

Shusen Wang

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Postdoctoral Scholar, Department of Statistics, UC Berkeley

Research

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

Education

- 2011-2016** **Doctor of Engineering**; Zhejiang University (Hangzhou, China)
Major: Computer Science
Advisor: Zhihua 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 SPSP Matrix Approximation and CUR Matrix Decomposition.** Shusen Wang, Zhihua Zhang, and Tong Zhang. *Journal of Machine Learning Research*, 17(210):1–49, 2016. (**JMLR** 2016).
- **SPSP Matrix Approximation via Column Selection: Theories, Algorithms, and Extensions.** Shusen Wang, Luo Luo, and Zhihua 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 Zhihua Zhang. *Journal of Machine Learning Research*, 14: 2729-2769, 2013. (**JMLR** 2013).
- **EP-GIG Priors and Applications in Bayesian Sparse Learning.** Zhihua 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 Zhihua 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 Zhihua 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).