

# Shijie Geng

Email: sjgeng\_2017fall@163.com Mobile: +86-13122189006

Address: 800 Dongchuan RD, Shanghai Jiao Tong University, Minhang District, Shanghai, P.R. China

## EDUCATION

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### Shanghai Jiao Tong University, Shanghai, China

Sept.2013 - Jun.2016

#### Master of Science in Control Science and Engineering

GPA (overall): **3.72/4.0**

Core courses: Image Processing, Pattern Recognition, Data Mining, Artificial Neural Network Theories, Operations Research and Optimization, Matrix Theory, Numerical Analysis, Computer Graphics, Stochastic Analysis and Financial Engineering

### Xi'an Jiaotong University, Xi'an, China

Sept.2009 - Jul.2013

#### Bachelor of Engineering in Electrical Engineering and Automation

GPA (overall): **87.1/100**; Major GPA: **89.9/100**; Ranking: **25/358**

Core courses: Electric Circuits, Principles of Automatic Control, Computer Programming, Principles of Microcomputer and Interface Technique, Principles & Application of Single Chip Computer, Design and Practice of Electronic Systems, Linear Algebra, Probability and Mathematical Statistics, Digital Signal Processing, Signals and Systems, Digital Electronics, Analog Electronics, Modern Control Theory and Intelligent Control

## RESEARCH INTERESTS

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Computer Vision; Medical Image Analysis; Machine Learning

## COMPUTER SKILLS

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Matlab, C++, Python, MySQL, Map-Reduce, OpenCV, VLFeat, Keras, Theano, Scikit-learn, JavaScript

## PUBLICATIONS

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- **Shijie Geng**, Jingyang Ma, Xiaoguang Niu, Shaoyong Jia, Yu Qiao, and Jie Yang, "A MIL-Based Interactive Approach for Hotspot Segmentation from Bone Scintigraphy", in 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2016
- **Shijie Geng**, Shaoyong Jia, Yu Qiao, Jie Yang, and Zhenhong Jia, "Combining CNN and MIL to Assist Hotspot Segmentation in Bone Scintigraphy", in 22nd International Conference on Neural Information Processing (ICONIP, Oral), 2015
- Shaoyong Jia, **Shijie Geng**, Yun Gu, Jie Yang, Pengfei Shi, and Yu Qiao, "NSLIC: SLIC Superpixels based on Nonstationarity Measure", in 22nd IEEE International Conference on Image Processing (ICIP, Oral), 2015
- Shaoyong Jia, **Shijie Geng**, and Yu Qiao, "Adaptive Location and Size for Saliency Detection", submitted to Pattern Recognition (Under Review)
- **Shijie Geng**, and Yu Qiao, a patent titled "Steel Plates Counting Algorithm based on Nonstationarity Measure and Morphological Operations", submitted to State Intellectual Property Office of P.R. China

## RESEARCH EXPERIENCES

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### Computer-Aided Diagnosis and Medical Image Segmentation

Jul.2014 - Jan.2016

Advisor: **Yu Qiao** (Associate Professor of School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University), **Yizhou Wang** (Professor of School of Electronics Engineering and Computer Science, Peking University)

- Key member of National Natural Science Foundation of China (NSFC) project "Model-based Key Techniques for Computer-Aided Analysis System of Bone Scintigrams"
- Proposed a lesion detection and automatic segmentation method for bone scintigraphy based on convolutional sparse autoencoder and multiple instance learning to improve lesion segmentation accuracy
- Proposed an interactive lesion segmentation algorithm for bone scintigraphy based on EM and multiple instance learning, allowing physicians to acquire quantitative information conveniently and precisely
- Adopted active learning in lesion segmentation for bone scintigraphy to alleviate the labeling burden of physicians

### Superpixels Segmentation and Saliency Detection

Oct.2014 - Jun.2015

Advisor: **Yu Qiao**

- Collaboratively proposed “nSLIC”, the superpixels segmentation algorithm based on nonstationarity measure, which both increases the accuracy and efficiency of superpixel segmentation
- Adopted affinity propagation method to cluster the salient points for multiple salient objects location, which improves the quality of saliency map.
- Submitted a journal paper about multiple target location and saliency detection as the second author

### **Dense Layered Steel Plates Separation and Counting**

Jan.2015 - Apr.2016

Advisor: **Yu Qiao, Yizhou Wang**

- Designed a steel plate counting algorithm based on semi-supervised learning, nonstationarity measure, Leung-Malik filterbank and dynamic programming
- Applied to industrial fields to ease the burden of manual counting, with a counting error rate less than 2%
- Submitted a patent application to State Intellectual Property Office of P.R. China

### **Alibaba Big Data Competition on Mobile Recommendation Algorithm**

Apr.2015 - Jul.2015

- Built a team and led team members to participate in the competition about data mining
- Conducted data preprocessing and extracted more than 100 features from about 5 million purchasing records by Map-Reduce algorithms
- Constructed training and test datasets from processed records, trained two classifiers with Random Forest and GBRT individually, and merged the two models to make final predictions

### **Remote Gesture-Controlled Intelligent Vehicle**

Nov.2013 - Feb.2014

Advisor: **Xin Yang** (Professor of School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University)

- Collected gestures dataset from shot videos and trained a gesture classifier with boosting algorithm
- Established a remote UDP communication module, which enables users to control the movement of intelligent vehicle through different gestures

### **AC Motor Load Testing Platform Software Development**

Apr.2013 - May.2013

Advisor: **Chuanwen Shen** (Associate Professor of School of Electrical Engineering, Xi'an Jiaotong University)

- Developed a testing software for AC motor with Visual C++ and LabVIEW to achieve visual measurement and data analysis of electrical parameters

## **TEACHING EXPERIENCES**

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### **Action Recognition Based on RNN - Tutor**

May.2016 - Jun.2016

- Guided undergraduate thesis “Video Object Segmentation and Action Recognition based on Recurrent Neural Network”

## **AWARDS**

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- The 2015 Alibaba Big Data Competition, Ranked 115/7186 (Top 2%)
- The 2014 Second-class Scholarship of Shanghai Jiao Tong University (Top 10%)
- Second Prize in the 2014 National Postgraduate Mathematical Modeling Contest of China (Top 20%)
- The 2011 Excellent Student of Xi'an Jiaotong University (Top 5%)
- The 2010, 2011, 2012 Siyuan Scholarship of Xi'an Jiaotong University (Top 15%)

## **INTERNSHIP EXPERIENCES**

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### **JC Capital Corporation, Shanghai, China - Business Data Analyst Internship**

Jul.2014 - Aug.2014

- Collected earning report and business data of related companies through Wind financial terminal platform
- Processed, modeled, and analyzed collected business data with Python and Scikit-learn toolkit

### **ACTIONPOWER Electric Co., Ltd, Xi'an, China - Assistant Engineer Internship**

Jul.2012 - Aug.2012

- Designed the switching power supply section of an intelligent wind power system

## **OTHERS**

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**English Proficiency:** TOEFL – 102 (Writing: 30); GRE – Verbal: 155 (68%), Quantitative: 168 (95%), AW: 3.5 (42%)

**Interests:** Soccer, Design, Photography, and Travel