

YEN-CHENG LIU

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RESEARCH INTERESTS

Computer Vision, Machine Learning (Representation Learning & Transfer Learning)

EDUCATION

National Taiwan University, Taipei, Taiwan *Sep. 2015 - June 2017*

M.S. in Electrical Engineering

- Co-Advisor: Prof. Yu-Chiang Frank Wang and Prof. Sheng-De Wang
- GPA: **4.19**/4.30 (Overall), **4.19**/4.30 (Major)

Technical University of Munich, Munich, Germany

Sep. 2014 - Mar. 2015

Exchange student in Electrical Engineering and Information Technology

National Chiao Tung University, Hsinchu, Taiwan

Sep. 2011 - June 2015

B.S. in Electrical and Computer Engineering

- GPA: **4.24**/4.30 (Overall), **4.29**/4.30 (Major)

PUBLICATIONS

- [1] **Y.-C. Liu**, Y.-Y. Yeh, T.-C. Fu, W.-C. Chiu, S.-D. Wang, Y.-C. Frank Wang. “Detach and Adapt: Learning Cross-Domain Disentangled Deep Representation”, *IEEE Conference on Computer Vision and Pattern Recognition*, 2018 (under review)
- [2] **Y.-C. Liu**, W.-C. Chiu, S.-D. Wang, Y.-C. Frank Wang. “Domain-Adaptive Generative Adversarial Networks for Sketch-to-Photo Inversion”, *IEEE International Workshop on Machine Learning for Signal Processing*, 2017
- [3] A.-S. Liu, T.-W. Hsu, P.-H. Hsiao, **Y.-C. Liu**, L.-C. Fu. “The Manhunt Network: People Tracking in Hybrid-Overlapping Under the Vertical Top-view Depth Camera Networks”, *IEEE Conference on Advanced Robotics and Intelligent Systems*, 2016
- [4] **Y.-C. Liu**, P.-H. Ciou, C.-S. Fuh. “2D+3D Morphing Model”, *IPPR Conference on Computer Vision, Graphics, and Image Processing*, 2016

RESEARCH EXPERIENCES

Research Assistant, National Taiwan University

July 2017 - Present

Advisor: Prof. Yu-Chiang Frank Wang

- **Learning Joint Multi-Attribute Disentangled Representation Across Domains**
 - Learned disentangled and interpretable representation from multi-attribute images
 - Transferred multi-attribute information across distinct data domains
- **Semantic Depth Estimation**
 - Integrated unsupervised depth estimation with semantic segmentation
 - Proposed segment-based stereo consistency to improve depth estimation
- **Few Frames Guided Video Generation and Inpainting**
 - Extracted time-order representation from limited anchor frames
 - Achieved video prediction and interpolation based on LSTM sequence-sequence model

Graduate Research, CITI, Academia Sinica

May 2016 - June 2017

Advisor: Prof. Yu-Chiang Frank Wang and Prof. Sheng-De Wang

- **Learning Cross-Domain Disentangled Representation** [1]
 - First work to address cross-domain representation disentanglement
 - Excelled the state-of-the-art in task of unsupervised domain adaptation
 - Achieved unsupervised image translation conditioned on given attribute
- **Domain-Adaptive GAN for Sketch Inversion** [2]
 - Proposed cross-style sketch-to-photo inversion based on generative models
 - Adapted the sketch-to-photo inversion to unsupervised sketch style

TEACHING EXPERIENCES

Teaching Assistant, National Taiwan University

Sep. 2015 - Feb. 2016

Data Structure and Programming, instructed by Chung-Yang (Ric) Huang

- Provided one-to-one assistance for 150+ students and graded the programming assignments

SELECTED PROJECTS

Jenga Builder, *Robotics*

Sep. 2015 - Feb. 2016

- Automatic reconstruction of Jenga tower using 6-DOF robotics arm and RGB-cam

Bio-baseball, *Bio-Medical Engineering Lab*

Sep. 2014 - Feb. 2015

- Created sports simulator controlled by eye movement and forearm muscles

AI-Bomber-Man, *Intro. to Computer and Programming*

Feb. 2012 - June 2012

- Applied Flood-Fill algorithm to create multiple AI enemies of Bomberman game

Hiticket.tk, *Intelligent Devices and Cloud Computing*

Sep. 2015 - Feb. 2016

- Built up real-time system for secondhand ticket information exchange

SELECTED COURSES

Computer Science (straight A^+)

- Advanced Computer Vision, Computer Graphics, Robotics, Advanced Digital Signal Processing, Data Structure, Computer Organization, Operating System

Mathematics (straight A^+)

- Statistics, Probability, Non-linear System Analysis, Calculus, Differential Equ., Linear Algebra

HONORS & AWARDS

GAN MOST Competition First Prize

2017

Dean's List Award (4 times)

2011-2015

Pan Wen Yuan Foundation Scholarship

2013

Rotary International Graduate Student Scholarship

2016

Exchange Student Scholarship

2014

SKILLS

Toolbox/Software

TensorFlow, PyTorch, Theano, Torch, Caffe, Chainer, Unity

Programming Languages

L^AT_EX, Python, Java, C/C++, MATLAB, Lua