

LUMING TANG

lt453@cornell.edu <http://lumingtang.info>

EDUCATION

Cornell University, Department of Computer Science Jan 2019 - Dec 2023 or Jun 2024

Ph.D. in Computer Science

Advisor: Prof. Bharath Hariharan

Research Interests: Computer Vision and Machine Learning

Tsinghua University, Department of Physics Aug 2014 - Jul 2018

B.S. in Mathematics and Physics

Second Major in Economics

PUBLICATIONS AND MANUSCRIPTS

Davis Wertheimer*, **Luming Tang***, Bharath Hariharan. “Diagnosing and Remediating Shot Sensitivity with Cosine Few-Shot Learners”, *Tech Report*.

Davis Wertheimer, **Luming Tang**, Dhruv Baijal, Pranjal Mittal, Anika Talwar, Bharath Hariharan. “Few-Shot Learning in Long-Tailed Settings”, in submission to *Transactions on Pattern Analysis and Machine Intelligence* (TPAMI).

Davis Wertheimer*, **Luming Tang***, Bharath Hariharan. “Few-Shot Classification with Feature Map Reconstruction Networks” (*equal contribution), in *Conference on Computer Vision and Pattern Recognition* (CVPR 2021).

Luming Tang, Davis Wertheimer, Bharath Hariharan. “Revisiting Pose-Normalization for Fine-Grained Few-Shot Recognition”, in *Conference on Computer Vision and Pattern Recognition* (CVPR 2020).

Luming Tang, Yexiang Xue, Di Chen, Carla P. Gomes. “Multi-Entity Dependence Learning with Rich Context via Conditional Variational Auto-encoder”, in *AAAI Conference on Artificial Intelligence* (AAAI 2018).

Zhongdao Wang*, **Luming Tang***, Xihui Liu, Zhuliang Yao, Shuai Yi, Jing Shao, Junjie Yan, Shengjin Wang, Hongsheng Li, Xiaogang Wang. “Orientation Invariant Feature Embedding and Spatial Temporal Regularization for Vehicle Re-identification” (*equal contribution), in *International Conference on Computer Vision* (ICCV 2017).

Luming Tang, Boyang Deng, Haiyu Zhao, Shuai Yi. “Hierarchical Deep Recurrent Architecture for Video Understanding”. in *CVPR 2017 Workshop on Youtube-8M Large-Scale Video Understanding*.

EXPERIENCE

Cornell University, Research Assistant Sep 2019 - Present
Advisor: Bharath Hariharan

- Working on learning with fewer labels for computer vision in general and few-shot learning in particular.
- Reformulated few-shot classification as a reconstruction problem in latent space, proposed a novel mechanism by regressing directly from support features to query features in closed form without introducing any new learnable parameters, which is more performant and efficient than previous approaches.
- Revisited pose normalization for fine grained few-shot recognition problem and showed that with a minimal increase on model capacity, it could improve performance significantly for multiple different learning algorithms and network backbones.

Waymo, Perception Intern May 2021 - Nov 2021
Mentors: Shiwei Sheng, Andy Tsai, Ruichi Yu

- Worked on a confidential 3D multi-object tracking project. Implemented an end-to-end tracking framework prototype by using a DETR-style transformer.

Microsoft Research Asia, Research Intern Sep 2018 - Dec 2018
Mentor: David Wipf

- Analyzed the regularization balance of Autoencoder-structured models in general and VAEs in particular. This leads to useful practical prescriptions and demonstration of high-quality, diverse generation results from Autoencoder-structured, non-adversarial training on high-resolution images.

Cornell University, Research Intern Jun 2017 - Sep 2017
Advisor: Carla P. Gomes

- Created a variational auto-encoder based algorithm to model structured multi-entity distribution, achieved better performance on two real-world applications compared to previous state-of-the-art approximate inference based methods.

SenseTime, Research Intern Dec 2016 - Jun 2017
Mentor: Shuai Yi

- Combined an orientation-invariant embedding with spatio-temporal regularization to double matching accuracy on four vehicle re-identification datasets.
- Developed a hierarchical deep recurrent architecture for video classification. The first-author paper was accepted by CVPR Video Understanding Workshop.

Tsinghua University, Research Assistant Sep 2016 - Jun 2018
Advisor: Zhiyuan Liu

- Worked on natural language processing problems in general and relation extraction tasks in particular.
- Helped develop OpenNRE: an open-source framework for neural relation extraction. Code is available at THUNLP Github homepage (over 3k stars, 800 forks).

TEACHING EXPERIENCE

CS 4787 Principles of Large-Scale Machine Learning, Teaching Assistant	Spring 2019
CS 2110 OOP and Data Structures, Teaching Assistant	Summer 2019
CS 6670 Graduate Computer Vision, Teaching Assistant	Fall 2019

SELECTED AWARDS

CVPR 2021 Outstanding Reviewer	Jun 2021
Star of Tomorrow (awarded for distinguished internship), Microsoft Research Asia	Dec 2018
Distinguished Academic Innovation Award, Department of Physics, Tsinghua (2/100)	Oct 2017
Academic Talent Program Scholarship, Tsinghua	Dec 2014
First Prize in National Physics Olympiad Competition, ranked 11-th in Henan Province	Sep 2013

ACADEMIC SERVICES

Conference Reviewer: CVPR 2021, ICCV 2021, CVPR 2022

SKILLS

Python, PyTorch, TensorFlow, L^AT_EX