

# 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

---

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

---

- |  |                            |
|--|----------------------------|
| <b>Graduate Research Assistant</b> , Carnegie Mellon University  | <i>Aug 2016 - May 2021</i> |
| <ul style="list-style-type: none"><li>• Researching in Deep Learning and its applications, especially on Transfer Learning and Generative Learning</li><li>• <i>Advisor: Dr. Ruslan Salakhutdinov</i></li></ul>      |                            |
| <b>Graduate Research Intern</b> , Microsoft Research   | <i>May 2017 - Aug 2017</i> |
| <ul style="list-style-type: none"><li>• Working on Deep Generative Models</li><li>• <i>Advisor: Dr. Nebojsa Jojic</i></li></ul>  |                            |
| <b>Research Assistant</b> , CITI, Academia Sinica  | <i>Aug 2015 - Aug 2016</i> |
| <ul style="list-style-type: none"><li>• Working on Person Re-Identification, Domain Adaptation, and Transfer Learning</li><li>• <i>Advisor: Dr. Yu-Chiang Frank Wang</i></li></ul>                                   |                            |
| <b>Second Lieutenant</b> , R.O.C. Air Force  | <i>Jul 2014 - Jul 2015</i> |
| <ul style="list-style-type: none"><li>• Compulsory Military Service in Taiwan</li></ul>  |                            |
| <b>Undergraduate Research Assistant</b> , National Taiwan University   | <i>Sep 2012 - Jun 2014</i> |
| <ul style="list-style-type: none"><li>• Working on Heterogeneous Face Recognition, Augmented Reality, and Real-Time Pose Tracking</li><li>• <i>Advisor: Dr. Yu-Chiang Frank Wang and Dr. Shao-Yi Chien</i></li></ul> |                            |

## TEACHING EXPERIENCES

---

- |  |                            |
|--|----------------------------|
| <b>Teaching Assistant</b> , Carnegie Mellon University   | <i>Aug 2017 - Jan 2018</i> |
| <ul style="list-style-type: none"><li>• Course: 10-707 Topics in Deep Learning</li><li>• <i>Instructor: Dr. Ruslan Salakhutdinov</i></li></ul> |                            |
| <b>Teaching Assistant</b> , CITI, Academia Sinica  | <i>Aug 2015 - Aug 2016</i> |
| <ul style="list-style-type: none"><li>• Providing Deep Learning tutorials/short courses for undergrad/grad students</li></ul>                  |                            |

## 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
- Journals: *TIP*

## SELECTED HONORS & AWARDS

---

<b>Government Scholarship to Study Abroad (GSSA)</b> , Taiwan Ministry of Education	<i>2016/2017</i>
<b>Undergraduate Ceremony Representative</b> , National Taiwan University	<i>2014</i>
<b>Presidential Awards</b> , National Taiwan University	<i>2011/2012/2014</i>
<b>Best Tourism App Award</b> , Chunghwa Telecom Hami Apps Competition	<i>2014</i>
<b>Bronze Medal &amp; Outstanding Paper Award</b> , Altera Innovate Asia FPGA Design Competition	<i>2013</i>
<b>Direct Admission with Recommendation</b> , International Physics Olympiad Selection Camp	<i>2010</i>
<b>National Representative Honorable Mention</b> , International Physics Olympiad Selection Camp	<i>2009</i>
<b>1st Runner-Up/Third Prize</b> , Regional/National Physics Olympiad for Senior High School	<i>2009</i>
<b>Honorable Mention</b> , International Junior Science Olympiad Selection Camp	<i>2008</i>

## SKILLS

---

<b>Toolbox/Software</b>	PyTorch, TensorFlow, Theano, Keras, Torch, Caffe, CUDA, cuDNN, L <sup>A</sup> T <sub>E</sub> X
<b>Programming Languages</b>	Python, MATLAB, R, C/C++, Lua, C#, JAVA, Verilog, JavaScript, HTML5