

# YAO-HUNG HUBERT TSAI

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## 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, 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** and Yu-Chiang Frank. “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.

#### Pre-Prints

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

### RESEARCH & WORK EXPERIENCES

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| <b>Graduate Research Assistant</b> , Carnegie Mellon University <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>           | <i>Aug 2016 - May 2021</i> |
| <b>Graduate Research Intern</b> , Microsoft Research <ul style="list-style-type: none"> <li>• Working on Deep Generative Models</li> <li>• <i>Advisor: Dr. Nebojsa Jojic</i></li> </ul>  | <i>May 2017 - Aug 2017</i> |
| <b>Research Assistant</b> , CITI, Academia Sinica <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>  | <i>Aug 2015 - Aug 2016</i> |
| <b>Second Lieutenant</b> , R.O.C. Air Force <ul style="list-style-type: none"> <li>• Compulsory Military Service in Taiwan</li> </ul>  | <i>Jul 2014 - Jul 2015</i> |
| <b>Undergraduate Research Assistant</b> , National Taiwan University <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> | <i>Sep 2012 - Jun 2014</i> |

### TEACHING EXPERIENCES

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| <b>Teaching Assistant</b> , CITI, Academia Sinica <ul style="list-style-type: none"> <li>• Providing Deep Learning tutorials/short courses for undergrad/grad students</li> </ul> | <i>Aug 2015 - Aug 2016</i> |
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### 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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| <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

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<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