Cheng Zhang

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Research

Machine learning and its applications to computer vision, mobile sensing, and healthcare.

Education

- **The Ohio State University**, Ohio, United States
  Ph.D. in Computer Science and Engineering — Jan. 2017 - present
  Advisors: Wei-Lun Chao and Dong Xuan
- **Beijing University of Posts and Telecommunications (BUPT)**, Beijing, China
  M.S. in Computer Science, Rank: 2/391 — Mar. 2016
- **Tianjin University**, Tianjin, China
  B.S in Computer Software, Rank: 13/151 — Jun. 2013

Professional Experience

- **Research/Teaching Associate**, The Ohio State University — Jan. 2017 - present
  - Learning with limited supervision: conditioned imbalanced learning
  - Graph neural networks over multimodal data [C4]
  - Vision and language: robust visual question answering [T1,C4]
  - Mobile sensing: multi-sensor system over new wireless (e.g., vision, light, and sound) [C3,C2]
- **Research Intern,** FX Palo Alto Laboratory, Palo Alto, CA, USA — May 2019 - Aug. 2019
  Mentors: Francine Chen and Yan-Ying Chen
  - Healthcare: weakly-supervised disease identification and localization in Chest-Xray images [P3]
- **Research Intern,** DeepCode Robotics, Shanghai, China — May 2018 - Aug. 2018
  Mentors: Fan Yang and Qiang Zhai
  - Perception and control algorithms for sports analysis and robot planning [C3]
- **Research Assistant,** Center of Internet of Things, BUPT — Sept. 2013 - Mar. 2016
  Advisor: Huadong Ma
  - Gait recognition and human identification for video surveillance [C1,J3,P2]
  - Image-based air quality measurement [C2,J2,J1]
- **Algorithm Engineer Intern,** Alibaba Vision Lab (currently DAMO Academy) — Jul. 2015 - Sept. 2015
  Mentors: Xian-Sheng Hua and Pan Pan
  - Visual search: large-scale image categorization for Pailitao - the visual search service on Mobile Taobao
- **Research Assistant,** Visual Intelligence Lab, Tianjin Univ. — Sept. 2011 - Jun. 2013
  Advisor: Wei Feng
  - Superpixel gridization for fast object localization and segmentation [P1]

Publications

Pre-prints / Technical Reports

T1 **Cheng Zhang**, et al, Question-Conditioned Post-Calibration for Debiased Visual Question Answering, under review, 2019.

Conference Proceedings

C4 **[BMVC'19] Cheng Zhang**, Wei-Lun Chao, Dong Xuan, An Empirical Study on Leveraging Scene Graphs for Visual Question Answering, in *Proceedings of British Machine Vision Conference* ***(Oral)***, Cardiff, UK, Sept 2019.

C3 **[INFOCOM'18] Cheng Zhang**, Fan Yang, Gang Li, Qiang Zhai, Yi Jiang, Dong Xuan, MV-Sports: A Motion and Vision Sensor Integration-Based Sports Analysis System, in *Proceedings of IEEE International Conference on Computer Communications*, Honolulu, HI, USA, Apr 2018.

C2 **[IMWUT/Ubicomp'18]** Liang Liu, Wu Liu, Yu Zheng, Huadong Ma, **Cheng Zhang**, Third-Eye: A Mobilephone-Enabled Crowdsensing System for Air Quality Monitoring, in *Proceedings of ACM International Joint Conference on Pervasive and Ubiquitous Computing*, Singapore, Oct 2018.

C1 **[ICASSP'16] Cheng Zhang**, Wu Liu, Huadong Ma, Huiyuan Fu, Siamese Neural Network based Gait Recognition for Human Identification, in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, Shanghai, China, Mar 2016.

Journal Articles

J3 **[NI'18]** Wu Liu, **Cheng Zhang**, Huadong Ma, Shuangqun Li, Learning Efficient Spatial-Temporal Gait Features with Deep Learning for Human Identification, *Neuroinformatics*, 2018, 16(3-4): 457-471.

J2 **[NC'16]** Zheng Zhang, Huadong Ma, Huiyuan Fu, **Cheng Zhang**, Scene-free Multi-class Weather Classification on Single Images, *Neurocomputing*, 2016, 207: 365-373.

J1 **[MIS'16]** Zheng Zhang, Huadong Ma, Huiyuan Fu, Liang Liu, **Cheng Zhang**, Outdoor Air Quality Level Inference via Surveillance Cameras, *Mobile Information Systems*, 2016.

Patents

P3 **Cheng Zhang**, Francine Chen, Yan-Ying Chen, System and Method for Multi-Label Diseases Identification and Localization Using Cyclical Training, *US Patent*, pending.

P2 Huadong Ma, Wu Liu, Huiyuan Fu, **Cheng Zhang**, Method and Device for Gait Recognition, *US Patent*, 9633268.

P1 Wei Feng, Liang Wan, Jiawan Zhang, Liang Li, **Cheng Zhang**, Maximum Cohesive Superpixel Grid for Fast Object Localization and Segmentation, CN103489185A.

Theses

MS **Cheng Zhang**, Research on Key Techniques of Gait Recognition based on Deep Learning, Beijing University of Posts and Telecommunications (Best thesis award), 2016.

BS **Cheng Zhang**, Minimum Topological Discrepancy Grid of Superpixels for Fast Object Localization, Tianjin University (Best thesis award), 2013.

Professional Activities

Journal Reviewer
- ACM Transactions on Sensor Networks (ToSN)
- PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- Machine Vision and Applications (MVA), Springer
- Multimedia Tools and Applications (MTAP), Springer

Conference Reviewer
- ACM Multimedia 2019
- ACM Multimedia Asia 2019

- IEEE International Conference on Computer Communications (INFOCOM) 2019
- IEEE International Conference on Multimedia and Expo (ICME) 2019
- IEEE International Conference on Image Processing (ICIP) 2017, 2018, 2019
- IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2017, 2018

Teaching Experience

Ph.D. at OSU

- CSE 1222 Programming in C++, Lecturer (80 students) — Spring and Fall 2019
- CSE 4471 Information Security, Teaching Assistant (40 students) — Fall 2018
- CSE 5432 Mobile Handset Systems and Networking, Teaching Assistant (25 students) — Fall 2018

M.S. at BUPT

- Computer Graphics, Teaching Assistant (40 students) — Fall 2015

Skills

Languages and Technologies: C/C++, Python, Matlab, Scala, Shell, CUDA, JavaScript, SQL, etc.

Tools and Libraries: OpenCV, Tensorflow, PyTorch, Caffe/Caffe2, Darknet, etc.

Honors & Awards

Ph.D. at OSU

- Student Travel Grant for IEEE INFOCOM 2018

M.S. at BUPT

- Best Master's Thesis 2016
- Student Travel Grant for IEEE ICASSP 2016
- Excellent Graduate, Beijing City 2016
- National Scholarship, Ministry of Education, China 2015
- VMware Excellent Scholarship 2014

B.S. at Tianjin Univ.

- Best Undergraduate Thesis 2013
- Excellent Graduate 2013
- Hitachi Scholarship 2012
- Golden Award for the 8th Challenge Cup Innovation Competition, China 2012
- Weichai Power Scholarship (twice) 2010 2011