mathematical Statistics, Generalized Linear Regression

Bachelor of Arts in Mathematics & History, Cum Laude   *June 2011*
Carleton College - Northfield, Minnesota
Distinction in the Math Major, Sigma Xi, Varsity Football & Track

SELECTED PROJECTS

- Used City of Chicago crime database to estimate weather's effect on citywide number of robberies.
    - ⋄ Implemented Kernel and Poisson regressions on hourly crime counts across three years in R.
    - ⋄ Models estimated change in robbery rate with temperature by hour and day of week.
- Employed Bayesian Latent Dirichlet Allocation model to categorize Wikipedia articles by topics.
    - ⋄ Utilized python Onlineldavb package to download and parse $12,800$ random articles and estimate topic posterior distributions.
    - ⋄ Using topic weighting as a low dimensional representation of each article, fit k-medians clustering to group similar articles.
- Built L2 regularized logistic regression model to predict sentiment across 1.5 million tweets.
    - ⋄ Parsed tweets into $4,000$ word/emoticon feature vector in parallel using pyspark.
    - ⋄ Fit model with stochastic gradient descent, choosing optimal parameters via cross validation.
- Created models to predict overall review score for RateBeer.com reviews based on description.
    - ⋄ Built feature vector of tf-idf statistics of hashed words over 3 million review corpus.
    - ⋄ Fit both random forest and gradient boosted trees using Spark MLLib on AWS.

PROFESSIONAL EXPERIENCE

Acumen, LLC Burlingame, CA
Policy Associate *August 2011 - August 2014*

- Worked with various federal agencies studying healthcare public policy and epidemiology.

- Preformed data mining and modeling on Medicare claims, enrollment, and provider datasets.

- Programed extensively in Stata and SAS, with additional work in several other languages.

- Project work included:

  ◇ *Market and Enrollment Projections of the Affordable Care Act*

    – Developed microsimulation model to estimate ACA's effect on each individual.

    – Employed series of probit regressions on person level variables to predict future enrollment.

    – Forecast federal budget implications, guiding $25 billion in federal spending.

  ◇ *Flu Vaccine Comparative Effectiveness*

    – Studying vaccine effectiveness inhibited by distinct populations receiving the vaccine, mismeasurment, and the variable latent infection risk.

    – Carefully designed comparable test and control cohort from Medicare enrollees.

    – Implemented and tested a number of regression models to account for remaining issues, including proportional hazard and measurement error models.

  ◇ *Financial Projections of Policy Reform*

    – Projected budget impact of Bipartisan Policy Center Medicare reform program.

    – Developed a log-normal mixture model to simulate beneficiary level expenditures.

    – Total net cost forecasts included in final report on the Domenici-Rivlin plan

  ◇ *Active Surveillance of Flu Vaccine Safety*

    – Tracked approximately 15 million yearly vaccinations in Medicare population for cases of Guillain-Barre syndrome.

    – Employed sequential probability test to signal when hazard was above historical levels as quickly as possible.

PUBLICATIONS

- W. Baird, A. Beveridge, A. Bonato, P. Codenotti, J. MacCauley, A. Maurer, S. Valeva, "On the minimal order of k-cop-win graphs", *Contributions to Discrete Mathematics*, Vol. 9, No. 1 (2014), pp. 1-15

- Hector Izurieta et al., "Comparative effectiveness of high-dose versus standard-dose influenza vaccines in US residents aged 65 years and older from 2012 to 2013 using Medicare data: a retrospective cohort analysis", *The Lancet*, Vol 15, No. 3 (2015), pp. 293-300

MISCELLANEOUS/PERSONAL

Erdos Number of 3; has or will soon visit all but 4 of continuous 48 states; expert on Byzantine military history; former member of International Brotherhood of Teamsters; avid board game player