

Qinfeng (Javen) Shi

Senior Lecturer

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Research Interests

Machine Learning, Computer Vision

Publication Profile

- Edited 2 proceedings. Published 9 journal papers, and 28 referred conference papers, since 2007.
- 33 ERA [A/A*] papers, about 90% of my total.
- 14 CVPR papers published. CVPR is one of the top 2 computer vision conferences globally (along with ICCV).
- Over 1400 citations according to Google Scholar.
70 new citations in 2011, 116 in 2012, 186 in 2013, 299 in 2014, and 370 in 2015.

Grants Profile

Total Australian Research Council (ARC) funding amount: \$2,300,787.

Lead (1st) Chief Investigator (CI) (2 DPs, 1 DECRA): \$1,073,787.

Co-CI (3 LPs): \$1,227,000.

Honours

- ARC Discovery Early Career Researcher Award (awarded in Nov. 2011, funded for 2012 – 2014).
- Attended Prime Minister's Science Prizes dinner 2013.
It is an exclusive federal event by invitation only. About 300 researchers, scientists, university vice-chancellors, science teachers and industrial representatives from the entire nation attended. Prof Brian Schmidt (a Nobel Prize winner) and the PM Tony Abbott attended the event.
- Attended Prime Minister's Science Prizes dinner 2012.
It is an exclusive federal event by invitation only. About 300 researchers, scientists, and science teachers from the entire nation attended. Prof. Brian Schmidt and the PM Julia Gillard attended the event.

Grants

1. 2016-2019, ARC Discovery Project Grant, 1st CI
DP160100703, \$318,000, Probabilistic Graphical Models For Interventional Queries
2. 2014-2016, ARC Discovery Project Grant, 1st CI
DP140102270, \$380,787, Online Learning for Large Scale Structured Data in Complex Situations
3. 2014-2017, ARC Linkage Grant, 2rd CI
LP140100860, \$340,000, Sentient buildings
4. 2013-2016, ARC Linkage Grant, 4th CI
LP130100156, \$377,000, Semantic change detection through large-scale learning
5. 2012-2015, ARC Linkage Grant, 3rd CI
LP120200485, \$510,000, Scalable classification for massive datasets: randomized algorithms
6. 2012-2014, ARC DECRA fellowship, Sole CI
DE120101161, \$375,000, Compressive Sensing Based Probabilistic Graphical Models

In addition, I am a Chief Investigator in a recently granted Cooperative Research Centre (CRC) with total funding amount \$25 million (with Prof. Anton van den Hengel et al). I am also an Associated Investigator in a recently granted ARC Centre of Excellence (CoE) for Robotic Vision with total funding amount \$19 million (with Prof. Ian Reid et al).

Services

- 2014, *General Chair*, ECCV 2014 Workshop on Graphical Models in Computer Vision, Zurich, Switzerland. ECCV is one of the top three conferences in Computer Vision (along with CVPR, ICCV).
- 2013, *Program Chair*, ICCV 2013 Workshop on Inference for probabilistic graphical models (PGMs), Sydney, Australia. ICCV is one of the top two conferences in Computer Vision (along with CVPR).

Reviewer

- Reviewer/Accessor for Australian Research Council (ARC) for
 - ARC Discovery Project
 - ARC Future Fellowship
 - ARC Linkage Project
- Reviewer for top-tier venues including
 - Top journals: IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), J. of Machine Learning Research (JMLR), IEEE Trans. on Neural Networks and Learning Systems (TNNLS), and Pattern Recognition (PR).
 - Top conferences: Int. Conf. Computer Vision (ICCV), IEEE Conf. Comp. Vision and Pattern Recognition (CVPR), Neural Info. Processing Systems (NIPS), and Int. Conf. Machine Learning (ICML).

Publication List

Edited Proceedings

1. ICCV 2013 Workshop on Inference for probabilistic graphical models (PGMs), Qinfeng Shi, Chunhua Shen, Stephen Gould, Jason L. Williams, Tiberio Caetano, 2 December 2013, Sydney, Australia.

Refereed Journal Articles

2. Lei Zhang, Wei Wei, Yanning Zhang, Chunhua Shen, Anton van den Hengel and Qinfeng Shi, Dictionary Learning for Promoting Structured Sparsity in Hyperspectral Compressive Sensing, IEEE Transactions on Geoscience and Remote Sensing (TGARS), To Appear, 2016 ERA [A]
3. Ming Yin, Junbin Gao, Zhouchen Lin, Qinfeng Shi and Yi Guo, **Dual Graph Regularized Latent Low-rank Representation for Subspace Clustering**, IEEE Transactions on Image Processing, To Appear, 2015 ERA [A*]
4. Fumin Shen, Chunhua Shen, Qinfeng Shi, Anton van den Hengel, Zhenmin Tang, Heng Tao Shen, **Hashing on nonlinear manifolds**, IEEE Transactions on Image Processing, Accepted on 17 Feb. 2015. ERA [A*]
5. Hui Li, Chunhua Shen, Anton van den Hengel, Qinfeng Shi, **Worst-case linear discriminant analysis as scalable semidefinite feasibility problems**, IEEE Transactions on Image Processing, Accepted on 19 Jan. 2015. ERA [A*]
6. Qinfeng Shi, Mark Reid, Tiberio Caetano, Anton van den Hengel, and Zhenhua Wang, **A Hybrid Loss for Multiclass and Structured Prediction**, IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), 37(1): 2-12, 2015. ERA [A*]

7. Sakrapee Paisitkriangkrai, Chunhua Shen, Qinfeng Shi, Anton van den Hengel, **RandomBoost: Simplified Multiclass Boosting Through Randomization**, IEEE Transactions on Neural Networks and Learning Systems, Accepted on 28 Aug. 2013. ERA [A*]
8. Junbin Gao, Qinfeng Shi, Tiberio Caetano, **Dimensionality Reduction via Compressive Sensing**, Pattern Recognition Letters, 33 (9), 1163-1170, 2012. ERA [B]
9. Qinfeng Shi, Li Wang, Li Cheng and Alex Smola, **Discriminative Human Action Segmentation and Recognition using Semi-Markov Model**, (long version cutting plane v.s. Bundle Method), International Journal of Computer Vision, 93(1):22-32, 2011. ERA [A*]
10. Qinfeng Shi, James Petterson, Gideon Dror, John Langford, Alex Smola and Vishy Vishwanathan, **Hash Kernels for Structured Data**, Journal of Machine Learning Research, 10: 2615-2637, Nov. 2009. ERA [A]

Refereed Conference Papers Published in Full in the Proceedings

Note that ERA [A] is the highest ranking for conferences.

11. Lei Zhang, Wei Wei, Yanning Zhang, Chunhua Shen, Anton van den Hengel, Qinfeng Shi, **Cluster Sparsity Field for Hyperspectral Imagery Denoising**, European Conference on Computer Vision (ECCV 16), To Appear, 2016.
12. Wei Emma Zhang, Mingkui Tan, Quan Z. Sheng and Qinfeng Shi, **Efficient Orthogonal Non-negative Matrix Factorization over Stiefel Manifold**, ACM International Conference on Information and Knowledge Management (CIKM 2016), To Appear, 2016, Oral.
13. Zhen Zhang, Qinfeng Shi, Julian McAuley, Wei Wei, Yanning Zhang, Anton Van Den Hengel, **Pairwise Matching through Max-Weight Bipartite Belief Propagation**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 16), To Appear, 2016.
14. Seyed Hamid Rezatofighi, Anton Milan, Zhen Zhang, Qinfeng Shi, Anthony Dick, Ian Reid, **Joint Probabilistic Matching Using m-Best Solutions**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 16), To Appear, 2016, Oral.
15. Dong Gong, Mingkui Tan, Yanning Zhang, Anton Van den Hengel, Qinfeng Shi, **Blind Image Deconvolution by Automatic Gradient Activation**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 16), To Appear, 2016.
16. Mingkui Tan, Shijie Xiao, Junbin Gao, Dong Xu, Anton Van Den Hengel, Qinfeng Shi, **Proximal Riemannian Pursuit for Large-scale Trace-norm Minimization**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 16), To Appear, 2016.
17. Mingkui Tan, Yan Yan, Li Wang, Ivor Tsang, Anton van den Hengel and Qinfeng Shi, **Learning Sparse Confidence-Weighted Classifier on Very High Dimensional Data**, AAAI16, Phoenix, Arizona USA, February 12-17, 2016. ERA [A]
18. Seyed Hamid Rezatofighi, Anton Milan, Zhen Zhang, Qinfeng Shi, Anthony Dick, Ian Reid, **Joint Probabilistic Data Association Revisited**, International Conference on Computer Vision 2015 (ICCV 15), Santiago, Chile, , December 11-18, 2015. ERA [A]
19. Lei Zhang, Wei Wei, Yanning Zhang, Fei Li, Chunhua Shen and Qinfeng Shi, **Hyperspectral Compressive Sensing Using Manifold-Structured Sparsity Prior**, International Conference on Computer Vision 2015 (ICCV 15), Santiago, Chile, December 11-18, 2015. ERA [A]
20. Yan Yan, Mingkui Tan, Ivor W Tsang, Qinfeng Shi, Yi Yang, Chengqi Zhang, Anton van den Hengel, **Scalable Maximum Margin Matrix Factorization by active Riemannian Subspace Search**, International Joint Conference on Artificial Intelligence (IJCAI 2015), Buenos Aires, July 25 - 31, 2015, Oral, ERA [A]

21. Julian McAuley, Christopher Targett, Qinfeng Shi, Anton van den Hengel, **Image-based recommendations on styles and substitutes**, The 38th Annual ACM SIGIR conference (SIGIR 2015), Santiago de Chile, August 9-13 2015, Oral, ERA [A]
22. Mingkui Tan, Qinfeng Shi, Anton van den Hengel, Chunhua Shen, Junbin Gao, Fuyuan Hu, Zhen Zhang, **Learning Graph Structure for Multi-label Image Classification via Clique Generation**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 15), June 8-10, 2015. ERA [A]
23. Guosheng Lin, Chunhua Shen, Qinfeng Shi, Anton van den Hengel, David Suter, **Fast Supervised Hashing with Decision Trees for High-Dimensional Data**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 14), June, 2014. ERA [A]
24. Zhenhua Wang, Qinfeng Shi, Chunhua Shen, Anton van den Hengel, **Bilinear Programming for Human Activity Recognition with Unknown MRF Graphs**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 13), Portland, USA, June 25-27, 2013. ERA [A]
25. Rui Yao, Qinfeng Shi, Chunhua Shen, Yanning Zhang, Anton van den Hengel, **Part-based visual tracking with online latent structural learning**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 13), Portland, USA, June 25-27, 2013. ERA [A]
26. Fumin Shen, Chunhua Shen, Qinfeng Shi, Anton van den Hengel, Zhenmin Tang, **Inductive hashing on manifolds**, In IEEE Conference on Computer Vision and Pattern Recognition (CVPR 13), Portland, USA, June 25-27, 2013. ERA [A]
27. Roberto Luis Shinmoto Torres, Damith C. Ranasinghe, Qinfeng Shi, **Evaluation of Wearable Sensor Tag Data Segmentation Approaches for Real Time Activity Classification in Elderly**, 10th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Tokyo, Japan, Dec. 2013. ERA [A]
28. Roberto Luis Shinmoto Torres, Qinfeng Shi, Alanson Sample, Damith C. Ranasinghe, **Sensor enabled wearable rfid technology for mitigating the risk of falls near beds**, IEEE International Conference on RFID, pp. 191-198, 2013. ERA [B]
29. Rui Yao, Qinfeng Shi, Chunhua Shen, Yanning Zhang, Anton van den Hengel, **Robust tracking with weighted online structured learning**, In European Conference on Computer Vision (ECCV12), Firenze, Italy, Oct. 7-13, 2012. ERA [A]
30. Qinfeng Shi, Chunhua Shen, Rhys Hill, Anton van den Hengel, **Is margin preserved after random projection?**, In International Conference on Machine Learning (ICML12), Edinburgh, Scotland, June 26-July 1, 2012. ERA [A]
31. Xi Li, Chunhua Shen, Qinfeng Shi, Anthony Dick, Anton van den Hengel, **Non-sparse linear representations for visual tracking with online reservoir metric learning**, In IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 12), Providence Rhode Island, June 2012. ERA [A]
32. Qinfeng Shi, Anders Eriksson, Anton van den Hengel, Chunhua Shen, **Is face recognition really a Compressive Sensing problem?**, In IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 11), Colorado Springs, June 2011. ERA [A]
33. Hanxi Li, Chunhua Shen, Qinfeng Shi, **Real-time visual tracking with compressed sensing**, In IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 11), Colorado Springs, June 2011. ERA [A]
34. Qinfeng Shi, Hanxi Li and Chunhua Shen, **Rapid Face Recognition Using Hashing**, In IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 10), San Francisco, USA, June 13-18, 2010. ERA [A]
35. Qinfeng Shi, Li Cheng, Luping Zhou and Dale Schuurmans, **Discriminative Maximum Margin Image Object Categorization with Exact Inference**, The 5th International Conference on Image and Graphics, Xi'an, Sep. 20-23, 2009. ERA [C]

36. Qinfeng Shi, James Petterson, Gideon Dror, John Langford, Alex Smola, Alex Strehl, and Vishy Vishwanathan, **Hash Kernel**, Twelfth International Conference on Artificial Intelligence and Statistics, Florida, April 14-19, 2009. ERA [B]
37. Qinfeng Shi, Li Wang, Li Cheng and Alex Smola, **Discriminative Human Action Segmentation and Recognition using Semi-Markov Model**, In IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 08), Anchorage, Alaska, June 23-28, 2008. ERA [A]
38. Qinfeng Shi, Yasemin Altun, Alex Smola and S.V.N. Vishwanathan, **Automatic Paragraph Segmentation via Max-Margin Semi-Markov Models**, Empirical Methods in Natural Language Processing, Jun, 2007, pp. 640-648. ERA [A]

Teaching

- Intro. to Stat. Machine Learning COMP SCI 4401/7401, UoA (Lecturer), Semester 2, 2016
- Intro. to Geometric Algorithms (COMP SCI 4402/4802/7402), UoA (Lecturer), Semester 2, 2016
- Scientific Computing COMP SCI 1012/1012BR, UoA (Coordinator), Semester 1, 2016
- Intro. to Stat. Machine Learning COMP SCI 4401/7401, UoA (Coordinator), Semester 2, 2015
- Artificial Intelligence COMP SCI 3007/7059, UoA (Lecturer), Semester 1, 2015
- Scientific Computing COMP SCI 1012/1012BR, UoA (Coordinator), Semester 1, 2015
- Intro. to Stat. Machine Learning COMP SCI 4401/7401, UoA (Coordinator), Semester 2, 2014
- Intro. to Stat. Machine Learning COMP SCI 4401/7401, UoA (Lecturer), Semester 2, 2013
- Intro. to Stat. Machine Learning COMP SCI 4401/7401, UoA (Guest Lecturer), Semester 2, 2012

Referees

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