Yao-Hung Hubert Tsai

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Research Interests

I work on Deep Learning and its applications, especially on Transfer Learning and Generative Learning.

Education

Carnegie Mellon University, Pittsburgh, PA, USA *Aug 2016 - May 2021*

- Ph.D. in Machine Learning within School of Computer Science
- *Advised by Dr. Ruslan Salakhutdinov*
- GPA: 4.15/4.0

National Taiwan University, Taipei, Taiwan *Aug 2010 - Jun 2014*

- B.S. in Electrical Engineering (graduated with Department Honors)
- Undergraduate Ceremony Representative
- *Advised by Dr. Yu-Chiang Frank Wang and Dr. Shao-Yi Chien*
- GPA: 4.17/4.0

Selected Publications

Conference Publications

[1] **Yao-Hung Hubert Tsai**, Liang-Kang Huang, and Ruslan Salakhutdinov. "Learning Robust Visual-Semantic Embeddings", *International Conference on Computer Vision (ICCV)*, 2017.

[2] Shih-Yen Tao, **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Semantics-Preserving Locality Embedding for Zero-Shot Learning", *British Machine Vision Conference (BMVC)*, 2017. **(Spotlight Presentation)**

[3] Wei-Yu Chen, Tzu-Ming Harry Hsu, **Yao-Hung Hubert Tsai**, Yu-Chiang Frank Wang, and Ming-Syan Chen. "Transfer Neural Trees for Heterogeneous Domain Adaptation", *European Conference on Computer Vision (ECCV)*, 2016.

[4] **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Learning Cross-Domain Landmarks for Heterogeneous Domain Adaptation", *Computer Vision and Pattern Recognition (CVPR)*, 2016.

[5] **Yao-Hung Hubert Tsai**, Cheng-An Hou, Wei-Yu Chen, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Domain-Constraint Transfer Coding for Imbalanced Unsupervised Domain Adaptation", *Association for the Advancement of Artificial Intelligence (AAAI)*, 2016.

[6] Tzu-Ming Harry Hsu, Wei-Yu Chen, Cheng-An Hou, **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Unsupervised Domain Adaptation with Imbalanced Cross-Domain Data", *International Conference on Computer Vision (ICCV)*, 2015.

[7] Yuan-Ting Hsieh*, Shih-Yen Tao*, **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Generalized Joint Distribution Adaptation on Heterogeneous Feature Space", *International Conference on Multimedia & Expo (ICME)*, 2016. (*equal contributions) **(Oral Presentation)**

[8] **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Heterogeneous Domain Adaptation with Label and Structure Consistency", *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016.

[9] **Yao-Hung Tsai***, Hung-Ming Hsu*, Cheng-An Hou, and Yu-Chiang Frank Wang. "Person-specific Domain Adaptation with Applications to Heterogeneous Face Recognition", *International Conference on Image Processing (ICIP)*, 2014. (*equal contributions)

[10] Po-Chen Wu, **Yao-Hung Tsai**, and Shao-Yi Chien. "Stable Pose Tracking from a Planar Target with an Analytical Motion Model in Real-time Applications", *International Workshop on Multimedia Signal Processing (MMSP)*, 2014.

Journal Publications

[11] Wei-Yu Chen, Tzu-Ming Harry Hsu, **Yao-Hung Hubert Tsai**, Yu-Chiang Frank Wang, and Ming-Syan Chen. "Transfer Neural Trees: Heterogeneous Domain Adaptation and Beyond", *IEEE Transactions on Image Processing (TIP)*, 2017.

[12] Cheng-An Hou, **Yao-Hung Hubert Tsai**, Yi-Ren Yeh, and Yu-Chiang Frank Wang. "Unsupervised Domain Adaptation with Label and Structural Consistency", *IEEE Transactions on Image Processing (TIP)*, 2016.

Workshop Publications

[13] **Yao-Hung Hubert Tsai** and Ruslan Salakhutdinov. "Improving One-Shot Learning through Fusing Side Information", *NIPS Learning with Limited Labeled Data: Weak Supervision and Beyond (NIPS LLD)*, 2017.

[14] **Yao-Hung Hubert Tsai**, Han Zhao, Ruslan Salakhutdinov, and Nebojsa Jojic. "Discovering Order in Unordered Datasets: Generative Markov Networks", *Neural Information Processing Systems Time Series Workshop (NIPS TSW)*, 2017. **(Oral Presentation)**

[15] **Yao-Hung Hubert Tsai** and Ruslan Salakhutdinov. "Improving One-Shot Learning through Fusing Side Information", *Bay Area Machine Learning Symposium (BayLearn)*, 2017. **(Best Poster)**

Pre-Prints

[16] **Yao-Hung Hubert Tsai**, Han Zhao, Ruslan Salakhutdinov, and Nebojsa Jojic. "Discovering Order in Unordered Datasets: Generative Markov Networks", *arXiv:1711.03167*, 2017.

[17] **Yao-Hung Hubert Tsai** and Ruslan Salakhutdinov. "Improving One-Shot Learning through Fusing Side Information", *arXiv:1710.08347*, 2017.

[18] Chih-Kuan Yeh, **Yao-Hung Hubert Tsai**, and Yu-Chiang Frank Wang. "Generative-Discriminative Variational Model for Visual Recognition", *arXiv:1706.02295*, 2017.

Research & Work Experiences

Graduate Research Assistant, Carnegie Mellon University *Aug 2016 - May 2021*

- Researching in Deep Learning and its applications, especially on Transfer Learning and Generative Learning
- *Advisor: Dr. Ruslan Salakhutdinov*

Graduate Research Intern, Microsoft Research *May 2017 - Aug 2017*

- Working on Deep Generative Models
- *Advisor: Dr. Nebojsa Jojic*

Research Assistant, CITI, Academia Sinica *Aug 2015 - Aug 2016*

- Working on Person Re-Identification, Domain Adaptation, and Transfer Learning
- *Advisor: Dr. Yu-Chiang Frank Wang*

Second Lieutenant, R.O.C. Air Force *Jul 2014 - Jul 2015*

- Compulsory Military Service in Taiwan

Undergraduate Research Assistant, National Taiwan University *Sep 2012 - Jun 2014*

- Working on Heterogeneous Face Recognition, Augmented Reality, and Real-Time Pose Tracking
- *Advisor: Dr. Yu-Chiang Frank Wang and Dr. Shao-Yi Chien*

Teaching Experiences

Teaching Assistant, Carnegie Mellon University *Aug 2017 - Jan 2018*

- Course: 10-707 Topics in Deep Learning
- *Instructor: Dr. Ruslan Salakhutdinov*

Teaching Assistant, CITI, Academia Sinica *Aug 2015 - Aug 2016*

- Providing Deep Learning tutorials/short courses for undergrad/grad students

Academic Talks

[1] **Yao-Hung Hubert Tsai**. "Discovering Order in Unordered Datasets: Generative Markov Networks", *Neural Information Processing Systems Time Series Workshop (NIPS TSW)*, Dec 2017.

[2] **Yao-Hung Hubert Tsai**. "Learning Visual and Semantic Embeddings for Low-Shot Setting", *Taiwanese Computer Vision Online Meetup*, May 2017.

Academic Services

Reviewer:

- Conferences: *ICML* 2017, *NIPS* 2017, *CVPR* 2018
- Journals: *TIP*

Selected Honors & Awards

Government Scholarship to Study Abroad (GSSA), Taiwan Ministry of Education *2016/2017*

Undergraduate Ceremony Representative, National Taiwan University *2014*

Presidential Awards, National Taiwan University *2011/2012/2014*

Best Tourism App Award, Chunghwa Telecom Hami Apps Competition *2014*

Bronze Medal & Outstanding Paper Award, Altera Innovate Asia FPGA Design Competition *2013*

Direct Admission with Recommendation, International Physics Olympiad Selection Camp *2010*

National Representative Honorable Mention, International Physics Olympiad Selection Camp *2009*

1st Runner-Up/Third Prize, Regional/National Physics Olympiad for Senior High School *2009*

Honorable Mention, International Junior Science Olympiad Selection Camp *2008*

Skills

Toolbox/Software	PyTorch, TensorFlow, Theano, Keras, Torch, Caffe, CUDA, cuDNN, LaTeX
Programming Languages	Python, MATLAB, R, C/C++, Lua, C#, JAVA, Verilog, JavaScript, HTML5