Miao Sun

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer vision with special interests in Object detection, image classification, and activity analysis; Deep learning with special interests in convolutional networks and hierarchical models.

EDUCATION

University of Missouri, Columbia, MO USA

Ph.D. in Electrical and Computer Engineering, Oct. 2016

- Dissertation Topic: "Large Scale Image Classification and Object Detection"
- Advisor: Prof. Tony X. Han

MS in Electrical and Computer Engineering, May. 2014

- Master Topic: "An Image-classification Leveraged Object Detector"
- Advisor: Prof. Tony X. Han

University of Science and Technology of China, Hefei China

Bachelor of Engineering, Dept. of Automation, Jul, 2011

RESEARCH EXPERIENCE

WeRide Corp , San Jose, CA, USA
Research Scientist, Manager: Dr. Huazhong Ning **Apr. 2017 - Present**
In charge of the perception team for autonomous driving. Developing robust and accurate pedestrian and vehicle detection by taking advantage of multiple sensors such as LIDAR, Radar and Camera with both hand-designed features and deep learning based methods.

Baidu USA, Sunnyvale, CA, USA
Senior Software Engineer, Manager: Dr Xu Han **Nov. 2016 - Apr. 2017**
Developed extrinsic calibration algorithms for multiple sensors in the Autonomous Driving Team. The algorithm can accurately and efficiently calibrate LIDAR-IMU and LIDAR-Camera.

University of Missouri, Columbia, MO, USA
Research Assistant, Advisor: Professor Tony X. Han **Aug. 2011 - Oct. 2016**
Worked on image-based object detection and classification with both traditional hand-designed features and deep structure learned features.

NEC Laboratories America, Inc, Cupertino, CA, USA
Engineering Intern, Manager: Dr. Xiaoyu Wang **Aug. 2013 - Nov. 2013**
We were runner up winners in the ImageNet Large Scale Object Detection Challenge (ILSVRC 2013) worldwide and ranked first place in the United States.

Sony Electronics Inc, San Jose, CA, USA
Engineering Intern, Manager: Dr. Jason Xun Xu **May. 2013 - Aug. 2013**
Designed and implemented learning-based encoding parameter estimation algorithm for efficient HEVC encoders.

Sony Electronics Inc, San Jose, CA, USA
Engineering Intern, Manager: Dr. Jason Xun Xu **May. 2012 - Aug. 2012**
Implemented and enhanced stacked convolutional independent subspace analysis features for action recognition.

Awards

- Runner up Winner in imageNet Large Scale Object Detection Challenge 2013 worldwide (key person)
- Rank 3rd in the detection task (comp3) of PASCAL Object Classes Challenge 2012 worldwide (key person).
- Rank 7th in the detection task (comp3) of PASCAL Object Classes Challenge 2011 worldwide (key person).

Publications

- John Smith, Matthew Conover, Natalie Stephenson, Jesse Eickholt, Dong Si, Miao Sun, Renzhi Cao, "TopQA: a topological representation for single-model protein quality assessment with machine learning", International Journal of Computational Biology and Drug Design, 2020
- Matthew Conover, Max Staples, Dong Si, Miao Sun, Renzhi Cao, "AngularQA: protein model quality assessment with LSTM networks", Computational and Mathematical Biophysics, 2019
- Ke Zhang, Miao Sun,Xu Han, Xingfang Yuan, Liru Guo, Tao Liu, "Residual Networks of Residual Networks: Multilevel Residual Networks", IEEE Transactions on Circuits and Systems for Video Technology, 2018
- Zhang, Ke; Guo, Liru; Gao, Ce; Zhao, Zhenbing; Sun, Miao; Yuan, Xingfang, "Age group classification in the wild with deep RoR architecture", IEEE International Conference on Image Processing (ICIP), 2017
- Renzhi Cao, Badri Adhikari, Debswapna Bhattacharya, Miao Sun, Jie Hou, Jianlin Cheng, "QAcon: single model quality assessment using protein structural and contact information with machine learning techniques", Bioinformatics 2017
- Renzhi Cao, Colton Freitas, Leong Chan, Miao Sun, Haiqing Jiang, Zhangxin Chen, "ProLanGO: Protein Function Prediction Using Neural Machine Translation Based on a Recurrent Neural Network", Molecules 2017
- Ke Zhang, Ce Gao, Liru Guo, Miao Sun, Xingfang Yuan, Tony X. Han, Zhenbing Zhao, Baogang Li, "Age Group and Gender Estimation in the Wild with Deep RoR Architecture", IEEE Access, 2017
- Miao Sun, Tony X. Han, Ming-Chang Liu, Ahmad Khodayari-Rostamabad, "Multiple Instance Learning Convolutional Neural Networks for Object Recognition", International Conference on Pattern Recognition, 2016
- Miao Sun, Tony X. Han, Xu Xun, Ming-Chang Liu, Ahmad Khodayari-Rostamabad, " Latent Model Ensemble with Auto-localization", International Conference on Pattern Recognition, 2016
- Will Y. Zou, Xiaoyu Wang, Miao Sun, Yuanqing Lin, "Generic Object Detection with Dense Neural Patterns and Regionlets", British Machine Vision Conference, 2014

Patents

- " Regionlets with Shift Invariant Neural Patterns for Object Detection", with Xiaoyu Wang, etc, at Laboratories America, Inc, patent filed. U.S. No. 9,202,144, in 2015