Sean Chang

CONTACT INFORMATION	Ph.D. Candidate Department of Statistical Science Duke University, Box 90251 Durham, NC 27708-0251	*Citizenship:* U.S. Permanent Resident *Mobile:* (609) 375-8415 *Email:* sean.chang@duke.edu *Website:* https://stat.duke.edu/~sc268

EDUCATION

Ph.D., Statistical Science; **Duke University**, Durham, NC — 2011-present
Field: Bayesian Statistics. 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, Statistics, Data Mining, Experimental Design, Markov Chain Monte Carlo
Python (NumPy, SciPy, Pandas, scikit-learn), C++, R (Rcpp, Armadillo, ggplot2), FBLearner
Hive, SQL, Presto, Slang, SecDB, Matlab, Git, Linux

WORK EXPERIENCE

Data Science Intern, **Facebook**, Menlo Park, CA — 6-8/2015
- Implemented a SVD-based recommendation system with Instagram like graph
- Analyzed A/B tests of cluster browsing and blended search; provided product insights
- Conducted cohort studies, competitive analysis and evaluated impacts of Instagram video filters

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.

Analytics Summer Researcher, **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 TAs, received 4.0/5.0 course evaluations.

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.

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

- *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.

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

AAAS/Science Program for Excellence in Science, Duke University	2015 Fall
National Collegiate Table Tennis Men's Consolation Singles, Quarter finals, Eau Claire, WI	2015 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 & Duke University	2006-2015