

Shih-Yen Tao

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Research Interests

Deep Learning, Machine Learning, Computer Vision, Natural Language Processing

Education

National Taiwan University, B.S. in Electrical Engineering

Sep 2012 - present

- Overall GPA: 4.08/4.3
- Presidential Award (awarded to students with top 5% GPA for that semester) in *Spring 2013*
- Relevant Courses (*graduate-level courses):
Mathematical Statistics for Data Science*, Topics in Machine Learning (Convex Optimization)*, Machine Learning*, Artificial Intelligence*, Algorithms, Data Structure and Programming, Electrical Engineering Lab (Networking and Multimedia), Probability and Statistics, Linear Algebra

Research Experiences

Multimedia and Machine Learning Lab, Academia Sinica, Taipei, Taiwan

- **Research Assistant** *Feb 2015 - Present*
 - Zero-Shot Learning for Image Classification [1]
Propose a model to match visual and semantic concepts via semantics-preserving locality embedding.
 - Deep Semi-Supervised Multimodal Embedding for Zero-Shot Learning
Collaborate autoencoders with multi-class contrastive loss function to bridge multi-modality data.
 - Domain Adaptation for Object Recognition and Cross-Lingual Text Categorization [2]
Propose to learn a domain-invariant latent space by matching cross-domain joint data probability distributions.
 - *Advisor: Dr. Yu-Chiang Frank Wang*

Speech Processing Lab, National Taiwan University, Taipei, Taiwan

- **Undergrad Research Assistant** *Sep 2015 - Present*
 - Deep-Attention-based adaptive network¹ built in Keras for keyterms (tags) extraction task.
 - Construct a Massive Open Online Courses learning map² by considering lecture similarities and prerequisites.
 - Build a Hidden-Markov-Model Chinese speech recognition system with Kaldi in bash script.
 - *Advisor: Prof. Lin-Shan Lee*

Networking and Multimedia Lab, National Taiwan University, Taipei, Taiwan

- **Undergrad Research Assistant** *Feb 2015 - Jun 2015*
 - Use Microsoft Azure's face detection and recognition API to develop a lost elders reporting system.
 - Develop a network game: 3D Pikachu Volleyball for Android using Unity game engine.
 - *Advisor: Prof. Tsung-Nan Lin*

Publications

- [1] **Shih-Yen Tao**, Yao-Hung Hubert Tsai, Yi-Ren Yeh, and Yu-Chiang Frank Wang.
“Zero-Shot Learning via Semantics-Preserving Locality Embedding”, **submitted** to *CVPR 2017*. [\[PDF\]](#) [\[Code\]](#)
- [2] **Shih-Yen Tao***, Yuan-Ting Hsieh*, Yao-Hung Hubert Tsai, Yi-Ren Yeh and Yu-Chiang Frank Wang.
“Recognizing Heterogeneous Cross-Domain Data via Generalized Joint Distribution Adaptation”,
in *ICME 2016 (Oral Presentation)*. (*equal contributions) [\[PDF\]](#) [\[Code\]](#)

Skills & Test Scores

Programming Languages: Python (proficient), MATLAB (proficient), C++, C#, Java

Languages: Mandarin Chinese (native), English (fluent)

Tools: Tensorflow (proficient), Keras (proficient), Kaldi, L^AT_EX, Unity

TOEFL iBT: 103/120 (Reading 30, Listening 28, Speaking 20, Writing 25)

GRE: Verbal (157/170), Quantitative (170/170), Analytical Writing (3.0/6.0)

¹Neural Attention Models for Sequence Classification: Analysis and Application to Key Term Extraction and Dialogue Act Detection (Shen *et al.*, *INTERSPEECH 2016*)

²Structuring Lectures in Massive Open Online Courses (MOOCs) for Efficient Learning by Linking Similar Sections and Predicting Prerequisites (Shen *et al.*, *INTERSPEECH 2015*)