Sean Chang

CONTACT INFORMATION

Ph.D. Candidate
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EDUCATION

Ph.D., Statistical Science; **Duke University**, Durham, NC, U.S.A. Est. 2015
Field: Bayesian Statistics. Advisor: Prof. Jim Berger

M.A., Mathematics **Duke University**, Durham, NC, U.S.A. 2011-2013
Field: Probability. Qualifying exam committee: Prof. Richard Durrett

B.S., Mathematics, **National Taiwan University**, Taipei, Taiwan 2006-2010

EXPERTISE

Statistics: Machine Learning, Data Mining, Bayesian Nonparametrics, Markov Chain Monte Carlo.
Mathematics: Stochastic Processes, Probability Theory, Option pricing, Stochastic Calculus.
Programming: Python, C++, Java, Matlab, R, SQL, Scalding, Linux, LaTeX

WORK EXPERIENCE

Summer Associate, **Goldman Sachs**, London, UK July-Sep, 2014
- Responsible for developing models for appropriate measures of market risk.

Data Scientist Intern, **Verisk Analytics**, San Francisco, CA May-July, 2014
- Proposed a modified random forests algorithm for classifying insurance providers' specialities, improved existing predication rates by 10 percent. This work will be extended to health care fraud detection.
- Visualized data and results with the data-driven JavaScript library *d3.js* and *ggplot2* in R.

Instructor, **Department of Mathematics, Duke University**, Durham, NC Fall 2012
- Taught Calculus (Math 111L) and managed the work of teaching assistants.
- Received good course evaluations 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". Submitted to *the Annals of Statistics*; presented poster in the 2014 ISBA international meeting.

- *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 Aug, 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
SAS Statistics Fellow, SAS Institute Inc. (offered but declined) 2014 May

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