AARON MAURER

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SUMMARY

Statistician and Data Scientist with a zeal for leveraging programing skills, theoretical knowledge, and practical knowledge 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

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

PROFESSIONAL EXPERIENCE

Acumen, LLC   Burlingame, CA
Policy Associate   *August 2011 - August 2014*
Worked closely with various federal agencies answering empirical questions using healthcare data.

- Preformed data mining on large Medicare and Medicaid enrollment and payment data sets.
- Built statistical and econometric models.
- Developed statistical graphics to visualize trends in data.
- Worked with clients to include subject specific knowledge in analysis and explicate results.
- Selected Projects include:
  - ⋄ *Market and Enrollment Projections of the Affordable Care Act*
    - Developed microsimulation model that calculated effects of the law on a person level basis.
    - Employed multiple regression models to impute insurance takeup in novel circumstances.
    - Predictions used to dictate allocation of $25 billion in federal spending.
  - ⋄ *Flu Vaccine Comparative Effectiveness*
    - Carefully designed a test and control sample to mitigate exogenous confounding factors.
    - Implemented and tested several regression models to measure effectiveness while controlling for other independent factors, varying hazard, and mis-measurement of outcome.
    - Results published in epidemiology journal.

◇ *Financial Projections of Policy Reform*

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

  – Developed model for beneficiary level expenditures under numerous policy changes.

  – Bottom line estimates included in final report on the Domenici-Rivlin plan

  ◇ *Active Surveillance of Flu Vaccine Safety*

  – Tracked approximately 15 million yearly vaccinations in Medicare population.

  – Provided FDA with an estimate of post vaccination hazard of Guillain-Barre syndrome.

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

The Institute for Mathematics and its Applications   Minneapolis, MN
Undergraduate Researcher   *June 2010 - July 2010*

Researched outstanding graph theoretic problems under mathematics and computer science professors.

- Proved novel results about pursuit evasion games.

  ◇ Gave talk on work at the Joint Mathematics Meeting.

- Helped program algorithm to classify graphs with respect to games of cops and robbers.

OTHER SELECTED PROJECTS

- Used City of Chicago crime database to estimate effect of weather on citywide robbery rate.

  ◇ Tested both kernel regression and generalized linear regression models.

- Employed Bayesian Dirichlet allocation model to categorize Wikipedia articles by topic.

  ◇ Fit k-medians clustering to group similar articles by subject based on sparse topic set.

- Predicted tweet sentiment with regularized logistic regression model fit with stochastic gradient descent.

- Predicted overall beer review score based on review text content with random forests and gradient boosted trees.

ANALYTIC AND PROGRAMMING SKILLS

Programing Languages	Python, Stata, SAS, R, SQL, S-PLUS, Visual Basic
Programing Tools	Apache Spark, Amazon AWS, MapReduce, LaTeX, Git, SVN
Operating Systems	Windows, Linux, Mac OS

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

Erdos Number of 3; has or will soon visit all but 4 of continuous 48 states; expert on Byzantine military history; former member of the Teamsters Union