

Tongliang Liu

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ACADEMIC EMPLOYMENT

Mar 17 - Present

Lecturer in Statistical Learning theory and Machine Learning at The University of Sydney, Australia

Oct 16 – Feb 17

Lecturer at the University of Technology Sydney, Australia

Jun 16 – Sept 16

Senior research assistant at the University of Technology Sydney, Australia

EDUCATION

Aug 2012 - Apr 2016

PhD at University of Technology Sydney (UTS), Australia
Supervised by Prof Dacheng Tao

Oct 15 – Mar 16

Visiting PhD student at Pompeu Fabra University (UPF), Spain
Supervised by Prof Gábor Lugosi and Dr Gergely Neu

Aug 2008 - Jul 2012

BE at University of Science and Technology of China (USTC), China
Supervised by Prof Zengfu Wang

RESEARCH INTERESTS

Artificial Intelligence; Machine Learning; Statistical learning theory; Label noise learning; Computer vision; Neural networks

AWARDS AND HONORS

Distinguished Paper Award Finalist (3 of 2540 submissions) of – IJCAI 2017
Teaching Excellent – UTS 2016 (for the course “Statistical Learning” in a summer school project)
The Chancellor’s List – UTS 2016 (to remark six outstanding PhD theses across the university)
Outstanding Reviewer for IEEE Transactions on Cybernetics – IEEE 2016
Outstanding Self-financed Overseas Student Scholarship – 2016
FEIT Higher Degree by Research Publication Award – UTS 2015
Outstanding Self-financed Overseas Student Scholarship – CSC 2015
Best Paper Candidate (4 of 716 submissions) – IEEE ICME 2014

Best Paper Award (1 of 311 submissions) – IEEE ICIST 2014
Outstanding Reviewer for Computational Statistics & Data Analysis - Elsevier 2014
Outstanding Undergraduate Research Program Scholarship (with an remark) – USTC 2011

GRANTS

1. 2018-2020, Co-principle investigator of a three-year collaboration on “Streaming Label Learning for Leaching Knowledge from Labels on the Fly”, Australian Research Council (ARC)/Discovery Projects (DP).
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ACADEMIC SERVICES

Journal

Guest Editor of

Neurocomputing
Journal of Optimization
Journal of Electrical and Computer Engineering
IET Computer Vision

Regular reviewer of

IEEE Transactions on Neural Networks and Learning Systems
IEEE Transactions on Image Processing
IEEE Transactions on Knowledge and Data Engineering
IEEE Transactions on Cybernetics
IEEE Transactions on Systems, Man and Cybernetics: Systems
IEEE Transactions on Big Data
IEEE Transactions on Circuits and Systems for Video Technology
IEEE Transactions on Circuits and Systems I
IEEE Transactions on Emerging Topics in Computational Intelligence
IEEE Internet of Things Journal
IEEE Signal Processing Letters
IEEE Geoscience and Remote Sensing Letters
Journal of Biomedical and Health Informatics
IEEE/ACM Transactions on Computational Biology and Bioinformatics
ACM Transactions on Knowledge Discovery from Data
ACM Transactions on Intelligent Systems and Technology

Tsinghua Science and Technology

Pattern Recognition
Signal Processing
Pattern Recognition Letters
Multidimensional Systems and Signal Processing
Multimedia Systems
Information Processing and Management
Neurocomputing
Neural Processing Letters
Neural Computing and Applications
Neural Networks
Cognitive Computation
Computational Statistics & Data Analysis
Data Mining and Knowledge Discovery
Information Science
Journal of Visual Communication and Image Representation

Conference

Senior Program committee of
IJCAI-2017; AAAI-2019

Organising Committee of
Co-chair of Local Arrangement of DICTA-2017
Local Arrangement Chair of IJCAI-BOOM-2017

Regular program committee of
ICTAI; ICPR; AAAI; SDM; ACPR; AAAI; KDD; ICML; NIPS; IEEE MIPR

INVITED TALKS

1. Tutorial Talk, “Learning with Label Noise”, The International Conference on Digital Image Computing: Techniques and Applications (DICTA), Sydney, Australia, Nov 2017.
 2. Invited Talk, “Learning with Label Noise by Importance Reweighting”, Wuhan University and China University of Geosciences, China, Dec 26, 2016.
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PUBLICATIONS

Summarization

5 IEEE T-PAMI (ERA A*; IF: 8.329)
7 IEEE T-NNLS (ERA A*; IF: 6.108)
6 IEEE T-IP (ERA A*; IF: 4.828)
2 IEEE T-CYB (ERA A; IF: 7.384)
1 IEEE T-KDE (ERA A; IF: 3.438)
1 IEEE T-GRS (ERA A; IF: 4.942)
1 IEEE SPL (ERA A; IF: 2.528)
1 ACM T-IST (5-years IF: 10.47)
1 NECO (ERA A; IF: 1.938)

2 ICML
2 CVPR
2 AAAI
3 IJCAI (one of them is recognised as Distinguished Paper Candidate)
1 KDD
1 ICME (Best Paper Candidate)
1 IEEE ICIST (Best Paper Award)

Journal

1. Y Luo, Y Wen, **T. Liu**, and D. Tao, “Transferring Knowledge Fragments for Learning Distance Metric from A Heterogeneous Domain”, IEEE Trans. Pattern Analysis and Machine Intelligence (**IEEE T-PAMI**), accepted in March, 2018.
2. N. Guan*, **T. Liu***, Y. Zhang, D. Tao, and L. Davis, “Truncated Cauchy Non-Negative Matrix Factorization for Robust Subspace Learning”, IEEE Trans. Pattern Analysis and Machine Intelligence (**IEEE T-PAMI**), accepted in November, 2017. (*: equally contributed)
3. R. Wang, **T. Liu**, and D. Tao, “Multi-class Learning with Partially Corrupted Labels”, IEEE Trans. Neural Networks & Learning Systems (**IEEE T-NNLS**), accepted in April, 2017.
4. X. Shen, X. Tian, **T. Liu**, and D. Tao, “Continuous Dropout”, IEEE Trans. Neural Networks & Learning Systems (**IEEE T-NNLS**), accepted in September, 2017.

5. Y. Li, X. Tian, **T. Liu**, and D. Tao, "On Better Exploring and Exploiting Task Relationship in Multi-Task Learning: Joint Model and Feature Learning", *IEEE Trans. Neural Networks & Learning Systems (IEEE T-NNLS)*, accepted in March, 2017.
6. J. Gui*, **T. Liu***, Z. Sun, D. Tao, and T. Tan, "Fast Supervised Discrete Hashing", *IEEE Trans. Pattern Analysis and Machine Intelligence (IEEE T-PAMI)*, vol. 40, no. 2, pp. 490-496, February 2018. (*: equally contributed)
7. Jie Gui*, **T. Liu***, Z. Sun, D. Tao, and T. Tan, "Supervised Discrete Hashing with Relaxation", *IEEE Trans. Neural Networks & Learning Systems (IEEE T-NNLS)*, vol. 29, no. 3, pp. 608-617, March 2018. (*: equally contributed)
8. C. Gong, **T. Liu**, Y. Tang, J. Yang, J. Yang, and D. Tao, "A Regularization Approach for Instance-Based Superset Label Learning", *IEEE Trans. Cybernetics (IEEE T-CYB)*, vol. 48, no. 3, pp. 967-978, March 2018.
9. **T. Liu**, D. Tao, M. Song, and S. J. Maybank, "Algorithm-Dependent Generalization Bounds for Multi-Task Learning", *IEEE Trans. Pattern Analysis and Machine Intelligence (IEEE T-PAMI)*, vol. 39, no. 2, pp. 227-241, February 2017.
10. **T. Liu**, M. Gong, and D. Tao, "Large Cone Non-Negative Matrix Factorization", *IEEE Trans. Neural Networks & Learning Systems (IEEE T-NNLS)*, vol. 28, no. 9, pp. 2129-2141, 2017.
11. K. Ma, W. Liu, **T. Liu**, Z. Wang, and D. Tao, "dipIQ: Blind Image Quality Assessment by Learning-to-Rank Discriminable Image Pairs", *IEEE Trans. Image Processing (IEEE T-IP)*, vol. 26, no. 8, pp. 3951-3964, 2017.
12. Q. Liu, Y. Sun, C. Wang, **T. Liu**, and D. Tao, "Elastic Net Hypergraph Learning for Image Clustering and Semi-Supervised Classification", *IEEE Trans. Image Processing (IEEE T-IP)*, vol. 26, no. 1, pp. 452-463, January 2017.
13. H. Liu, J. Wu, **T. Liu**, D. Tao, and Y. Fu, "Spectral Ensemble Clustering via Weighted K-means: Theoretical and Practical Evidence", *IEEE Trans. Knowledge and Data Engineering (IEEE T-KDE)*, vol. 29, no. 5, pp. 1129-1143, May 2017.
14. Y. Zhang, B. Du, L. Zhang, and **T. Liu**, "Joint Sparse Representation and Multitask Learning for Hyperspectral Target Detection", *IEEE Trans. Geoscience and Remote Sensing (IEEE T-GRS)*, vol. 55, no. 2, pp. 894-906, February 2017.
15. **T. Liu** and D. Tao, "Classification with Noisy Labels by Importance Reweighting", *IEEE Trans. Pattern Analysis and Machine Intelligence (IEEE T-PAMI)*, vol. 38, no. 3, pp. 447-461, March 2016.
16. **T. Liu**, D. Tao, and D. Xu, "Dimensionality-Dependent Generalization Bounds for k-Dimensional Coding Schemes", *Neural Computation (NECO)*, vol. 28, pp. 2213-2249, 2016.
17. **T. Liu** and D. Tao, "On the Performance of Manhattan Non-Negative Matrix Factorization", *IEEE Trans. Neural Networks & Learning Systems (IEEE T-NNLS)*, vol. 28, no. 7, pp. 1851-1863, July 2016.
18. C. Xu, **T. Liu**, D. Tao, and C. Xu, "Local Rademacher Complexity for Multi-Label Learning", *IEEE Trans. Image Processing (IEEE T-IP)*, vol. 25, no. 3, pp. 1495-1507, March 2016.
19. H. Xiong, **T. Liu**, and D. Tao, "Dual Diversified Dynamical Gaussian Process Latent Variable Model for Video Repair", *IEEE Trans. Image Processing (IEEE T-IP)*, vol. 25, no. 8, pp. 3626-3637, August 2016.
20. J. Gui*, **T. Liu***, D. Tao, Z. Sun, and T. Tan, "Representative Vector Machines: A Unified Framework for Classical Classifiers", *IEEE Trans. Cybernetics (IEEE T-CYB)*, vol. 46, no. 8, pp. 1877-1888, August 2016. (*: equally contributed)
21. X. Li, **T. Liu**, J. Deng, and D. Tao, "Video Face Editing Using Temporal-Spatial-Smooth Warping", *ACM Trans. Intelligent Systems and Technology (ACM T-IST)*, vol. 7, no. 3, pp. 32, 2016.
22. C. Gong, **T. Liu**, D. Tao, K. Fu, E. Tu, and J. Yang, "Deformed Graph Laplacian for Semi-Supervised Learning", *IEEE Trans. Neural Networks & Learning Systems (IEEE T-NNLS)*, vol. 26, no. 10, pp. 2261-2274, October, 2015.

23. Y. Luo, **T. Liu**, D. Tao, and C. Xu, "Multi-view Matrix Completion for Multi-Label Image Classification", IEEE Trans. Image Processing (**IEEE T-IP**), vol. 24, no. 8, pp. 2355-2368, August 2015.
24. Y. Lu, F. Xie, **T. Liu**, Z. Jiang, and D. Tao, "No Reference Quality Assessment for Multiply-distorted Images Based on an Improved Bag-of-words Model", IEEE Signal Process. Lett. (**IEEE SPL**), vol. 22, no. 10, pp. 1811-1815, October 2015.
25. Y. Luo, **T. Liu**, D. Tao, and C. Xu, "Decomposition based Transfer Distance Metric Learning for Image Classification", IEEE Trans. Image Processing (**IEEE T-IP**), vol. 23, no. 9, pp. 3789-3801, September 2014.

Conference

26. X. Yu, **T. Liu**, M. Gong, K. Batmanghelich, and D. Tao, "An Efficient and Provable Approach for Mixture Proportion Estimation Using Linear Independence Assumption", IEEE Conf. Comput. Vis. Pattern Recognit. (**CVPR**), Accepted, Salt Lake City, Utah, USA, June 2018.
27. Y. Li, M. Gong, X. Tian, **T. Liu**, and D. Tao, "Domain Generalization via Conditional Invariant Representation", the 32nd AAAI Conf. Artificial Intelligence (**AAAI**), Accepted, New Orleans, Louisiana, USA, February, 2-7, 2018.
28. **T. Liu**, G. Lugosi, G. Neu, and D. Tao, "Algorithmic Stability and Hypothesis Complexity", Int'l Conf. Machine Learning (**ICML**), Sydney, Australia, August 6-11, 2017.
29. Y. Luo, Y. Wen, **T. Liu**, and D. Tao, "General Heterogeneous Transfer Distance Metric Learning via Knowledge Fragments Transfer" Int'l Joint Conf. Artificial Intelligence (**IJCAI**), pp. 2450-2456, Melbourne, Australia, August, 19-25, 2017. (**Distinguished Paper Candidate**)
30. **T. Liu**, Q. Yang, and D. Tao, "Understanding How Feature Structure Transfers in Transfer Learning" Int'l Joint Conf. Artificial Intelligence (**IJCAI**), Melbourne, Australia, August, 19-25, 2017.
31. X. Yu, **T. Liu**, X. Wang, and D. Tao, "On Compressing Deep Models by Low Rank and Sparse Decomposition", IEEE Conf. Comput. Vis. Pattern Recognit. (**CVPR**), Hawaii, July 2017.
32. M. Gong, K. Zhang, **T. Liu**, D. Tao, C. Glymour, and B. Scholkopf, "Domain Adaptation with Conditional Transferable Components", Int'l Conf. Machine Learning (**ICML**), pp. 2839-2848, New York, USA, June 19-24, 2016.
33. H. Xiong, **T. Liu**, and D. Tao, "Diversified Dynamical Gaussian Process Latent Variable Model for Video Repair", the 30th AAAI Conf. Artificial Intelligence (**AAAI**), pp. 3641-3647, Phoenix, Arizona, USA, February 12-17, 2016.
34. H. Liu*, **T. Liu***, J. Wu, D. Tao, and Y. Fu, "Spectral Ensemble Clustering", the 21st ACM SIGKDD Conf. Knowledge Discovery and Data Mining (**KDD**), pp. 715-724, Sydney, Australia, August 10-13, 2015. (*: equally contributed)
35. Y. Li, X. Tian, **T. Liu**, D. Tao, "Multi-Task Model and Feature Joint Learning", Int'l Joint Conf. Artificial Intelligence (**IJCAI**), pp. 3643-3649, Buenos Aires, Argentina, July 25-31, 2015.
36. M. Shao, S. Li, **T. Liu**, D. Tao, Y. Fu, and T. Huang, "Learning Relative Features Through Adaptive Pooling for Image Classification", IEEE Int'l Conf. Multimedia and Expo (**ICME**), pp. 1-6, Chengdu, China, July 14-18, 2014. (**Best paper award candidate**)
37. **T. Liu** and D. Tao, "On the Robustness and Generalization of Cauchy Regression", IEEE Int'l Conf. Information Science and Technology (**ICIST**), pp. 100-106, Shenzhen, China, April, 26-28, 2014. (**Best paper award**)