

ZHIZHONG LI

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EDUCATION

University of Illinois at Urbana-Champaign

Aug. 2015 - May 2020

Ph.D. candidate in Computer Science
Overall GPA: 3.96/4.00

Carnegie Mellon University, Pittsburgh

Aug. 2013 - Dec. 2014

Master of Science in Robotics
Cumulative GPA: 4.13/4.33

Tsinghua University, Beijing

Aug. 2009 - Jul. 2013

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

RESEARCH INTEREST

For deep vision models in the wild, datasets may become partially inaccessible, affecting performance. My research focuses on reducing the impact of missing data, annotations, and distribution knowledge.

Keywords: deep learning, continual learning, domain adaptation, transfer learning, machine learning

PUBLICATION

Hongxu Yin, Pavlo Molchanov, Jose Alvarez, Zhizhong Li, Arun Mallya, Derek Hoiem, Niraj Jha, and Jan Kautz. Dreaming to Distill: Data-free Knowledge Transfer via DeepInversion. In CVPR 2020 (oral presentation).

Zhizhong Li, Linjie Luo, Sergey Tulyakov, Qieyun Dai, and Derek Hoiem. Task-Assisted Domain Adaptation with Anchor Tasks. Submission for review.

Zhizhong Li, and Derek Hoiem. Improving Confidence Estimates for Unfamiliar Examples. In CVPR 2020 (oral presentation).

Chuhang Zou, Ruiqi Guo, Zhizhong Li, and Derek Hoiem. Complete 3D Scene Parsing from an RGBD Image. IJCV 127 (2018): 143-162.

Zhizhong Li, and Derek Hoiem. Learning without forgetting. In IEEE Transactions on PAMI (2017). ECCV 2016 (spotlight presentation).

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

RESEARCH EXPERIENCE

Dreaming to Distill: Data-free Knowledge Transfer via DeepInversion
May 2019 - May 2020

May 2019 - May 2020

with Dr. Arun Mallya, Dr. Pavlo Molchanov, Dr. Derek Hoiem

NVIDIA and UIUC

- Project “inverts” deep classifiers into synthetic training images and facilitates data-free knowledge transfer applications downstream, e.g. network compression and incremental learning
- Propose using BatchNorm statistics for regularizing synthetic distribution, vastly improving realism
- Responsible for incremental learning with generated images, eliminating need for any past real data

Task-Assisted Domain Adaptation with Anchor Tasks*with Dr. Linjie Luo and Dr. Derek Hoiem*

May 2018 - present

Snap Inc. and UIUC

- Project aims at improving unsupervised domain adaptation with free or already available extra labels
- Propose network training strategy that learns guidance between spatial labels of two tasks to regularize

Improving Confidence Estimates for Unfamiliar Examples*with Dr. Derek Hoiem*

Sept. 2017 - May 2020

Vision Group, UIUC

- Project draws attention to deep networks being confidently wrong on unexpected target distributions
- Investigate and compare the behavior of methods on unfamiliar images in a wide range of related fields

Complete 3D RGBD Scene Parsing*with Dr. Derek Hoiem*

Sept. 2015 - 2018

Vision Group, UIUC

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

Learning without Forgetting*with Dr. Derek Hoiem*

Sept. 2015 - Nov. 2017

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 method outperforming popular methods (e.g. fine-tuning) on both new and old tasks

WORK EXPERIENCE

Amazon*Applied Scientist, AWS Rekognition*

July 2019 - present

NVIDIA Corp.*Research Intern (see Research Experience Dreaming to Distill)*

May 2019 - Aug. 2019

Snap Inc.*Research Intern (see Research Experience Task-Assisted Domain Adaptation)*

May 2018 - Aug. 2018

Samsung Semiconductor Inc.*Research Intern, with Dr. Mostafa El-Khamy*

May 2017 - Aug. 2017

- Proposed improving small or occluded objects' instance segmentation by analyzing object count density

UIUC Vision Group GPU cluster maintenance

June 2018 - June 2020

Teaching Assistant *CS 445 Computational Photography, UIUC.*

Fall 2017

SELECTED HONORS

Comprehensive Scholarship, Tsinghua University (5 out of 149)

*Oct. 2011*Challenge Cup at Tsinghua University, *Special Prize* (Top 1%)*Apr. 2011*Electronic Design Competition at Tsinghua University, *Second Prize* (4th of ~ 100 teams)*Dec. 2010*The NoviCe Programming Contest at Tsinghua University, *Champion**Apr. 2010***SKILLS**

Language

Proficient in Python, MATLAB, C/C++

Library

Proficient in PyTorch, scikit-learn;

Experience with TensorFlow, MatConvNet, Caffe, MXNet

OtherSkilled in L^AT_EX, Vim, git