Shijie Geng

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EDUCATION

Shanghai Jiao Tong University, Shanghai, China **2013 - 2016**
Master of Science in Control Science and Engineering – Pattern Recognition and Intelligent System Track
GPA (overall): **3.7/4.0**

Xi'an Jiaotong University, Xi'an, China **2009 - 2013**
Bachelor of Engineering in Electrical Engineering and Automation
GPA (overall): **87.5/100**; Major GPA: **89.9/100**; Ranking: **22/358**

RESEARCH INTERESTS

Object Recognition; Image Segmentation; Machine Learning; Content-based Image Retrieval; Deep Learning

COMPUTER SKILLS

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

PUBLICATIONS

1. **S. Geng** (Shijie Geng), J. Ma, X. Niu, S. Jia, Y. Qiao, and J. Yang, "A MIL-Based Interactive Approach for Hotspot Segmentation from Bone Scintigraphy", *2016 41th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2016)*, pp. 942-946, Shanghai, China, March 20 - 25, 2016. **DOI: 10.1109/ICASSP.2016.7471814**
2. **S. Geng** (Shijie Geng), S. Jia, Y., J. Yang, and Z. Jia, "Combining CNN and MIL to Assist Hotspot Segmentation in Bone Scintigraphy", *22th International Conference on Neural Information Processing (ICONIP 2015)*, Istanbul, Turkey, Nov 09-12, 2015, LNCS, 2015, Volume 9492, pp. 445–452, **oral presentation**. **DOI: 10.1007/978-3-319-26561-2_53**
3. S. Jia, **S. Geng** (Shijie Geng), Y. Gu, J. Yang, P. Shi, and Y. Qiao, "NSLIC: SLIC Superpixels based on Nonstationarity Measure", *2015 IEEE International Conference on Image Processing (ICIP 2015)*, pp. 4738-4742, Québec City, Canada, Sep. 27-30, 2015, **oral presentation**. **DOI: 10.1109/ICIP.2015.7351706**
4. S. Jia, **S. Geng** (Shijie Geng), and Y. Qiao, "Adaptive Location and Size for Saliency Detection", submitted to Pattern Recognition (Under Review)
5. **S. Geng** (Shijie Geng), and Y. 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 EIEE, Shanghai Jiao Tong University), **Yizhou Wang** (Professor of School of EECS, 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

Computer Graphics Class Project on 3D Snowy Scene Construction May.2014 - Jun.2014

- Constructed a snowy scene including particle system, light source and foggy effects by OpenGL

Remote Gesture-Controlled Intelligent Vehicle Nov.2013 - Feb.2014

Advisor: **Xin Yang** (Professor of School of EIEE, 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"

Image Feature Analysis based on Machine Learning Techniques - Tutor Oct.2014 - Jun.2015

- Guided two undergraduate students to successfully accomplish their PRP research projects

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%)

OTHERS

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