Wei-Yu (Harvey) Chen

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RESEARCH INTERESTS

Machine learning, Computer vision, Robotics

EDUCATION

09/2015–01/2017 **M.S. in Electrical Engineering, National Taiwan University**

Computer Science Division, Network Database Lab. Co-advisor: Ming-Syan Chen, Yu-Chiang Frank Wang

Cumulative GPA :**4.20**/4.30, Overall ranking: 4/91, Major: **4.30** /4.30

09/2011–06/2015 **B.S. in Electrical Engineering, National Taiwan University**

Cumulative GPA :**4.16**/4.30, Overall ranking: 7/205, Major: **4.21**/4.30

PUBLICATIONS

Master Thesis [1] **Transfer Neural Trees: Heterogeneous Domain Adaptation and Beyond**

Submitted to *TIP* **Wei-Yu Chen,** Tzu-Ming Harry Hsu, Yao-Hung Hubert Tsai, Yu-Chiang Frank Wang, and Ming-Syan Chen

ECCV 2016 [2] **Transfer Neural Trees for Heterogeneous Domain Adaptation**

Wei-Yu Chen, Tzu-Ming Harry Hsu, Yao-Hung Hubert Tsai, and Yu-Chiang Frank Wang [PDF link] [Code]

ICCV 2017 [3] **No More Discrimination: Cross City Adaptation of Road Scene Segmenters**

Yi-Hsin Chen, **Wei-Yu Chen**, Yu-Ting Chen, Bo-Cheng Tsai, Yu-Chiang Frank Wang, Min Sun [PDF link] [Site]

ICCV 2015 [4] **Unsupervised Domain Adaptation with Imbalanced Cross-Domain Data**

Tzu-Ming Hsu, **Wei-Yu Chen,** Cheng-An Hou, Yao-Hung Tsai, Yi-Ren Yeh and Yu-Chiang Frank Wang [PDF link]

AAAI 2016 [5] **Domain-Constraint Transfer Coding for Imbalanced Unsupervised Domain Adaptation**.

Yao-Hung Hubert Tsai, Cheng-An Hou, **Wei-Yu Chen**, Yi-Ren Yeh and Yu-Chiang Frank Wang [PDF link]

ICASSP 2017 [6] **Enhanced Canonical Correlation Analysis with Local Density for Cross-Domain Visual Classification**

Wei-Jen Ko, Jheng-Ying Yu, **Wei-Yu Chen**, and Yu-Chiang Frank Wang [PDF link]

ICIP 2015 [7] **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 [PDF link]

RESEARCH EXPERIENCE

02/2014–present **Multimedia & Machine Learning Lab**, CITI, Academia Sinica (Advisor: Dr. Yu-Chiang Frank Wang)

Domain Adaptation of Road Scene Segmentation

A cross-city road scene segmenter using domain adaptation techniques to exploit information in unlabeled city scenes from Google Maps. [3] This is a joint project with Vision Science Lab in National Tsing Hua University.

Heterogeneous Domain Adaptation & Zero-Shot Learning

To transfer knowledge to different problem domains, for instance using text features to enhance image recognition accuracy, we jointly learn the feature space and recognition together in a neural network, and propose Transfer Neural Decision Forest and embedding loss to preserve structural consistency between cross-domain data [2]. In the master thesis, we extend this work to Zero-Shot Learning by mapping attributes and images onto the same feature space.[1]

(Imbalanced) Unsupervised Domain Adaptation

To concern domain differences, such as discrepancies between real photos and internet images, we exploit cross-domain data correspondences using both observed data similarity and labels transferred from the source domain [7], and further remove the assumption that source domain contains only single dataset by discovering and exploiting subdomains [4,5]

After 04/2018 **Vision and Learning Laboratory**, Virginia Tech (Advisor: Dr. Jia-Bin Huang)

Invited visiting scholar

SELECTED TERM PROJECTS

01/2014 **Storage robot**, Robotics

Integrating sound recognition, image processing, and robot arm control, this robot can help user deposit or withdraw their belongings. **[PDF link][Video]**

06/2015 **Eureka**, Electrical Engineering Lab (Networking and Multimedia)

A theft-proof device for bicycles. With Wi-Fi, GPS and Bluetooth, the device informs your smartphone when your bicycle is moved and helps you to locate it. **[Video]**

AWARDS & HONORS

06/2015 **Department Representative to Receive Undergraduate Diploma**

Awarded to students with the top 5% GPA over all semesters.

09/2012, 02/2013 **Presidential Award (2 times)**, Department of Electrical Engineering, NTU

Awarded to students with the top 5% GPA for the semester.

11/2017, 07/2017 **M.S. Thesis Award (2 times)**

Awarded for an excellent master thesis by The Taiwanese Association for Artificial Intelligence and The Chinese Image Processing & Pattern Recognition Society.

01/2017 **Garmin Scholarship**

Provided by Garmin to support EE/CS students; evaluated by Garmin engineers.

09/2016 **Viscovery Scholarship**

Won by popular vote upon presentation in the Viscovery Research Seminar on Computer Vision and Deep Learning.

02/2015 **IEEE Signal Processing Cup 2015,** Tenth Place

A competition to analyze heart rates during physical exercise using wrist-type photoplethysmographic (PPG) signals. Team **Taipei Amoeba** proposed **Trajectory Space Circular Model** with an error of 4.89 beats per minute (BPM).

RELEVANT COURSES

Machine learning

Artificial Intelligence (A+), Machine Learning (A-), Deep Learning (A+), Data Science (A+), Data Mining (A+), Genetic Algorithms (A+), Introduction to Digital Speech Processing (A+)

Robotics

Robotics (A+), Probabilistic Machine Perception (A+), Robot Perception and Learning (A+), Control Systems (A), Electrical Engineering Lab (Automatic Control) (A)

Computer vision

Digital Visual Effects (A), Rendering (A), Advanced Computer Vision (A+), Advanced Topics in Multimedia Analysis and Indexing (A)

SKILLS

Programming languages

MATLAB, Python, C++, R, Java, JavaScript

Toolbox/ Library

TensorFlow, CUDA, LIBSVM, OpenCV, Kinect, ROS, Blender, Latex

Languages

English (fluent, GRE 329, TOEFL 103), Mandarin Chinese (native), Japanese (moderate, JEPT N3)