ZHIZHONG LI

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EDUCATION

University of Illinois at Urbana-Champaign *Aug. 2015 - Expected in 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. To appear in CVPR 2020 as an 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. To appear in CVPR 2020 as an 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 - present
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 May 2018 - present
with Dr. Linjie Luo and Dr. Derek Hoiem *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 Sept. 2017 - present
with Dr. Derek Hoiem *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 Sept. 2015 - 2018
with Dr. Derek Hoiem *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 Sept. 2015 - Nov. 2017
with Dr. Derek Hoiem *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

NVIDIA Corp. May 2019 - Aug. 2019
Research Intern (see Research Experience Dreaming to Distill*)*

Snap Inc. May 2018 - Aug. 2018
Research Intern (see Research Experience Task-Assisted Domain Adaptation*)*

Samsung Semiconductor Inc. May 2017 - Aug. 2017
Research Intern, with Dr. Mostafa El-Khamy

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

UIUC Vision Group GPU cluster maintenance June 2018 - present

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 $\sim$ 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
Other	Skilled in LaTeX, Vim, git