

# AARON MAURER

1267 Page St, Apt F ♦ San Francisco, CA 94117

610 · 717 · 8858 ♦ ajmaurer89@gmail.com

[www.github.com/ajmaurer](http://www.github.com/ajmaurer)

## SUMMARY

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I am an experienced statistician and data scientist with a zeal for answering hard questions with big data. After spending three years analyzing huge Medicare data sets at Acumen LLC, I went back to get my Master's in statistics. Now I'm looking for a company that could use my help gaining insights and predictions from its data.

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

## TECHNICAL SKILLS

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<b>Programing Languages</b>	Python, Stata, SAS, R, SQL, Visual Basic, Some MATLAB
<b>Programing Tools</b>	Apache Spark, AWS EC2, MapReduce, L <sup>A</sup> T <sub>E</sub> X, Git, SVN

## EDUCATION

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**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

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**Acumen, LLC**

*Policy Associate*

Burlingame, CA

*August 2011 - August 2014*

- Provided analytical and programing expertise to federal agencies studying healthcare topics.
- Cleaned huge Medicare data sets, complied statistics, and built statistical models in Stata and SAS to provide prediction or inference for these studies.
- Worked with federal clients to develop analysis and explicate results; produced data visualization and documentation to assist client understanding.
- 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 presented difficulty due to distinct populations receiving the vaccine, outcome mismeasurment, and the variable latent infection risk.

- Carefully designed comparable test and control cohorts 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.

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## OTHER 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 on which to 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 EC2.

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## 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

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## 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