

SONG WANG

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EDUCATION

University of Wisconsin - Madison (3.98/4.0)

Sept 2012 - Present

Ph.D in Statistics (expected May 2017), M.S. in Statistics (May 2015)

M.S. in Computer Science (Dec 2015)

Nanjing University (core GPA 4.8/5.0)

Sept 2008 - Jun 2012

B.S. in Mathematics, ranked 1/130, (Jun 2012)

B.A. in Economics (Jun 2012)

RESEARCH EXPERIENCE

Research: Spectral Clustering to Discover Communities in Networks

Feb 2014 - now

Advisor: Dr. Karl Rohe

Madison, WI

- Proposed algorithms to discover mixed memberships in networks. Analyzing their consistency under some probabilistic random network models.
- Proposed a new network model allowing more edge dependence, thus allowing more small structures like triangles. Analyzing the performance of spectral clustering algorithm under this more realistic model.
- Explored various social networks including Youtube datasets, Facebook datasets etc. to learn about their network properties such degree, centrality. Fitted different random graph models to the datasets to make inferences, and compared the performances of different algorithms to detect communities.

Student Internship @ American Family Insurance

May - Aug 2015

Mentor: Dr. Glenn M. Fung

Madison, WI

- Applied variants of spectral clustering to mine unstructured claim texts to do topics discovery and found some interesting clusters, provided new useful features for the classification problem; Implemented using python and R.
- Researched and further developed SVM-based Multiple instance learning algorithms to build novel type of classifiers, which was intended to improve accuracy of existent classifiers built by the team; Implemented with R and Matlab.
- Experienced the whole working pipeline as a Data Scientist, from data acquisition, to data cleansing and data modeling, to report and interpretation.

Project Assistant: Projects related to Kernel Methods and eCommerce

Jun - Aug 2013

Mentors: Dr. Peter Qian, Dr. Qing Liu

Madison, WI

- Detected effects of singularity issue of kernel method in the setting with huge amount of observations through extensive simulations and real data, and explored some potential solutions to this problem.
- Did extensive analysis on a big, messy comScore online shopping dataset with another student. Built a GLM model with mixed effects models to learn about customers' shopping behaviors.

Teaching Experience

- Preparing revision questions and handouts for discussion. Leading discussions for both undergraduate and graduate students, as well as answering questions from the students.

PROGRAMMING SKILLS AND COURSES

Programming

(Proficient) R, Python, Java, C++, Matlab

(Familiar) SQL, SAS, Hadoop, Spark, Linux Commands

Relevant Courses

Machine Learning, Database Management, Algorithm, Nonlinear Optimization
Probability and Statistics, Stochastic Processes, High-Dimension Statistics
Linear and Mixed Effects Model, Monte Carlo Methods, Multivariate Analysis.
Social Network Analysis etc

AWARDS AND HONORS

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| - Passing PhD Qualify exam in 2012 winter, one semester earlier than my peers | 2012 |
| - Chinese Academy of Science Scholarship – Award for Academic Excellence | 2011 |
| - China National Encouragement Scholarship – Award for excellent students Nationwide | 2010 |
| - China National Scholarship – Awarded to top students Nationwide | 2009 |
| - Second Prize in National High School Olympiad Contest in Math (China) | 2008 |

OTHER DATA ANALYSIS EXPERIENCES

- Applied machine learning and statistical methods to predictive modeling during Kaggle real data competitions, about Walmart sales and caterpillar pricing;
- Implemented various algorithms like decision tree, Bayesian network classifier, neural network, and applied those algorithms in real project during taking AI and Machine Learning Courses;
- Applied network analysis and visualization skills to Modeling the relationship between Medicare Payment and Physician Referral Network when taking a Network Science Course;
- Analyzed and modeled various real problems using statistical tools like linear mixed effects model and knowledge of experimental designs etc., and wrote formal reports during taking Statistics MS exam.
- etc.

OTHER - MISCELLANEOUS

- GRE Verbal 610/800, Math 800/800 (2011)
- Math Subject 99% (2011)