XINGXING ZHANG

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EDUCATION

Doctor of Engineering *September 2015 - June 2020 (Expected)*
Computer Science and Technology, Beijing Jiaotong University (BJTU), Beijing, China
Advisor: Yao Zhao and Zhenfeng Zhu

Visiting Student *September 2018 - October 2019*
Computer Science, University of Rochester (UR), NY, USA
Advisor: Ji Liu

Bachelor of Engineering *September 2011 - July 2015*
Computer Science and Engineering, Henan Normal University (HNU), Xinxiang, China
GPA: 3.9/4.0 (highest grade)

RESEARCH INTERESTS

Machine Learning and Optimization

· Data selection, small sample learning for novel categories, multi-view learning

Computer Vision

· Image classification, recognition, and retrieval, video summarization, and motion segmentation

SKILLS

Programming	Python, Matlab
Operating Systems	Linux, Windows
Open Sources	Pytorch, TensorFlow, OpenCV

PROJECTS

Research on Subset Selection based on Sparsity July 2017 - December 2018
Doctoral Innovation Foundation *Director*

· Proposed a ℓ_1-norm induced prototype selection model for selecting discriminative prototypes, by assigning a source set to an optimal subset of it in sparse space.
· Extended the proposed prototype selection model to support online prototype selection by using already obtained prototypes and newly arrived data.

Motion Segmentation based on Sparse Subspace Clustering March 2016 - March 2017
Doctoral Innovation Foundation *Director*

· Developed a general assignment model that aims to assign each element in a target set to the element in an opposite source set, thus achieving promising performance on motion segmentation task.
· Provided a potential powerful generalization ability for the assignment model to deal flexibly with the unsupervised, semi-supervised and fully supervised scenarios.

Research on the Theory and Method of Prototype Selection in Machine Learning October 2019 - December 2023 (Expected)
National Natural Science Foundation of China *First member*

· Research on prototype selection with self-supervised metric learning.
· Research on prototype selection model based on saliency sampling.
· Research on prototype learning method in knowledge transfer and for representation learning.

Pattern Recognition of Mixed Data and Research on Sensitive Content Mining January 2016 - December 2021 (Expected)
National Natural Science Foundation of China *Main member*

· Research on various tasks (*e.g.*, representation learning and subset selection) of mixed data, such as cross-modal data and zero-shot data.
· Research on sensitive content mining of mixed data, such as adversarial attacks and information hiding.

SELECTED HONORS AND AWARDS

Academic Scholarships

· National Scholarship for Graduate Students, BJTU, 2015, 2017, 2018, 2019
· National Scholarship for Undergraduate Students, HNU, 2014
· BJTU Top Grade Scholarship - ZHIXING Scholarship (*10 graduates per year*), BJTU, 2019
· Grant Scholarship of China Scholarship Council, CSC, 2018

Academic Awards

· Excellent Undergraduate in Henan Province, Department of Education of Henan Province, 2015
· Meritorious Award (*rate* $\approx$ *8%*), National College Mathematical Contest in Modeling, 2014
· 2nd Prize, China Undergraduate Mathematical Contest in Modeling, 2013
· 3rd Prize, National Computer Simulation Competition, 2014
· 3rd Prize, National English Competition for College Students, 2014

SERVICE

• **PC Member:** IJCAI2019
• **Journal Reviewer:** IEEE Transactions on Circuits Systems for Video Technology (TCSVT), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), Neurocomputing (NeuCom), Multimedia Tools and Applications (MTA)

INVITED TALKS

• IJCAI oral presentation, "Self-Supervised Deep Low-Rank Assignment Model for Prototype Selection", Stockholm, Sweden, 2018.
• NCIG'18 talk, "Prototype Selection: Modeling, Optimization, and Applications", Yangzhou, China.
• ChinaMM talk, "Missing View Completion for Multi-view Data", Nanjing, China, 2017.
• CUMCM talk, "Queue Length Model of Road Sections Caused by Traffic Accidents", Zhengzhou, China, 2013.

PUBLICATIONS

For more please check `https://scholar.google.com.hk/citations?user=RKjiLyAAAAAJ&hl=zh-CN`

Conference:

1. **X. Zhang**, et al. "Self-Supervised Deep Low-Rank Assignment Model for Prototype Selection", in Proc. IJCAI, 2018, pp. 3141–3147.

2. Z. Liu, **X. Zhang**, et al. "Convolutional Prototype Learning for Zero-Shot Recognition", under review by CVM'20, 2019.

3. W. Li, L. Wang, **X. Zhang**, et al. "Defense Transferable Few-shot Adversarial Learning", under review by CVPR'20, 2019.

4. S. Zheng, Z. Zhu, **X. Zhang**, et al. "Distribution-induced Bidirectional Generative Adversarial Network for Graph Representation Learning", under review by CVPR'20, 2019.

Journal:

1. **X. Zhang**, et al. "Hierarchical Prototype Learning for Zero-Shot Recognition", accepted by IEEE Trans. Multimedia, Nov. 2019.

2. **X. Zhang**, et al. "Seeing All From a Few: ℓ_1-norm Induced Discriminative Prototype Selection", IEEE Trans. Neural Netw. Learn. Syst., vol. 30, no. 7, pp. 3187–3200, Dec. 2015.

3. **X. Zhang**, et al. "Learning a general assignment model for video analytics", IEEE Trans. Circuits Syst. Video Technol., vol. 28, no. 10, pp. 3066–3076, Oct. 2018.

4. **X. Zhang**, et al. "ProLFA: Representative Prototype Selection for Local Feature Aggregation", accepted by Neurocomputing, Nov. 2019.

5. **X. Zhang**, et al. "Sparsity induced prototype learning via $\ell_{p,1}$-norm grouping", Journal of Visual Communication and Image Representation, vol. 57, pp. 192-201, 2018.

6. **X. Zhang**, et al. "ATZSL: Defensive Zero-Shot Recognition in the Presence of Adversaries", under review by IEEE Trans. Pattern Anal. Mach. Intell., 2019.

7. M. Xu, Z. Zhu, **X. Zhang**, et al. "Canonical Correlation Analysis With $\ell_{2,1}$-Norm for Multiview Data Representation", accepted by IEEE Trans. Cybernetic, Apr. 2019.

8. F. Li, Z. Zhu, **X. Zhang**, et al. "Diffusion Induced Graph Representation Learning", Neurocomputing, vol. 360, pp. 220-229, 2019.

9. L. Sun, J. Xu, **X. Zhang**, et al. "A novel Generalized Arnold Transform-based Zero-Watermarking Scheme", Applied Mathematics & Information sciences, vol. 4, pp. 2023-2035, 2015.

10. L. Sun, J. Xu, **X. Zhang**, et al. "An image watermarking Scheme Using Arnold Transform and Fuzzy Smooth Support Vector Machine", Mathematics Problems in Engineering, Oct 11, 2015.

11. Y. Zhao, Q. Zhao, **X. Zhang**, et al. "Understand Dynamic Regret with Switching Cost for Online Decision Making", accepted by ACM Transactions on Intelligent Systems and Technology, Dec. 2019.

12. F. Li, Z. Zhu, **X. Zhang**, et al. "From Anchor Generation to Distribution Alignment: Learning a Discriminative Embedding Space for Zero-Shot Recognition", under review by Information Science, 2019.

13. Z. Zhu, Y. Meng, D. Kong, **X. Zhang**, et al. "To See in the Dark: N2DGAN for Background Modeling in Nighttime Scene", under review by IEEE Trans. Circuits Syst. Video Technol., 2019.