

# Shusen Wang

Postdoctoral Scholar, Department of Statistics, UC Berkeley

Phone: (510)229-0382

Email: shusen@berkeley.edu

## Research

Machine learning, matrix computation, randomized linear algebra, convex optimization.

## Education

**2011-2016**      **Doctor of Engineering;** Zhejiang University (Hangzhou, China)

*Major: Computer Science*

*Advisor: Zihua Zhang*

*Thesis: Large-Scale Machine Learning: A Randomized Approach and Theoretical Analysis*

**2007-2011**      **Bachelor of Engineering;** Zhejiang University (Hangzhou, China)

*Major: Computer Science*

## Work Experience

**2016-Now**      **Postdoctoral Scholar;** Department of Statistics, UC Berkeley (Berkeley, CA, USA)

*Advisor: Michael W. Mahoney*

*Research: randomized linear algebra and implementation*

**2014-2015**      **Research Intern;** Baidu Big Data Lab (Beijing, China)

*Mentor: Tong Zhang*

*Research: optimization algorithms*

**2012**      **Research Intern;** Google Research (Beijing, China)

*Research: randomized algorithms*

**2011-2012**      **Intern;** Microsoft Research Asia (Beijing, China)

*Advisor: Haixun Wang and Yangqiu Song*

*Project: probabilistic knowledge base*

## Academic Service

- **Journal Reviewer**

- Journal of Machine Learning Research 2015, 2016, 2017

- **Conference Reviewer or Committee Member**

- NIPS 2014, 2015

- ICML 2017

- IJCAI 2015, 2017
- AAAI 2016

## Selected Honors & Awards

- 2014**            **Baidu Scholarship**, awarded to 8 Chinese students in the world, US\$30,000
- 2013**            **Microsoft Research Asia Fellow**, awarded to 10 students in Asia Pacific, US\$10,000
- 2012**            **Scholarship Award for Excellent Doctoral Student Granted by Ministry of Education**, US\$5,000
- 2012-2014**      **National Scholarship for Graduate Students**, 3 times, each time US\$5,000

## Recorded Talks

- Sketched Ridge Regression: Optimization and Statistical Perspectives. *SIAM Computational Science and Engineering*, 2017. [\[slides\]](#) [\[video\]](#)
- Efficient Algorithms and Error Analysis for the Modified Nystrom Method. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2014. [\[slides\]](#) [\[video\]](#)

## Journal Papers

- **Towards More Efficient SPSD Matrix Approximation and CUR Matrix Decomposition.** Shusen Wang, Zihua Zhang, and Tong Zhang. *Journal of Machine Learning Research*, 17(210):1–49, 2016. (**JMLR** 2016).
- **SPSD Matrix Approximation via Column Selection: Theories, Algorithms, and Extensions.** Shusen Wang, Luo Luo, and Zihua Zhang. *Journal of Machine Learning Research*, 17(49):1–49, 2016. (**JMLR** 2016).
- **Improving CUR Matrix Decomposition and the Nystrom Approximation via Adaptive Sampling.** Shusen Wang and Zihua Zhang. *Journal of Machine Learning Research*, 14: 2729–2769, 2013. (**JMLR** 2013).
- **EP-GIG Priors and Applications in Bayesian Sparse Learning.** Zihua Zhang, Shusen Wang, Dehua Liu, and Michael I. Jordan. *Journal of Machine Learning Research*, 13: 2031–2061, 2012. (**JMLR** 2012).

## Conference Papers

- **Open Domain Short Text Conceptualization: A Generative + Descriptive Modeling Approach.** Yangqiu Song, Shusen Wang, and Haixun Wang. In *International Joint Conference on Artificial Intelligence*, 2015. (**IJCAI** 2015).
- **Improving the Modified Nystrom Method Using Spectral Shifting.** Shusen Wang, Chao Zhang, Hui Qian, and Zihua Zhang. In *the 20th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, 2014. (**KDD** 2014).
- **Efficient Algorithms and Error Analysis for the Modified Nystrom Method.** Shusen Wang and Zihua Zhang. In *Proceedings of the 17th International Conference on Artificial Intelligence and Statistics, JMLR W&CP*, 2014. (**AISTATS** 2014).

- **Making Fisher Discriminant Analysis Scalable.** Bojun Tu, Zhihua Zhang, **Shusen Wang**, and Hui Qian. In *the International Conference on Machine Learning*. (**ICML** 2014).
- **Exact Subspace Clustering in Linear Time.** **Shusen Wang**, Bojun Tu, Congfu Xu, and Zhihua Zhang. In *the 28th AAAI Conference on Artificial Intelligence*. (**AAAI** 2014).
- **Using The Matrix Ridge Approximation to Speedup Determinantal Point Processes Sampling Algorithms.** **Shusen Wang**, Chao Zhang, Hui Qian, and Zhihua Zhang. In *the 28th AAAI Conference on Artificial Intelligence*. (**AAAI** 2014).
- **Transfer Understanding from Head Queries to Tail Queries.** Yangqiu Song, Haixun Wang, Weizhu Chen, and **Shusen Wang**. In *the 23rd ACM International Conference on Information and Knowledge Management*. (**CIKM** 2014).
- **Nonconvex Relaxation Approaches to Robust Matrix Recovery.** **Shusen Wang**, Dehua Liu, and Zhihua Zhang. In *International Joint Conference on Artificial Intelligence*. (**IJCAI** 2013).
- **A Scalable CUR Matrix Decomposition Algorithm: Lower Time Complexity and Tighter Bound.** **Shusen Wang** and Zhihua Zhang. In *Advances in Neural Information Processing Systems 25*. (**NIPS** 2012).
- **Colorization by Matrix Completion.** **Shusen Wang** and Zhihua Zhang. In *the 26th AAAI Conference on Artificial Intelligence*. (**AAAI** 2012).
- **Efficient Subspace Segmentation via Quadratic Programming.** **Shusen Wang**, Xiaotong Yuan, Tiansheng Yao, Shuicheng Yan, and Jialie Shen. In *the 25th AAAI Conference on Artificial Intelligence*. (**AAAI** 2011).