

Jiyan Yang

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Research Interests

Randomized linear algebra, large-scale optimization and machine learning.

Education

Sept 2011 - Sept 2016 MS, PhD, Computational & Mathematical Engineering, Stanford University
Committee: Michael Saunders, Michael Mahoney and Christopher Ré
Sept 2007 - Jun 2011 BS, Mathematics & Applied Mathematics, Nanjing University

Work Experience

Oct 2016 - present Facebook, Menlo Park, CA
Research scientist
Oct 2013 - Oct 2015 Lawrence Berkeley National Laboratory, Berkeley, CA
External Research Collaborator
Jun 2015 - Sept 2015 JP Morgan Chase & Co, San Francisco, CA
Modeling & Analytics Intern
Jun 2014 - Sept 2014 eBay Research Labs, San Jose, CA
Research Intern
Jun 2013 - Sept 2013 IBM TJ Watson Research Center, Yorktown Heights, NY
Research Intern

Publications

Journal Papers

- [1] J. Yang, X. Meng, and M. W. Mahoney. Implementing randomized matrix algorithms in parallel and distributed environments. *Proc. IEEE*, 104(1):58–92, 2016.
- [2] H. Avron, V. Sindhvani, J. Yang, and M. W. Mahoney. Quasi-monte carlo feature maps for shift-invariant kernels. *J. Mach. Learn. Res.*, 17(120):1–38, 2016.
- [3] J. Qin, Y. Chow, J. Yang, and R. Rajagopal. Online modified greedy algorithm for storage control under uncertainty. *IEEE Trans. Power Syst.*, 31(3):1729–1743, 2016.
- [4] J. Qin, Y. Chow, J. Yang, and R. Rajagopal. Distributed online modified greedy algorithm for networked storage operation under uncertainty. *IEEE Trans. Smart Grid*, 7(2):1106–1118, 2016.
- [5] J. Yang, O. Rübel, Prabhat, M. W. Mahoney, and B. P. Bowen. Identifying important ions and positions in mass spectrometry imaging data using CUR matrix decompositions. *Anal. Chem.*, 87(9):4658–4666, 2015.

- [6] J. Yang, X. Meng, and M. W. Mahoney. Quantile regression for large-scale applications. *SIAM J. Sci. Comput.*, 36(5):S78–S110, 2014.

Conference Papers

- [1] J. Yang, M. W. Mahoney, M. Saunders, and Y. Sun. Feature-distributed sparse regression: a screen-and-clean approach. In *Neural Information Processing Systems (NIPS)*, 2016.
- [2] P. Xu, J. Yang, F. Roosta-Khorasani, C. Ré, and M. W. Mahoney. Sub-sampled Newton methods with non-uniform sampling. In *Neural Information Processing Systems (NIPS)*, 2016.
- [3] A. Gittens, A. Devarakonda, E. Racah, M. F. Ringenbunrg, L. Gerhardt, J. Kottalam, J. Liu, K. Maschhoff, S. Canon, J. Chhugani, P. Sharma, J. Yang, J. Demmel, J. Harrell, V. Krishnamurthy, M. W. Mahoney, and Prabhat. Matrix factorizations at scale: a comparison of Spark and MPI using three case studies in scientific data analysis. In *International Conference on Big Data (BigData)*, 2016.
- [4] J. Yang, Y. Chow, C. Ré, and M. W. Mahoney. Weighted SGD for ℓ_p regression with randomized preconditioning. In *Symposium on Discrete Algorithms (SODA)*, 2016.
- [5] J. Yang, V. Sindhwani, Q. Fan, H. Avron, and M. W. Mahoney. Random Laplace feature maps for semigroup kernels on histograms. In *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014.
- [6] J. Yang, V. Sindhwani, H. Avron, and M. W. Mahoney. Quasi-monte carlo feature maps for shift-invariant kernels. In *International Conference on Machine Learning (ICML)*, 2014.
- [7] J. Qin, Y. Chow, J. Yang, and R. Rajagopal. Modeling and online control of generalized energy storage networks. In *International Conference on Future Energy Systems (e-Energy)*, 2014.
- [8] J. Yang, X. Meng, and M. W. Mahoney. Quantile regression for large-scale applications. In *International Conference on Machine Learning (ICML)*, 2013.

Other Papers

- [1] A. Gittens, J. Kottalam, J. Yang, M. F. Ringenbunrg, J. Chhugani, E. Racah, M. Singh, Y. Yao, C. Fischer, O. RÅijbel, B. Bowen, N. G. Lewis, M. W. Mahoney, V. Krishnamurthy, and Prabhat. A multi-platform evaluation of the randomized CX low-rank matrix factorization in Spark. In *International Workshop on Parallel and Distributed Computing for Large Scale Machine Learning and Big Data Analytics (ParLearning), at IPDPS*, 2016.
- [2] J. Yang and A. Gittens. Tensor machines for learning target-specific polynomial features. *arXiv preprint arXiv:1504.01697*, 2015.

Software

The codes I have written are available at <https://github.com/chocjy>.

Randomized LS Solvers, *Spark implementation for RANDOMIZED SOLVERS FOR LARGE-SCALE LEAST-SQUARES PROBLEMS*, <https://github.com/chocjy/randomized-LS-solvers>.

Randomized Quantile Regression Solvers, *Hadoop implementation for RANDOMIZED SOLVERS FOR LARGE-SCALE QUANTILE REGRESSION PROBLEMS*, <https://github.com/chocjy/randomized-quantile-regression-solvers>.

Tensor Machines, *Matlab package for TENSOR MACHINES FOR LEARNING TARGET-SPECIFIC POLYNOMIAL FEATURES*, <https://github.com/chocjy/tensor-machines>.

QMC features, *Matlab implementation for QUASI-MONTE CARLO FEATURE MAPS*, <https://github.com/chocjy/QMC-features>.

Presentations

Sub-sampled Newton methods with non-uniform sampling.

IAS/PCMI Research Program, Midway, UT, Jul 2016.

Weighted SGD for ℓ_p regression with randomized preconditioning.

SODA, Arlington, VA, Jan 2016.

ICSI Research Review, Berkeley, CA, Oct 2015.

Implementing Randomized Matrix Algorithms in Parallel and Distributed Environments.

INFORMS, Philadelphia, PA, Nov 2015.

Berkeley SysML Seminar, Berkeley, CA, Apr 2015.

ICME Departmental Seminar, Stanford, CA, Feb 2015.

Quasi-Monte Carlo Feature Maps for Shift-Invariant Kernels.

ICML, Beijing, China, Jun 2014.

Quantile Regression for Large-scale Applications.

ICML, Atlanta, GA, Jun 2013.

Skills

Programming/Applications	Proficient in Python, C++, MATLAB, Hadoop, Spark, \LaTeX
Operating Systems	Experience with R, Scala, OpenMP, MPI, CUDA, ElasticSearch
Languages	Windows, OS X, Linux Mandarin (native), Cantonese (native), English (fluent)

Referees

Available upon request.