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427 Hill Center, Department of Computer Science

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## Education

Ph.D.	Stanford University	in Statistics (2007, Advisor: Trevor Hastie)
M.S.	Stanford University	in Electrical Engineering
M.S.	Stanford University	in Computer Science
M.S.	University of Washington	in Applied Mathematics
B.Engr.	National Univ. of Defense Technology	in Computer Engineering & Application

## Appointments

Since July 2013	Rutgers University, Associate Professor. Tenured effective July 2013 Department of Statistics and Biostatistics (51%), Department of Computer Science (49%)
2007-2013	Cornell University, Assistant Professor. (Official tenure-track contract for 2007-2015) Department of Statistical Science, Faculty of Computing and Information Science Graduate Field Members in Computer Science, Statistics, and ORIE
2006 Summer	Research Intern, Microsoft Research, Redmond, WA
2005 Summer	Research Intern, Microsoft Research, Redmond, WA
2004 Summer	Research Intern, Microsoft Research, Redmond, WA
2003 Summer	Software Design Engineer Intern, Microsoft, Redmond, WA
2002 Summer	Software Development Engineer Intern, Realnetworks, Seattle, WA
2001 - 2003	Research Assistant, Stanford 3D Imaging Lab in Department of Radiology

## Research Interests

Large-scale Machine Learning and Search. Big Data Algorithms

## Awards and Honors

2013	Air Force Office of Scientific Research (AFOSR) Young Investigator Award
2009	Office of Naval Research (ONR) Young Investigator Award
2014	Best Paper Award in NIPS 2014
2014	Best Paper Award in ASONAM 2014
2011	Invited Research Highlight Article in Communications of the ACM (CACM)
2006	SIGKDD 2006 Best Student Paper Award
2011	Microsoft Research Award Certificate
2010	Prize in Yahoo! Learning to Rank Grand Challenge
2008	Google Faculty Research Award
2007	Microsoft Faculty Research Award

## Grants

2007	Cornell CIS New Faculty Startup Package	\$50K
2012	Yahoo! Donation to Cornell Statistics Seminar	\$5K (Coordinator)
2013	Yahoo! Donation to Cornell Statistics Seminar	\$5K (Coordinator)
2007	Microsoft Unrestricted Gift	\$65K (Sole PI)
2008	Google Unrestricted Gift	\$65K (Sole PI)
2009 - 2012	ONR – YIP	\$550K (Sole PI)
2009 - 2011	Microsoft	\$320K (Sole PI)
2011 - 2012	DARPA	\$70K (Cornell PI. Project lead by UCLA)
2013	ONR	\$68K (Sole PI)
2008 - 2014	NSF – DMS	\$443K (Sole PI)
2011 - 2016	NSF – SES	\$540K (Co-PI. Total project 3M)
2012 - 2014	NSF – EAGER	\$100K (Sole PI)
2014 - 2015	NSF – DMS	\$104K (Sole PI)
2013 - 2015	ONR	\$417K (Sole PI)
2013 - 2016	AFOSR-YIP	\$360K (Sole PI)
2013 - 2016	NSF – BigData	\$462K (Sole PI)
2013 - 2016	NSF – III	\$475K (Sole PI)
2013 - 2014	Yahoo! Donation to Rutgers BigData Seminar	\$6K (Coordinator)
2014 - 2015	Yahoo! Donation to Rutgers BigData Seminar	\$6K (Coordinator)
2014 - 2015	Yahoo! Donation to Rutgers Statistics Seminar	\$6K (Coordinator)
2015 - 2016	Yahoo! Donation to Rutgers Statistics Seminar	\$6K (Coordinator)

## Current Group Members

1	Jun Hu	Ph.D. student in CS	Thesis advisee and GRA
2	Jie Shen	Ph.D. student in CS	Thesis advisee and GRA
3	Ji Zhang	Ph.D. student in CS	Academic advisee, rotation student, and partial GRA
4	Jing Wang	Postdoc	
5	Martin Slawski	Postdoc	to start a tenure-track position in August 2016
6	Armin Eftekhari	Postdoc	to start a research position in Oct 2016

## Former Students and Postdocs

1	Anshumali Shrivastava	Assistant Professor, Rice University, Dept of Computer Science
2	Xiao-tong Yuan	Professor, Nanjing University of Information Science & Technology
3	Guangcan Liu	Professor, Nanjing University of Information Science & Technology
4	Jian Wang	Professor, Nanjing University of Information Science & Technology
5	Xun Sun	Associate Professor, Peking University, Dept of Computer Science
6	Radhendushka Srivastava	Assistant Professor, Indian Institute of Technology, Dept of Math
7	Wenhao Gui	Assistant professor, Univ of Minnesota Duluth, Dept of Math and Stat
8	Tung-Lung Wu	Assistant Professor, Mississippi State Univ, Dept of Math and Stat
9	Fei Wang	Associate Professor, Univ of Connecticut, Dept of Computer Science
10	Zuofeng Shang	Assistant Professor, Binghamton University, Dept of Math

## Publications

\* indicates a co-author is my Ph.D. student, graduate research assistant, or postdoc researcher.

### Publications in 2016

1. Jie Shen\*, **Ping Li**, and Huan Xu, *Online Low-Rank Subspace Clustering by Basis Dictionary Pursuit*, to appear in International Conference on Machine Learning (ICML), 2016
2. **Ping Li**, *One Scan 1-Bit Compressed Sensing*, in International Conference on Artificial Intelligence and Statistics (AISTATS), 2016
3. Jie Shen\* and **Ping Li**, *Learning Structured Low-Rank Representation via Matrix Factorization*, in International Conference on Artificial Intelligence and Statistics (AISTATS), 2016

### Publications in 2015

1. Martin Slawski\* and **Ping Li**, *b-Bit Marginal Regression*, Neural Information Processing Systems (NIPS), 2015
2. Martin Slawski\*, **Ping Li**, and Matthias Hein, *Regularization-free estimation in trace regression with positive definite matrices*, Neural Information Processing Systems (NIPS), 2015
3. **Ping Li**, *0-Bit Consistent Weighted Sampling*, Knowledge Discovery and Data Mining (KDD), 2015
4. **Ping Li** and Cun-Hui Zhang, *Compressed Sensing with Very Sparse Gaussian Random Projections*, International Conference on Artificial Intelligence and Statistics (AISTATS), 2015
5. Anshumali Shrivastava\* and **Ping Li**, *Improved Asymmetric Locality Sensitive Hashing (ALSH) for Maximum Inner Product Search (MIPS)*, Uncertainty in Artificial Intelligence (UAI) 2015.
6. Anshumali Shrivastava\* and **Ping Li**, *Asymmetric Minwise Hashing for Indexing Binary Inner Products and Set Containment*, International World Wide Web Conference (WWW) 2015.
7. Radheshushka Srivastava\*, **Ping Li**, and David Ruppert, *RAPT: An Exact Two-Sample Test in High Dimensions Using Random Projections*, Journal of Computational and Graphical Statistics (JCGS), 2015
8. Jinhua Ma\*, Pong Yuen, Jiawei Li, and **Ping Li**, *Cross-Domain Person Reidentification Using Domain Adaptation Ranking SVMs*, IEEE Transactions on Image Processing (TIP), vol. 24, no. 5, pp. 1599-1613, 2015.
9. Jian Wang\*, Suhyuk Kwon, **Ping Li**, and Byonghyo Shim, *Recovery of Sparse Signals via Generalized Orthogonal Matching Pursuit: A New Analysis*, IEEE Trans. in Signal Processing (TSP), 2015.
10. Peilin Zhao, Jinwei Yang\*, Tong Zhang, and **Ping Li**, *Adaptive Stochastic Alternating Direction Method of Multipliers*, International Conference on Machine Learning (ICML), 2015

## Publications in 2014

\* indicates a co-author is my Ph.D. student, graduate research assistant, or postdoc researcher.

1. **Ping Li**, Cun-Hui Zhang, and Tong Zhang, *Compressed Counting Meets Compressed Sensing*, in Conference on Learning Theory (COLT), 2014
2. Anshumali Shrivastava\* and **Ping Li**, *Asymmetric LSH (ALSH) for Sublinear Time Maximum Inner Product Search (MIPS)*, Neural Information Processing Systems (NIPS), 2014
3. Guangcan Liu\* and **Ping Li**, *Recovery of Coherent Data via Low-Rank Dictionary Pursuit*, Neural Information Processing Systems (NIPS), 2014
4. Jie Shen\*, Huan Xu, and **Ping Li**, *Online Optimization for Max-Norm Regularization*, Neural Information Processing Systems (NIPS), 2014
5. **Ping Li**, Michael Mitzenmacher, and Anshumali Shrivastava\*, *Coding for Random Projections*, International Conference on Machine Learning (ICML), 2014
6. Anshumali Shrivastava\* and **Ping Li**, *Densifying One Permutation Hashing via Rotation for Fast Near Neighbor Search*, International Conference on Machine Learning (ICML), 2014
7. Xiao-tong Yuan\*, **Ping Li**, and Tong Zhang, *Gradient Hard Thresholding Pursuit for Sparsity-Constrained Optimization*, International Conference on Machine Learning (ICML), 2014
8. **Ping Li**, *CoRE Kernels*, Uncertainty in Artificial Intelligence (UAI), 2014
9. Anshumali Shrivastava\* and **Ping Li**, *Improved Densification of One Permutation Hashing*, Uncertainty in Artificial Intelligence (UAI), 2014
10. Anshumali Shrivastava\* and **Ping Li**, *In Defense of Minhash over Simhash*, International Conference on Artificial Intelligence and Statistics (AISTATS), 2014
11. Anshumali Shrivastava\* and **Ping Li**, *A New Space for Comparing Graphs*, IEEE/ACM International Conference on Advances in Social Network Analysis and Mining (ASONAM), 2014
12. Xiao-tong Yuan\* and **Ping Li**, *Sparse Additive Subspace Clustering*, European Conference on Computer Vision (ECCV), 2014
13. Jinhua Ma\* and **Ping Li**, *Semi-Supervised Ranking for Re-Identification with Few Labeled Image Pairs*, Asian Conference on Computer Vision (ACCV), 2014
14. Jinhua Ma\* and **Ping Li**, *Query Based Adaptive Re-Ranking for Person Re-Identification*, Asian Conference on Computer Vision (ACCV), 2014
15. Zuofeng Shang\* and **Ping Li**, *Bayesian ultrahigh-dimensional screening via MCMC*, Journal of Statistical Planning and Inference (JSPI), 2014
16. Zuofeng Shang\* and **Ping Li**, *High-Dimensional Bayesian Inference in Nonparametric Additive Models*, Electronic Journal of Statistics (EJS), 2014

### Publications in 2013

1. **Ping Li**, Gennady Samorodnitsky, and John Hopcroft, *Sign Cauchy Projections and Chi-Square Kernel*, Neural Information Processing Systems (NIPS), 2013
2. Anshumali Shrivastava\* and **Ping Li**, *Beyond Pairwise: Provably Fast Algorithms for Approximate  $k$ -Way Similarity Search*, Neural Information Processing Systems (NIPS), 2013
3. **Ping Li** and Cun-Hui Zhang *Exact Sparse Recovery with  $L_0$  Projections*, in Knowledge Discovery and Data Mining (KDD), 2013
4. **Ping Li**, Anshumali Shrivastava\*, and Christian König,  *$b$ -Bit Minwise Hashing in Practice*, Asia-Pacific Symposium on Internetware (Internetware), 2013

### Publications in 2012

1. **Ping Li**, Art Owen, and Cun-Hui Zhang, *One Permutation Hashing*, Neural Information Processing Systems (NIPS), 2012
2. **Ping Li** and Cun-Hui Zhang, *Entropy Estimations Using Correlated Symmetric Stable Random Projections*, Neural Information Processing Systems (NIPS), 2012
3. Anshumali Shrivastava\* and **Ping Li**, *Fast Near Neighbor Search In High-Dimensional Binary Data*, European Conference on Machine Learning (ECML), 2012
4. **Ping Li**, Anshumali Shrivastava\*, and Christian König, *GPU-Based Minwise Hashing*, International World Wide Web Conference Poster (WWW), 2012
5. Radheshushka Srivastava\*, **Ping Li**, and Debasis Sengupta, *Testing for Membership to the IFRA and the NBU Classes of Distributions*, AI & Statistics (AISTATS), 2012
6. Sun Xu\*, Anshumali Shrivastava\*, and **Ping Li**, *Query Spelling Correction Using Multi-task Learning*, International World Wide Web Conference Poster (WWW), 2012
7. Sun Xu\*, Anshumali Shrivastava\*, and **Ping Li**, *Fast Multi-task Learning for Query Spelling Correction*, ACM International Conference on Information and Knowledge Management (CIKM), 2012
8. [Invited] Fei Wang\*, **Ping Li**, Christian König, and Muting Wan\* *Improving Clustering by Learning a Bi-Stochastic Data Similarity Matrix*, in Knowledge and Information Systems, 32(2), 2012

### Publications in 2011

1. **Ping Li** and Cun-Hui Zhang *A New Algorithm for Compressed Counting with Applications in Shannon Entropy Estimation in Dynamic Data*, Conference on Learning Theory (COLT), 2011
2. **Ping Li**, Anshumali Shrivastava\*, Joshua Moore\*, and Christian König, *Hashing Algorithms for Large-Scale Learning*, Neural Information Processing Systems (NIPS), 2011
3. [Invited] **Ping Li** and Christian König *Theory and Applications of  $b$ -Bit Minwise Hashing*, Research Highlight Article in Communications of the ACM, 54 (August), 2011

4. Chenhao Tan\*, Lillian Lee, Jie Tang, Long Jiang, Ming Zhou, and **Ping Li** *User-level sentiment analysis incorporating social networks*, in Knowledge Discovery and Data Mining (KDD), 2011
5. Haiquan Zhao, Nan Hua, Ashwin Lall, **Ping Li**, Jia Wang, and Jun Xu *Towards a Universal Sketch for Origin-Destination Network Measurement*, The International Conference on Network and Parallel Computing (NPC), 2011
6. Fei Wang\*, Chenhao Tan\*, Christian König and **Ping Li** *Online Nonnegative Matrix Factorization for Document Clustering*, SIAM Conference on Data Mining (SDM), 2011
7. Xu Sun\*, Hisashi Kashima, Ryota Tomioka, Naonori Ueda, **Ping Li**, *A New Multi-task Learning Method for Personalized Activity Recognition*, IEEE International Conference on Data Mining (ICDM), 2011

### Publications in 2010

1. **Ping Li**, Christian König, and Wenhao Gui\*, *b-Bit Minwise Hashing for Estimating Three-Way Similarities*, Neural Information Processing Systems (NIPS), 2010
2. **Ping Li**, *Robust LogitBoost and Adaptive Base Class (ABC) LogitBoost*, Uncertainty in Artificial Intelligence (UAI), 2010
3. **Ping Li**, Michael Mahoney, and Yiyuan She *Approximating Higher-Order Distances Using Random Projections*, Uncertainty in Artificial Intelligence (UAI), 2010
4. **Ping Li** and Christian König, *b-Bit Minwise Hashing*, International World Wide Web Conference (WWW), 2010
5. Fei Wang\* and **Ping Li**, *Efficient Nonnegative Matrix Factorization with Random Projections*, SIAM Conference on Data Mining (SDM), 2010
6. Fei Wang\*, **Ping Li**, and Christian König *Learning a Bi-Stochastic Data Similarity Matrix*, IEEE International Conference on Data Mining (ICDM), 2010
7. Fei Wang\* and **Ping Li**, *Compressed Non-Negative Sparse Coding*, IEEE International Conference on Data Mining (ICDM), 2010

### Publications in 2009

1. **Ping Li**, *ABC-Boost: Adaptive Base Class Boost for Multi-Class Classification*, International Conference on Machine Learning (ICML), 2009
2. **Ping Li**, *Improving Compressed Counting*, Uncertainty in Artificial Intelligence (UAI), 2009
3. **Ping Li**, *Compressed Counting*, ACM-SIAM Symposium on Discrete Algorithms (SODA), 2009

### Publications in 2008

1. **Ping Li**, Kenneth Church, and Trevor Hastie, *One Sketch for All: Theory and Applications of Conditional Random Sampling*, Neural Information Processing Systems (NIPS), 2008

2. **Ping Li**, *Estimators and Tail Bounds for Dimension Reduction in  $l_\alpha$  ( $0 < \alpha \leq 2$ ) Using Stable Random Projections*, ACM-SIAM Symposium on Discrete Algorithms (SODA), 2008
3. **Ping Li**, *Computationally Efficient Estimators for Dimension Reductions Using Stable Random Projections*, IEEE International Conference on Data Mining (ICDM), 2008

### Publications in 2007

1. **Ping Li**, Trevor Hastie, and Kenneth Church, *Nonlinear Estimators and Tail Bounds for Dimension Reduction in  $L1$  Using Cauchy Random Projections*, Conference on Learning Theory (COLT), 2007
2. **Ping Li**, Chris Burges, and Qiang Wu, *McRank: Learning to Rank Using Multiple Classification and Gradient Boosting*, Neural Information Processing Systems (NIPS), 2007
3. **Ping Li** and Trevor Hastie, *A Unified Near-Optimal Estimator For Dimension Reduction in  $l_\alpha$  ( $0 < \alpha \leq 2$ ) Using Stable Random Projections*, Neural Information Processing Systems (NIPS), 2007
4. **Ping Li**, *Very Sparse Stable Random Projections For Dimension Reduction in  $l_\alpha$  ( $0 < \alpha \leq 2$ ) Norm*, ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2007
5. **Ping Li** and Kenneth Church, *A Sketch Algorithm for Estimating Two-way and Multi-way Associations*, Computational Linguistics, 33(3), 305-354, 2007
6. **Ping Li**, Trevor Hastie, and Kenneth Church, *Nonlinear Estimators and Tail Bounds for Dimension Reduction in  $L1$  Using Cauchy Random Projections*, Journal of Machine Learning Research, 2007

### Publications in 2006 and Earlier

1. **Ping Li**, Kenneth Church, and Trevor Hastie, *Conditional Random Sampling: A Sketch-based Sampling Technique for Sparse Data*, Neural Information Processing Systems (NIPS), 2006
2. **Ping Li**, Debashis Paul, Ravi Narasimhan, and John Cioffi, *On the Distribution of SINR for the MMSE MIMO Receiver and Performance Analysis*, IEEE Transactions on Information Theory, 52:1, 271-286, 2006.
3. **Ping Li**, Trevor Hastie, and Kenneth Church, *Improving Random Projections Using Marginal Information*, Conference on Learning Theory (COLT), 2006.
4. **Ping Li**, Trevor Hastie, and Kenneth Church, *Very Sparse Random Projections*, ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2006
5. **Ping Li** and Kenneth Church, *Using Sketches to Estimate Associations*, Human Language Technology / Empirical Method in Natural Language Processing (HLT/EMNLP), 2005
6. **Ping Li**, Sandy Napel, Burak Acar, David S. Paik, R. Brooke Jeffrey Jr and Christopher F. Beaulieu, *Registration of central paths and colonic polyps between supine and prone scans in computed tomography colonography: Pilot study*, Medical Physics, 31, 2912-2923, 2004.

## CS Conference Program Committees (PC, Senior PC, or Area Chair)

ICML 2016, AAAI 2016, AISTATS 2016, KDD 2016, IJCAI 2016, NIPS 2016, CIKM 2016, ICDM 2016

AISTATS 2015, WSDM 2015, ICML 2015, KDD 2015, NIPS 2015, ACML2015

ICML 2014, ICDM 2014, ACML 2014, ECML 2014, Bigdata 2014, NIPS 2014, EMNLP 2014

AISTATS 2013, ICML 2013, NIPS2013, IJCAI 2013, ICDM 2013, Bigdata 2013, ACML 2013, ECML 2013

NIPS 2012, ICML 2012 WSDM 2012, PAKDD 2012, ICPRAM 2012

NIPS 2011 ICML 2011, WSDM 2011, WWW 2011, SIGKDD 2011

NIPS 2010, SIGIR 2010, SIGKDD 2010, AISTATS 2010, ICML 2010, ICDM 2010

SIGIR 2009, NIPS 2009, CIKM 2009, ICDM 2009,

COLT 2008, SIGKDD 2008, CIKM 2008, NAACL-HLT 2008, SIGKDD 2007,

**Guest Editor:** Machine Learning Journal Special Issue for COLT 2008.

## University Seminars

- ASU (EE, CS), Binghamton (MATH), Boston (Stat), CMU (STAT), Columbia (STAT, BIO-STAT), Duke (CS), GMU (STAT), Indiana (CS), ISU (STAT), JHU (CS), Maryland (MATH), MIT (EECS), Michigan (STAT, IS), Minnesota (STAT), NCSU (STAT), NMSU (CS), Northwestern (STAT), NYU (CS), Ohio State (STAT), Oregon State (EECS), Pennsylvania (STAT), Pittsburgh (STAT), Princeton (STAT), Rice (STAT), Stanford (STAT), Syracuse (MATH), TAMU (STAT), Texas Austin (CS), TTI, Yale (STAT), UC Davis (STAT), UCI (STAT), UCLA (STAT), UCSD (CS), UIUC (STAT), UNC (STAT, BIOSTAT), USC (STAT), UVA (STAT), Univ. Washington (EE, STAT), Wisconsin (STAT).

## Selected Tutorials

- The CCF Advanced Disciplines Lectures, 2015
- IEEE Big Data Workshop on Advances in high dimensional big data, 2015
- International Conference on Intelligent Computing (ICIC2014), August, 2014
- 8th Semantic Web & Web Science Conference (CSWS2014), August, 2014
- Summer School & Mini-Workshop on Hashing, Copenhagen, Denmark, July 2014

## Selected Invited Talks in Conferences & Workshops

- Workshop on Statistics and Computational Interface to Big Data, Hong Kong, January 2015
- The Third International Conference on the Interface between Statistics and Engineering, Session on Big Data, Hong Kong, China, December 2014
- Workshop on Big Data Statistics, Shanghai, China, November, 2014
- The 2nd Workshop on Scalable Machine Learning: Theory and Applications, Washington DC, October 2014
- International Indian Statistical Association Conference, Session on Statistical Inference and Learning in High Dimension, Riverside, CA, July 2014



- BIRS Workshop on Statistical and Computational Theory and Methodology for Big Data Analysis, Banf, Canada, February 2014
- Simons Institute, Workshop on Succinct Data Representations and Applications, Berkeley, CA, September 2013
- ERCIM, Computational and Methodological Statistics, London, UK, December, 2013
- Modern Large Scale Statistical Learning Workshop, Manhattan Beach, LA, November, 2013
- IMS-China, Session on Nonsmooth Functional Estimation and Statistical Inference for High Dimensional Data, Chengdu, China, June 2013
- Master Lectures on Mathematics: The 3rd Conference of Tsinghua Sanya International Mathematics Forum, Sanya, China, January 2013
- Workshop on Algorithms for Modern Massive Data Sets (MMDS), Stanford, CA, July 2012
- SAMSI workshop on Interactive Visualization and Analysis of Massive Data, Research Triangle Park, NC, December 2012
- Informs Section on Advance in Modeling the Massive Data, Phoenix, AZ, October 2012
- Workshop on Algorithms for Modern Massive Data Sets (MMDS), Stanford, CA, July 2008
- The Eighth ICSA International Conference: Frontiers of Interdisciplinary and Methodological Statistical Research, Session on High Dimensional Learning and Estimation, Guangzhou, China, December 2010
- NIPS workshop on Visual Analytics, Whistler, Canada, December 2010
- DIMACS Workshop: Network Data Streaming and Compressive Sensing, Piscataway, NJ, October 2010
- Microsoft External Research Symposium, Redmond, WA, July 2010
- DIMACS Workshop: Streaming, Coding, and Compressive Sensing: Unifying Theory and Common Applications to Sparse Signal/Data Analysis and Processing, Piscataway, NJ, March 2009
- Workshop on Algorithms for Modern Massive Data Sets (MMDS), Stanford, CA, July 2008
- IMS/WNAR, Session on Sparsity in High-Dimensional Problems, Irvine, CA, June 2007
- Workshop on Algorithms for Modern Massive Data Sets (MMDS), Stanford, CA, July 2006