Sean Chang

CONTACT INFORMATION

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EDUCATION

Ph.D., Statistical Science; **Duke University**, Durham, NC — 2011-present
Field: Bayesian Statistical Learning. Advisor: Prof. Jim Berger
M.A., Mathematics **Duke University**, Durham, NC — 2011-2013
B.S., Mathematics, **National Taiwan University**, Taipei, Taiwan — 2006-2010

EXPERTISE

Machine Learning, Bayesian Statistics, Large Scale Data Mining, Markov Chain Monte Carlo
Python (NumPy, SciPy, Pandas, scikit-learn), Matlab, SQL, Slang, SecDB, Git, Linux
C++, R (Rcpp, Armadillo, ggplot2)

WORK EXPERIENCE

Summer Associate, **Goldman Sachs**, London, UK — 7-9/2014
- Created and implemented new methods modeling cross currency swap basis using currency forward.
- This work is now utilized for daily risk management in Goldman Sachs.

Data Scientist Intern, **Verisk Analytics**, San Francisco, CA — 5-7/2014
- Proposed a health care fraud detection algorithm based on reclassifying insurance providers' specialities using random forest. The reclassification algorithm improved the existing one by 10%.
- Visualized data and results with the data-driven JavaScript library *d3.js* and *impress.js*

Instructor, **Department of Mathematics, Duke University**, Durham, NC — Fall 2012
- Taught Single Variable Calculus and managed the work of teaching assistants.
- Received good course evaluations from students with overall score of 4.0/5.0.

RESEARCH AND PUBLICATIONS

Department of Statistical Science, Duke University, Durham, NC

- *Bayesian statistics*: Established Bayesian and Empirical Bayes procedures on false positive probability in the scenario of high dimensions multivariate normal distribution with arbitrary covariance dependence.

(With J. Berger) "Comparison of Bayesian and frequentist multiplicity correction under a scenario of data dependence". Poster in the 2014 ISBA international meeting. Submitted to *the Annals of Statistics*.

(With J. Berger) "Asympotic analysis of Bayesian model selection". In preparation.

(With J. Berger) "Nonparametric model selection analysis with Dirichlet process priors".

- *Clinical trials*: Examined efficacy of HIV vaccines and invented conditional frequentist procedures in sequential clinical trials.

(With J. Berger) "Bayesian multiple testing in sequential clinical trials". In revision.

- *Ecology*: Developed a novel MCMC algorithm which runs Bayesian logistic regression efficiently and performs dimensionality reduction among 25 species and 2 million sparse observations.

(With DB. Dunson, et.al) "Sparse factor model with the application in ecology". In preparation.

Statistical and Applied Mathematical Science Institute (SAMSI), Raleigh, NC — 8/2013
- Analyzed trends and incidence rates of sexually transmitted diseases in the US over the past thirteen years with Bayesian hierarchical model and spatial statistics.

(With A. Brouwer, et al.) "Burden of Chlamydia in the United States: Trend Analysis of Incidence Rates" Nineteenth Mathematical and Statistical Modeling Final Report, p.77-109. 2013.

AWARDS AND HONORS

Duke Reader Project, Duke University — 2013 Fall
Scholarship for Studying Abroad, Ministry of Education, Taiwan — 2011-2012
Dean's Award, National Taiwan University (top 10% of class) — 2009-2010

EXTRA-CURRICULAR ACTIVITIES

Educational outreach, Brogden Middle School, Durham, NC — 2014-present
Member of *International Society for Bayesian Analysis (ISBA)* — 2013-present
Statistical Science Journal Club, Duke University — 2013-2014
Varsity Table Tennis Team, National Taiwan University — 2006-2008