Shijie Geng

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EDUCATION

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

Computer Vision; Medical Image Analysis; Machine Learning

COMPUTER SKILLS

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

PUBLICATIONS

- **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

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
- 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

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

- 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

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

English Proficiency: TOEFL – 102 (Writing: 30); GRE – Verbal: 155 (68%), Quantitative: 168 (95%), AW: 3.5 (42%)
Interests: Soccer, Design, Photography, and Travel