

# Zengjie Song

School of Mathematics and Statistics, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, China

☎ (+86) 15209221446 | ✉ zjsong@hotmail.com | 🏠 My Homepage | 🔍 Google Scholar Profile

## Education

### Xi'an Jiaotong University (XJTU)

Xi'an, China

Ph.D. in Statistics

Mar. 2015 - PRESENT

- Supervisor: **Prof. Jiangshe Zhang**
- Thesis: Brain-inspired Machine Learning Models and Algorithms with Applications in Image Processing
- External Examiner: **Prof. Xiangchu Feng**      Internal Examiner: **Prof. Jian Sun**

### XJTU

Xi'an, China

M.S. in Applied Mathematics

Sep. 2013 - Feb. 2015

- Supervisor: **Prof. Jiangshe Zhang**
- Finished three-year program in two years, enrolled as doctorate student one year ahead

### XJTU

Xi'an, China

B.S. in Applied Mathematics (**Mathematics Elite Program**)

Aug. 2009 - Jun. 2013

## Research Experience

### Department of Computer Science, University of Illinois at Urbana-Champaign

Urbana, U.S.A.

Visiting Ph.D. Student, Supervisor: **Prof. Oluwasanmi Koyejo**

Oct. 2017 - Oct. 2018

- Designed two deep neural networks (mddAE and CDNet) to learn controllable disentangled image representations, where the CDNet model leverages GANs to improve the output image quality

### Department of Statistics, XJTU

Xi'an, China

Research Assistant, Supervisor: **Prof. Jiangshe Zhang**

Mar. 2015 - Sep. 2017

- Proposed the fast inference predictive coding (FIPC), based on the predictive coding in neuroscience, to efficiently address image feature extraction and image classification tasks

### Department of Applied Mathematics, XJTU

Xi'an, China

Research Assistant, Supervisor: **Prof. Jiangshe Zhang**

Sep. 2013 - Feb. 2015

- Proposed a no-reference JPEG image quality assessment index (ISNIQI), which is inspired by the visual attention mechanism of human visual system, and employs the image saliency map to weigh qualities of different image regions accordingly

### National University of Defense Technology

Changsha, China

Member of the Summer School for Graduate Students in Applied Mathematics

Jul. 2013 - Aug. 2013

- Studied the mathematical knowledge and techniques about optimization methods in information processing

## Publications & Preprints

1. **Zengjie Song**, Oluwasanmi Koyejo, Jiangshe Zhang. Controllable Disentanglement Network. *Submitted to IEEE Transactions on Cybernetics (T-CYB)*, major revision, 2019. (pdf coming soon)
2. Kai Sun, Jiangshe Zhang, Junmin Liu, Ruixuan Yu, and **Zengjie Song**. DRCNN: Dynamic Routing Convolutional Neural Network for Multi-view 3D Object Recognition. *Submitted to IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, under review, 2019.
3. **Zengjie Song**, Oluwasanmi Koyejo, Jiangshe Zhang. Learning Controllable Disentangled Representations with Decorrelation Regularization. *arXiv preprint arXiv:1912.11675*, 2019. (pdf)
4. **Zengjie Song**, Jiangshe Zhang, Guang Shi, and Junmin Liu. Fast Inference Predictive Coding: A Novel Model for Constructing Deep Neural Networks. *IEEE Transactions on Neural Networks and Learning Systems (T-NNLS)*, 30(4): 1150-1165, 2019. (pdf)
5. Peiju Chang, Jiangshe Zhang, Junying Hu, and **Zengjie Song**. A Deep Neural Network Based on ELM for Semi-supervised Learning of Image Classification. *Neural Processing Letters (NPL)*, 48(1): 375-388, 2018. (pdf)

6. **Zengjie Song**, Jiangshe Zhang, and Junmin Liu. No-Reference Image Quality Assessment Using Image Saliency for JPEG Compressed Images. *Journal of Imaging Science and Technology*, 60(6): 60503-1-60503-8, 2016. ([pdf](#))

## Projects (participated)

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1. **Research on Deep Neural Networks and Fast Inference Methods Based on Predictive Coding**, National Natural Science Foundation of China (61976174)
2. **Research on Deep Generative Models and Transfer Learning for Pansharpening of Remote Sensing Images**, National Natural Science Foundation of China (61877049)
3. **Variable Selection of High-Dimensional Data Based on Probabilistic Generative Models**, National Natural Science Foundation of China (11671317)
4. **Research on Learning Deep Architecture with Asymmetry Forward and Backward Connections**, National Natural Science Foundation of China (61572393)

## Teaching Experience

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### XJTU

Teaching Assistant, *Undergraduate Thesis Design*

*Xi'an, China*

*Spring 2015, Spring 2016, Spring 2017*

### XJTU

Teaching Assistant, *Advanced Mathematics*

*Xi'an, China*

*Fall 2014*

## Scholarships & Awards

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2018	<b>"Hao Jianxue" Principal Class Scholarship</b> , XJTU	<i>China</i>
2018	<b>Overseas Visiting Scholarship for Graduate Students</b> , XJTU	<i>China</i>
2017	<b>Scholarship for Visiting Ph.D. Student</b> , China Scholarship Council (CSC)	<i>China</i>
2014	<b>"Huang Qianheng" First Grade Scholarship</b> , XJTU	<i>China</i>
2014	<b>Outstanding Graduate Student</b> , XJTU	<i>China</i>
2012	<b>Siyuan Scholarship</b> , XJTU	<i>China</i>

## Skills

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**Programming** Python, Matlab,  $\LaTeX$   
**Languages** Chinese and English