

Zhiqiang Tao

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EDUCATION

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|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Northeastern University
Ph.D. Candidate in Computer Engineering
<i>Advisor:</i> Professor Yun Raymond Fu | Boston, MA, USA
09/2015 - now |
| Tianjin University
M.S. in Computer Science
<i>Advisor:</i> Professor Xiaochun Cao | Tianjin, China
09/2012 - 01/2015 |
| Tianjin University
B.Eng. in Software Engineering | Tianjin, China
09/2008 - 06/2012 |

RESEARCH INTERESTS

- **Fields:** Applied Machine Learning, Data Mining, Computer Vision
- **Themes:** Representation Learning with Higher-Level Information Guided Reconstruction and Its Applications.
- **Topics:** Unsupervised Deep Feature Learning; Ensemble Clustering; Subspace Clustering; Multi-View Learning; Sequence Learning.
- **Applications:** Image Segmentation and Clustering; Document Clustering; Video Action Prediction and Grouping; User Modeling.

INDUSTRY EXPERIENCE

- **Alibaba's DAMO Academic** Bellevue, WA
Research Intern 05/2019 - 08/2019
◇ **AutoML:** Focused on solving hyperparameter optimization with hypergradient.
- **Adobe Research** San Jose, CA
Research Intern 05/2018 - 08/2018
◇ **Interpretable User Modeling:** Proposed a sequence-to-sequence model with recurrent memory network to learn user representations from log data and software tutorials.
- **Raytheon BBN Technologies** Cambridge, MA
Research Intern 05/2016 - 08/2016
◇ **Sentence Similarity Learning:** Developed a siamese convolution neural network to learn sentence representations with word embedding.
- **State Key Laboratory of Information Security, IIE CAS** Beijing, China
Research Assistant 06/2013 - 03/2014
◇ **Visual Saliency Analysis:** Designed a self-adaptively weighted algorithm with low-rank matrix recovery to detect co-salient objects from multiple images.

TEACHING EXPERIENCE

- **Part-Time Teaching Faculty** Northeastern University
Work as an independent instructor throughout the whole semester.
 - ◇ EECE5642 Data Visualization Fall 2019
 - ◇ EECE5642 Data Visualization Spring 2019
 - ◇ EECE5642 Data Visualization Fall 2018
- **Teaching Assistant** Northeastern University
 - ◇ EECE5644 Machine Learning and Pattern Recognition Fall 2017
 - ◇ EECE5642 Machine Learning and Pattern Recognition Spring 2017

HONORS & AWARDS

- Third Place Award in KDD Cup Auto-ML Track 2019
ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- KDD Student Travel Award 2019
ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- AAAI Student Travel Award 2017
AAAI Conference on Artificial Intelligence
- SIGIR Student Travel Award 2016
ACM International Conference Information and Knowledge Management
- Dean's Fellowship 2015
Northeastern University
- Graduate National Scholarship (top 5/200) 2015
Ministry of Education, China

PROPOSAL WRITTING

Key Contributor for Funded Proposals:

1. Multi-Functional Optical Meta-Systems Enabled by Deep-Learning \$529,539
-Aided Inverse Design
NSF Electrical, Communications and Cyber Systems 06/2019 - 05/2022

Key Contributor for Pending Proposals:

2. FAI: Visual Relational Fairness: Identification, Inference and Generalization 2019
NSF Information and Intelligent Systems
3. Modernizing the Science and Management of Sidewalks: Capitalizing on and Responding to Emergent Technologies 2019
NSF Smart and Connected Communities

PUBLICATIONS *Citations: 340, H-index: 9, i10-index: 9 (Google Scholar, Nov. 2019)*

• JOURNAL PAPERS

◇ 2 TPAMI, 1 TNNLS, 2 TIP, 1 TKDD, 1 TETCI, 1 SPL, and 1 PRL

- [J-1] **Zhiqiang Tao**, Hongfu Liu, Sheng Li, Zhengming Ding, and Yun Fu, "Marginalized Multi-View Ensemble Clustering", *IEEE Transactions on Neural Networks and Learning Systems*, *accepted*, 2019.
- [J-2] **Zhiqiang Tao**, Hongfu Liu, Huazhu Fu, and Yun Fu, "Multi-View Saliency-Guided Clustering for Image Cosegmentation", *IEEE Transactions on Image Processing*, *accepted*, 2019.
- [J-3] Sheng Li*, **Zhiqiang Tao***, Kang Li, and Yun Fu, "Visual to Text: Survey of Image and Video Captioning", *IEEE Transactions on Emerging Topics in Computational Intelligence*, *accepted*, 2019. (* indicates equal contribution.)
- [J-4] **Zhiqiang Tao**, Hongfu Liu, Sheng Li, Zhengming Ding, and Yun Fu, "Robust Spectral Ensemble Clustering via Rank Minimization", *ACM Transactions on Knowledge Discovery from Data*, vol. 13, no. 1, pp. 4:1-4:25, 2019.
- [J-5] Yu Kong, **Zhiqiang Tao**, and Yun Fu, "Adversarial Action Prediction Networks", *accepted by IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2018.
- [J-6] Hongfu Liu, **Zhiqiang Tao**, and Yun Fu, "Partition Level Constrained Clustering", *IEEE Transaction on Pattern Analysis and Machine Intelligence*, vol. 40, no. 10, pp. 2469-2483, 2018.
- [J-7] Changqing Zhang, **Zhiqiang Tao**, Xingxing Wei, and Xiaochun Cao, "A Flexible Framework of Adaptive Method Selection for Image Saliency Detection", *Pattern Recognition Letters*, vol. 63, pp. 66-70, 2015.

- [J-8] Xingxing Wei, **Zhiqiang Tao**, Changqing Zhang, and Xiaochun Cao, “Structured Saliency Fusion Based on Dempster-Shafer Theory”, *IEEE Signal Processing Letters*, vol. 22, no. 9, pp. 1345-1349, 2014.
- [J-9] Xiaochun Cao, **Zhiqiang Tao**, Bao Zhang, Huazhu Fu, and Wei Feng, “Self-adaptively Weighted Co-saliency Detection via Rank Constraint”, *IEEE Transaction on Image Processing*, vol. 23, no. 9, pp. 4175-4186, 2014.

• CONFERENCE PAPERS

- ◇ 1 SIGKDD, 2 AAAI, 4 IJCAI, 1 CIKM, 1 CVPR, 1 ICCV, 1 ICDM, and 4 [IEEE Big Data, FG, ACM MM, ICME]
- [C-1] **Zhiqiang Tao**, Sheng Li, Zhaowen Wang, Chen Fang, Longqi Yang, Handong Zhao, and Yun Fu, “Log2Intent: Towards Interpretable User Modeling via Recurrent Semantics Memory Unit”, *SIGKDD*, 2019.
- [C-2] **Zhiqiang Tao**, Hongfu Liu, Jun Li, Zhaowen Wang, and Yun Fu, “Adversarial Graph Embedding for Ensemble Clustering”, *IJCAI*, 2019.
- [C-3] Chaoyang Li, Qianqian Wang, **Zhiqiang Tao**, Quanxue Gao, and Zhaohua Yang, “Deep Adversarial Network for Multi-view Clustering”, *IJCAI*, 2019.
- [C-4] Lichen Wang, Zhengming Ding, **Zhiqiang Tao**, Yunyu Liu, and Yun Fu, “Generative Multi-View Human Action Recognition”, *ICCV*, 2019.
- [C-5] Songyao Jiang, **Zhiqiang Tao**, and Yun Fu, “Segmentation Guided Image-to-Image Translation with Adversarial Networks”, *FG*, 2019.
- [C-6] Qianqian Wang, Zhengming Ding, **Zhiqiang Tao**, Quanxue Gao, and Yun Fu, “Partial Multi-View Clustering via Consistent GAN”, *ICDM*, 2018.
- [C-7] **Zhiqiang Tao**, Hongfu Liu, Sheng Li, Zhengming Ding, and Yun Fu, “From Ensemble Clustering to Multi-View Clustering”, *IJCAI*, 2017.
- [C-8] Jun Li, Handong Zhao, **Zhiqiang Tao**, and Yun Fu, “Large-scale Subspace Clustering by Fast Regression Coding”, *IJCAI*, 2017.
- [C-9] Yu Kong, **Zhiqiang Tao**, and Yun Fu, “Deep Sequential Context Networks for Action Prediction”, *CVPR*, 2017.
- [C-10] **Zhiqiang Tao**, Hongfu Liu, Huazhu Fu, and Yun Fu, “Image Cosegmentation via Saliency-Guided Constraint Clustering with Cosine Similarity”, *AAAI*, 2017.
- [C-11] **Zhiqiang Tao**, Hongfu Liu, and Yun Fu, “Simultaneous Clustering and Ensemble”, *AAAI*, 2017.
- [C-12] Sheng Li, Hongfu Liu, **Zhiqiang Tao**, and Yun Fu, “Multi-View Graph Learning with Adaptive Label Propagation”, *IEEE International Conference on Big Data*, 2017.
- [C-13] **Zhiqiang Tao**, Hongfu Liu, Sheng Li, and Yun Fu, “Robust Spectral Ensemble Clustering”, *CIKM*, 2016.
- [C-14] Xiaochun Cao, Yupeng Cheng, **Zhiqiang Tao**, and Huazhu Fu, “Co-saliency Detection via Base Reconstruction”, *ACM MM*, 2014.
- [C-15] Xiaochun Cao, **Zhiqiang Tao**, Bao Zhang, Huazhu Fu, and Xuewei Li, “Saliency Map Fusion Based on Rank-one Constraint”, *ICME*, 2013.

• PREPRINTS

- [P-1] **Zhiqiang Tao**, Jun Li, Huazhu Fu, Yu Kong, and Yun Fu, “Higher-Order Subspace Clustering via Cluster Structure Encoding”, submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *under review*, 2019.
- [P-2] Jun Li, **Zhiqiang Tao**, Bineng Zhong, Yue Wu, and Yun Fu, “Million-scale Sparse Subspace Clustering by Distributed and Parallel Computing”, submitted to *IEEE Transactions on Image Processing*, *under review*, 2019.

- [P-3] Songyao Jiang, **Zhiqiang Tao**, and Yun Fu, “Geometrically Editable Image-to-Image Translation with Adversarial Networks”, submitted to IEEE Transactions on Image Processing, *under review*, 2019.
- [P-4] Hongfu Liu, **Zhiqiang Tao**, Zhengming Ding, and Yun Fu, “Consensus Clustering: An Embedding Perspective, Extension and Beyond”, *arXiv preprint arXiv:1906.00120*, 2019.
- [P-5] Hongfu Liu, **Zhiqiang Tao**, Zhengming Ding, and Yun Fu, “Semantics Recovery for Generalized Image Understanding”, submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence, 2019.
- [P-6] Jun Li, Hongfu Liu, **Zhiqiang Tao**, Handong Zhao, and Yun Fu, “Learnable Subspace Clustering”, submitted to IEEE Transactions on Neural Networks and Learning Systems, *under review*, 2019.
- [P-7] Qianqian Wang, Zhengming Ding, **Zhiqiang Tao**, Quanxue Gao, and Yun Fu, “Generative Partial Multi-View Clustering”, submitted to IEEE Transactions on Neural Networks and Learning Systems, 2019.
- [P-8] Yue Bai, Lichen Wang, **Zhiqiang Tao**, Sheng Li, and Yun Fu, “Multi-View Time Series Classification via Global-Local Correlative Channel-Aware Fusion Mechanism”, *arXiv preprint arXiv:1911.11561*, 2019.

PROFESSIONAL • Program Committee ACTIVITIES

◇ AAAI Conference on Artificial Intelligence	2020
◇ IJCAI-2019 TUSION Workshop	2019
◇ AAAI Conference on Artificial Intelligence	2019
◇ IEEE International Conference on Multimedia and Expo (ICMEW)	2019
◇ AAAI Conference on Artificial Intelligence	2018
◇ MICCAI Workshop on Ophthalmic Medical Image Analysis	2016

• Journal Reviewer

◇ IEEE Transactions on Neural Networks and Learning Systems
◇ IEEE Transactions on Knowledge and Data Engineering
◇ IEEE Transactions on Image Processing
◇ IEEE Transactions on Cybernetics
◇ IEEE Transactions on Multimedia
◇ IEEE Transactions on Cognitive and Developmental Systems
◇ IEEE Transactions on Emerging Topics in Computational Intelligence
◇ IEEE Computational Intelligence Magazine
◇ Image and Vision Computing
◇ Neurocomputing
◇ Journal of Electronic Imaging (JEI)

ACADEMIC TALKS

• SIGKDD, Anchorage, Alaska	Aug. 3-7, 2019
• AAAI, San Francisco, California	Feb. 4-9, 2017
• CIKM, Indianapolis, Indiana	Oct. 24-28, 2016