Erlei ZHANG

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RESEARCH INTERESTS Machine Learning: sparse/collaborative representation, dictionary learning, deep learning.

Computer Vision: image processing (image classification/segmentation).

Time Series Analysis: anomaly detection, forecast.

**EDUCATION** 

### Xidian University, Xi'an, China

Sep 2010 – Dec 2015

Ph.D., School of Electronic Engineering,

- Major in Pattern Recognition and Intelligent Control
- Thesis Topic: Hyperspectral Image Classification with Spectral-Spatial Information Mining and Sparse Representation Learning
- Advisors: Prof. Licheng Jiao

M.E., School of Electronic Engineering

- Major in Circuits and Systems
- Advisor: *Prof.* Xiangrong Zhang

# Henan Polytechnic University, Jiao Zuo, China

Sep 2006 - Jul 2010

B.S., School of Electrical Engineering and Automation

• Major in Electronic Information Engineering

RESEARCH EXPERIENCE

# Independent Engineer

Jun 2017 - Now.....

Cloud BU CTO Office, Xi'an, Huawei Technologies Ltd, China

Projects: Question generation for intelligent question answering system.

### Independent Engineer

Feb 2016 – Jun 2017

IT Technology Development Department, Xi'an, Huawei Technologies Ltd, China

Projects: Big data analysis and mining for intelligent operation (DevOps).

Projects: Big data analysis and mining for capacity planning (FusionAdvisor).

#### Research Assistant

Oct 2011 - Jun 2015

Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education of China, , China

Supervisor: Prof. Licheng Jiao

Projects: Hyperspectral remote sensing image classification based on sparse perception learning (supported by the National Natural Science Foundation of China).

Projects: Hyperspectral remote sensing imagery classification based on multivariate mutual information and fast sparse kernel learning(supported by the National Natural Science Foundation of China).

### Research Assistant

Mar 2010 – Jul 2011

Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education of China, China

Supervisor: Prof. Xiangrong Zhang

Projects: Semi-supervised learning and applications based on sparse coding and compressive sensing (supported by the Fundamental Research Funds for the Central Universities)

Thesis

1. Hyperspectral Image Classification with Spectral-Spatial Information Mining and Sparse Representation Learning

## Journal Publications

(\* means corresponding author and *Prof.* Xiangrong Zhang is my master supervisor.)

- 1. Erlei Zhang, Xiangrong Zhang, Licheng Jiao, Lin Li, and Biao Hou, "Spectral-spatial hyperspectral image ensemble classification via joint sparse representation," *Pattern Recognition* (PR), vol. 59, pp. 42–54, 2016.
- 2. Erlei Zhang, Licheng Jiao, Xiangrong Zhang, Hongying Liu, and Shuang Wang, "Class-level joint sparse representation for multifeature-based hyperspectral image classification," *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing* (JSTARS), vol. 9, pp. 4160–4177, 2016.
- 3. Erlei Zhang, Xiangrong Zhang, Licheng Jiao, Hongying Liu, and Shuang Wang, "Weighted multifeature hyperspectral image classification via kernel joint sparse representation," *Neurocomputing*, vol. 178, pp. 71–86, 2016.
- 4. Erlei Zhang, Xiangrong Zhang, Licheng Jiao, and Hongying Liu, "Fast multifeature joint sparse representation for hyperspectral image classification," *IEEE Geosci. Remote Sensing Lett.* (GRS Letters), vol. 12, no. 7, pp. 1397–1401, 2015.
- 5. Erlei Zhang, Xiangrong Zhang, Shuyuan Yang, and Shuang Wang, "Improving hyperspectral image classification using spectral information divergence," *IEEE Geosci. Remote Sensing Lett.* (GRS Letters), vol. 11, no. 1, pp. 249–253, 2015.
- Meng Jia, Maoguo Gong, <u>Erlei Zhang\*</u>, Yu Li, and Licheng Jiao, "Hyperspectral image classification based on nonlocal means with a novel class-relativity measurement," *IEEE Geosci. Remote Sensing Lett.* (GRS Letters), vol. 11, no. 7, pp. 1300–1304, 2014.

## Conference Publications

- 1. Hongying Liu, Xing Xing, Shigang Wang, Zhixi Feng, Erlei Zhang\*, Shuyuan Yang, Biao Hou, and Licheng Jiao, "Fast semi-supervised classification based on parallel auction graph for polarimetric SAR data," *IEEE International Geoscience and Remote Sensing Symposium* (IGARSS), 2016.
- 2. Xiangrong Zhang, Cheng Cai, Jinliang An, Yaoguo Zheng, <u>Erlei Zhang</u>\*, and Biao Hou, "Sparsity-constrained generalized bilinear model for hyperspectral unmixing," *IEEE International Geoscience and Remote Sensing Symposium* (**IGARSS**), 2015.
- 3. Xiangrong Zhang, Peng Weng, Jie Feng, <u>Erlei Zhang\*</u>, and Biao Hou, "Spatial-spectral classification based on group sparse coding for hyperspectral image," *IEEE International Geoscience and Remote Sensing Symposium* (**IGARSS**), 2013.
- 4. Xiangrong Zhang, <u>Erlei Zhang</u>\*, and Runxin Li, "Optimized feature extraction by immune clonal selection algorithm," *IEEE Congress on Evolutionary Computation* (CEC), 2012.

# Honors and Awards

- First Prize Scholarship of Xidian University (Top 5%), 2015, 2014
- Second Prize Scholarship of Xidian University, 2013, 2012, 2011, 2010
- First Prize Scholarship of Henan Polytechnic University (Top 5%), 2009
- First Prize Scholarship of Henan Polytechnic University (Top 10%), 2008, 2007, 2006
- Excellent Regiment Staff in Henan Polytechnic University (Top 2%), 2008
- Excellence Award in the School Speech Contest, 2007

Teaching

• Teaching Assistant, Pattern Recognition, Xidian University

Fall 2013

• Teaching Assistant, Machine Learning, Xidian University

Fall 2014

SKILLS

- Programming: Matlab, Python, C/C++, LATEX, Visual Studio, Assemble Language, Office Software
- Deep learning tools: Tensorflow, Caffe, Torch, Keras