# Zhiyuan Li

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## QUALIFICATIONS AND SKILLS

- Research experience in computer vision, image processing and machine learning with solid fundamental knowledge of engineering and mathematics.
- Strong understanding of motion tracking, pattern recognition, data structure and algorithm.
- Strong programming experience in C/C++, Matlab and Python.
- Experience in tools such as OpenCV and Matlab's computer vision toolbox.
- Familiar with both PC and Unix development environment.
- Excellent problem solving ability and fast learner demonstrated in course projects.

## EDUCATION

**University of Rochester**                                                                            **Rochester, NY**
**Master in Electrical and Computer Engineering (Image Processing)**                    Expected 05/2016
- GPA: 3.47/4.0

**South China University of Technology**                                                        **Guangzhou, China**
  **Bachelor in Information Engineering**                                                          Graduated 06/2014
- GPA: 3.60/4.0

## IMAGE PROCESSING RESEARCH AND PROJECTS

**University of Rochester**                                                                            **Rochester, NY**
**Deep Learning Neural Network for Blood Vessel Segmentation**                    *VISTA lab, 06/2015-10/2015*
- Trained a classifier with deep learning framework Caffe.
- Tested performance of convolutional neural network with different layer parameters to optimize network performance.
- Increased speed of recognition and segmentation process. Achieved more accurate and detailed segmentation results based on the judge of professional physicians from UR medical center.

**Pedestrian Tracking and Abnormal Behavior Detection**                    *Course Project, 04/2015-05/2015*
- Combined HOG(Histogram of oriented gradients) features template and background removal method to detect pedestrians.
- Designed a pedestrians tracking filter that tracks multiple pedestrians in a video.
- Proposed an algorithm based on social force flow, an improved optical flow method, to detect abnormal behavior such as fights.

**South China University of Technology**                                                        **Guangzhou, China**
**Image Pre-processing for Gait Recognition**                                      *Diploma Project, 12/2013-05/2014*
- Developed a model based background removal method which combined local threshold and Gaussian mixture model for updating background model.
- Developed a program to segment moving human contour from complex background in real time video.

**Hand Gesture Recognition Based on Kinect & Sparse Coding**                    *HCI lab, 12/2011-04/2013*
- Developed effective hand gesture segmentation methods for image processing based on Kinect camera, which integrated depth and skeleton information.
- Developed a novel hand gesture recognition system, which applied multiple neural networks and sparse auto-encoder.
- Independently analyzed skin color recognition algorithm, and completed skin color clustering test and comparison.
- Played a leading role in designing hand segmentation algorithm and programming.

## PUBLICATION

Huang, Z., Xu, Z., **Li, Z.**, Zhao, Z., Tao, T. (2013) 'Depth and Skeleton Information Model for Kinect Based Hand Segmentation', *International Conference on Advanced Information and Communication Technology for Education (ICAICTE)*

Xu, Z., Huang, Z., Zhao, Z., **Li, Z.**, Huang, P. (2013) 'Sparse Representation for Kinect Based Hand Gesture Recognition System', *ICAICTE*