

ZHIZHONG LI

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EDUCATION

University of Illinois at Urbana-Champaign

Ph. D. student in Computer Science
Overall GPA: 3.95/4.00

Expected in May 2020

Carnegie Mellon University, Pittsburgh

Master of Science in Robotics
Cumulative GPA: 4.13/4.33

Aug. 2013 - Dec. 2014

Tsinghua University, Beijing

Bachelor of Science in Automation
Cumulative GPA: 91.52/100 (Top 3%)

Aug. 2009 - Jul. 2013

PUBLICATION

Zhizhong Li, and Derek Hoiem. Learning without forgetting. In ECCV, 2016, spotlight presentation.

Zhizhong Li, and Derek Hoiem. Learning without forgetting. To appear in IEEE Transactions on PAMI (2017).

Chuhang Zou, Ruiqi Guo, Zhizhong Li, and Derek Hoiem. "Complete 3D Scene Parsing from an RGBD Image." arXiv preprint arXiv:1504.02437 (2015).

Zhizhong Li, and Daniel Huber. Domain adaptation for structure recognition in different building styles. In 3D Vision (3DV), 2015.

RESEARCH EXPERIENCE

Learning without Forgetting

Graduate Researcher, with Dr. Derek Hoiem

Sept. 2015 - present

Vision group, UIUC

- Project aims at integrating new capabilities into a Convolutional Neural Network while retaining the old capabilities without access to their original training data
- Designed a novel Learning without Forgetting method that outperforms the commonly used fine-tuning technique and other similar methods on both new and old tasks
- Proposed method performs similarly to multi-task learning which requires data we assume inaccessible

Complete 3D RGBD Scene Parsing

Graduate Researcher, with Dr. Derek Hoiem

Sept. 2015 - present

Vision group, UIUC

- Project aims at generating very detailed and complete 3D models from RGBD images of cluttered scenes, without being limited to known categories and templates (ongoing project)
- Developed Convolutional Neural Networks for object retrieval and classification

Accurate and Fast Instance Segmentation with Deep Networks

Research Intern, with Dr. Mostafa El-Khamy

May 2017 - Aug. 2017

Samsung Semiconductor

- Project aims at improving upon existing Instance Segmentation methods with deep neural networks
- Proposed a density prediction network branch that predicts the number of object per local neighborhood area to help with detecting small or occluded objects
- Implemented Pyramid Network structure for the FCIS method

The Aerial Robotic Infrastructure Analyst (ARIA) Project

Oct. 2013 - May 2015

Graduate Researcher, with Dr. Daniel Huber

3DVIS group, CMU

- Project aims at constructing an aerial robot to rapidly create comprehensive, high-resolution, and semantically rich 3D models of infrastructure, in order to aid infrastructure inspection
- Proposed a two-step method to choose and adapt the best matching building style from a style library. It boosts the performance compared to all baselines
- Developed a synthetic point cloud scanner for 3D models

Matchstick Man Animation Generation via Body Parts Recognition

Jul. 2012 - Jul. 2013

Undergraduate Researcher, with Dr. Changshui Zhang

BigEye Lab, Tsinghua Univ.

- Project aimed at developing a software package producing simple matchstick man animations from user-drawn figures
- Designed a Bayesian Network to simultaneously detect and recognize body parts of stick figures
- Applied affine transformation on recognized body parts to render matchstick man animation

RTLlinux based Open Architecture Robot Controlling System

Oct. 2010 - Oct. 2011

National Innovation Research Project for Undergraduates, with Dr. Zongying Shi *Tsinghua Univ.*

- Project aimed at developing a platform on RTLlinux for further experiments with a 6-DOF robot
- Extended the controlling system by enabling moving in arbitrary continuous trajectories
- Extended the API to enable customized control algorithm
- Developed a robot calligraphy application based on the platform

SELECTED HONORS

Comprehensive Scholarship, Tsinghua University (5 out of 149)	<i>Oct. 2011</i>
Challenge Cup at Tsinghua University, <i>Special Prize</i> (Top 1%)	<i>Apr. 2011</i>
Electronic Design Competition in Tsinghua University, <i>Second Prize</i> (4th of ~ 100 teams)	<i>Dec. 2010</i>
The NoviCe Programming Contest in Tsinghua University, <i>Champion</i>	<i>Apr. 2010</i>

SKILLS

Language	Proficient in Python, MATLAB, C/C++; Experience with Java, assembly
Library	Proficient in PyTorch, scikit-learn, MatConvNet; Experience with Caffe, TensorFlow, PCL, ROS, OpenCV, Jsoup, RTLlinux
Hardware	Experience with Microcontroller Units, Verilog HDL, VHDL
Other	Skilled in Qt, SketchUp, Vim, git, Adobe Photoshop, Adobe Premiere