T.M. Harry **Hsu**

Tzu-Ming Harry Hsu, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology

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Highlights

1. **1.5** years of experience in deep learning model deployment for Bite! APP
2. **2** majors acquired in undergraduate education
3. Ranked **#1** in International Physics Olympiad 2011 in both theory and experiment

Research Interests

1. Deep Learning
2. Computer Vision
3. Machine Learning

Skills

Programming Python / TensorFlow, Docker, C / C++, MATLAB, Java, HTML / CSS / JS

Languages Mandarin Chinese (Native), Taiwanese (Native), English (Fluent), Spanish (Intermediate)

Education

Massachusetts Institute of Technology (MIT) — *Cambridge, MA, USA*
PH.D. STUDENT IN COMPUTER SCIENCE — *Sep. 2017 - Now*

National Taiwan University (NTU) — *Taipei, Taiwan*
B.S.E. IN ELECTRICAL ENGINEERING AND B.S. IN PHYSICS — *Sep. 2011 - Jun. 2016*

GPA Overall (3.99 / 4.00), Last 60 units (3.99 / 4.00)
Overall ranking 1 / 190
Relevant courses **Deep and Structured Machine Learning**, **Digital Visual Effects**, Design and Analysis of Algorithms, Data Structure and Programming, Probability and Statistics, Linear Algebra

Publications

CONFERENCE PAPER

[1] **Transfer Neural Trees for Heterogeneous Domain Adaptation.** Wei-Yu Chen, **Tzu-Ming Harry Hsu**, Yao-Hung Hubert Tsai, and Yu-Chiang Frank Wang, in *ECCV* 2016.

[2] **Unsupervised Domain Adaptation With Imbalanced Cross-Domain Data. Tzu-Ming Harry Hsu**, Wei-Yu Chen, Cheng-An Hou, Yao-Hung Hubert Tsai, Yi-Ren Yeh, and Yu-Chiang Frank Wang, in *ICCV* 2015.

[3] **Connecting the dots without clues: Unsupervised domain adaptation for cross-domain visual classification.** Wei-Yu Chen, **Tzu-Ming Harry Hsu**, Cheng-An Hou, Yi-Ren Yeh and Yu-Chiang Frank Wang, in *ICIP* 2015.

[4] **Robust Motion Artifact Reduction of Photoplethysmographic Signal with Trajectory Space Circular Model. Tzu-Ming Harry Hsu**, Wei-Yu Chen, Kuan-Lin Chen, Mong-Chi Ko, You-Cheng Liu, An-Yeu Andy Wu, in *ICASSP Signal Processing Cup* 2015.

Honors & Awards

GROUP

2015 **Silver Medal Award**, Altera Innovate Asia FPGA Design Competition — *Wu Han, China*
- Ranked 2nd among 20 teams with self-designed PCB integration

2015 **10th Place**, ICASSP Signal Processing Cup
- Ranked 10th globally in sports heartbeat detection with an error of 4.89 beats per minute (BPM)

Individual

2011 - 14 **Presidential Award (5 times)**, Department of Electrical Engineering, NTU
- Awarded per semester to the top 5% students

2011 **World's 1st Place and Gold Medal Award**, International Physics Olympiad (IPhO) *Bangkok, Thailand*
- Ranked 1st in both theory section and experiment section among 500 national representatives from over 80 countries

2008 **Gold Medal Award**, International Junior Science Olympiad (IJSO) *South Korea*

Research Experiences

Multimedia and Machine Learning Lab
CITI, Academia Sinica, Taiwan
Apr. 2014 - Jun. 2016

Intern student under the instruction of Dr. Yu-Chiang Frank Wang

- **Deep Learning for Feature Transformation**
  - Build specific neural networks on target tasks to properly transform images to feature vectors, allowing recognition, neighbor querying, and possibly other tasks to be done.
- **Deep Learning for Heterogeneous Domain Adaptation**
  - Transfer knowledge across different feature domains and build classifiers above the transferred knowledges
  - An algorithm is proposed to transfer classifiers to a different dimensional space with deep neural network
- **Unsupervised Domain Adaptation with Imbalanced Cross-domain Data**
  - Information of labeled source-domain data is transferred to the unlabeled target-domain, which may be with imbalanced labels
  - An algorithm is proposed to combine sub-domain level classifiers to identify better source data applicability
- **Unsupervised Domain Adaptation with Balanced Cross-domain Data**
  - A set of labeled source-domain data is used to construct classifier for the unlabeled target-domain data
  - An algorithm is proposed to address source-target mismatch and project them to a common space
- **External Review**
  - Review papers as external reviewer for *IEEE ICCV*, *IEEE ECCV*, *IEEE AAAI*, and *IEEE IJCAI*

Access IC Lab
National Taiwan University
Sep. 2014 - Jun. 2015

Intern student under the instruction of Dr. An-Yeu Andy Wu

- **Noise Removal of Photoplethysmographic (PPG) Signals**
  - Remove noises in PPG signals induced by motions by decorrelating the PPG with accelerometer signal
  - An algorithm is proposed to project the signal into a complex plane, in which a temporal filter will be performed, followed by ensemble voting for the optimal beat counts

Laboratory for Applied Logic and Computation in System Design (ALCom Lab)
National Taiwan University
Jul. 2013 - Jun. 2014

Intern student under the instruction of Dr. Jie-Hong Roland Jiang

- **Compressed Sensing**
  - Compress the data perceived by a sensor array using less data storage than what it used to consume
- **Mathematical Neural models**
  - Establish a time-continuous model of human neurons to simulate the biological effects at stimulus and message passing

Work & Teaching Experiences

Digital Drift Corporation
Taipei, Taiwan
Mar. 2016 - Aug. 2017

Backend Engineer

- **Deep Neural Networks for Image Interpretation**
  - Build deep models for cuisine images using TensorFlow on multi-GPU machines, providing a backend with an API

Olympiad Tutoring Community
Taipei, Taiwan
Sep. 2011 - Jun. 2015

Private Tutor

- Offer tutoring for high school physics, competition physics, GRE subject test (physics), and SAT II subject test (physics)
- Two students became national representatives for Taiwan in International Physics Olympiad (IPhO)