

# YAO-HUNG HUBERT TSAI

🌐 <https://yaohungt.github.io> 📞 (412) 961-5215 ✉ [yaohungt@cs.cmu.edu](mailto:yaohungt@cs.cmu.edu)

📍 GHC (Gates Hillman Centers) 8223, 5000 Forbes Ave, Pittsburgh, PA 15213, USA

## RESEARCH INTERESTS

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

## EDUCATION

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**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

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### 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”, *Bay Area Machine Learning Symposium (BayLearn)*, 2017.

## Pre-Prints

- [14] **Yao-Hung Hubert Tsai** and Ruslan Salakhutdinov. “Improving One-Shot Learning through Fusing Side Information”, *arXiv:1710.08347*, 2017.
- [15] 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

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- 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

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- 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

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

## ACADEMIC SERVICES

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### Reviewer:

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

## SELECTED HONORS & AWARDS

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- 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

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**Toolbox/Software**

PyTorch, TensorFlow, Theano, Keras, Torch, Caffe, CUDA, cuDNN, L<sup>A</sup>T<sub>E</sub>X

**Programming Languages**

Python, MATLAB, R, C/C++, Lua, C#, JAVA, Verilog, JavaScript, HTML5