WEI-CHIH (WAYNE) HUNG

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Date of Birth: 02/13/1989

EDUCATION

University of California, Merced 08/2016-present
Ph.D., EECS
Major: Computer Vision Advisor: *Prof. Ming-Hsuan Yang*

University of Southern California (USC) 09/2014-08/2016
M.S./PhD, Ming-Hsieh Department of Electrical Engineering
GPA: 4.0 Major: Computer Vision Advisor: *Prof. C.-C. Jay Kuo*

National Taiwan University (NTU) 09/2011-07/2013
Master of Science, Graduate Institute of Communication Engineering
GPA: 4.0 Major: Video Streaming/Wireless Network Advisor: *Prof. Yeh, Ping-Cheng*
Bachelor of Science, Electrical Engineering 09/2007-06/2011
Major GPA: 3.95; Overall GPA: 3.89

PUBLICATION

[1] Dong Li, **Wei-Chih Hung**, Jia-Bin Huang, Ming-Hsuan Yang," Unsupervised Visual Representation Learning by Graph-based Consistent Constraints", *ECCV 2016*

[2] **W.-C. Hung,** P.-C. Yeh, "Iterative 3D-MRF based Decoder for Uncompressed Wireless Video Transmission," *Master Thesis, NTU GICE*

[3] W.-T. Lin, **W.-C. Hung**, K.-Y. Lin, P.-C. Yeh, "Iterative Decoding for Uncompressed Wireless Video Transmission," *2013 IEEE Global Communication Conference*.

[4] T.-H. Kuo, P.-H. Chen, **W.-C. Hung**, C.-Y. Huang, C.-H. Lee, and P.-C. Yeh "Joint Source-Channel Rate-Distortion Control under Dynamic Complexity Constraint for Wireless Video Transmission," *2012 IEEE Wireless Communications and Networking Conference*.

[5] **W.-C. Hung**, "Enhanced PMI Indication for Refining MIMO Precoder Codebook," on behalf of HTC Cooperation, *3GPP RAN1#67, Nov. 2012, San Francisco, accepted.*

RESEARCH EXPERIENCE

Unsupervised Deep Visual Feature Learning 12/2015-present
Advisor: Ming-Hsuan Yang
- Aimed to pre-train a CNN directly from a collection of unlabeled images by exploiting the underlying category level cluster using affinity graph iteratively computed by CNN and conventional hand crafted feature.

Object Verification for Pedestrian Detection 05/2015-present
Advisor: Prof. C. -C. (Jay) Kuo
- Developed simultaneous detection and segmentation for pedestrian detection, aiming at handling intra-class variation under low image quality using figure-ground segmentation and contour straddling measure as second-stage classifier

Data Driven Indoor Scene 3D Layout Understanding 10/2014-4/2015

Advisor: Prof. C. -C. (Jay) Kuo

- Conducted indoor scene understanding using geometry cues with machine learning algorithm

Iterative 3D-MRF based Decoder for Uncompressed Wireless Video Transmission 09/2012-07/2013

Advisor: Prof. Yeh, Ping-Cheng

- Designed a 3-dimensional (spatio-temporal) Markov random field (MRF) model to formulate the natural redundancy of video sequences
- Proposed a robust uncompressed wireless video transmission system with PSNR gain up to 20Db

Joint Source-Channel Rate-Distortion Control under Dynamic Complexity Constraint for Wireless Video Transmission 09/2010-07/2011

Advisor: Prof. Yeh, Ping-Cheng(NTUEE), Dr. Lee, Chia-Han(Academia Sinica)

- Proposed an online algorithm searching for H.264 parameters to reach sub-optimal distortion in real-time

Joint Research on 3GPP LTE and LTE-Advanced Physical Layer with HTC Cooperation 09/2011-07/2012

Advisor: Prof. Yeh, Ping-Cheng

- Researched on MIMO precoder codebook by interpolating multiple feedback precoder matrix index (PMI) using geodesic field Interpolation
- Researched on the latest Machine Type Communication (MTC) progress in LTE-A, and plan the future work/patent before MTC comes to an RAN1 (PHY layer) working item

Software-defined Radio based Wireless H.264 Video Streaming System 09/2010-07/2011

Advisor: Prof. Ping-Cheng Yeh (NTUEE), Dr. Chia-Han Lee(Academia Sinica)

- Designed and developed a software-defined radio (SDR) based wireless H.264 video streaming system over Universal Software Radio Peripheral (USRP) and GNU Radio

HONORS AND AWARDS

First Prize, Nvidia Parallel Computing Contest 2011 in NTU 02/2011

- Ranked 1 out of 30 projects with a real-time GPU based 2D Room Acoustic Simulation

Undergraduate Student Research Grant, Academia Sinica 10/2010-07/2011

- Engaged in a research project on wireless video transmission system

COURSE PROJECT EXPERIENCE (BACHELOR IN NTU)

Machine Learning	- Multi-label predicting competition
Digital Image Processing	- Digital Wavelet Transform based recoverable privacy protection
GPU Programming	- Real-time 2D room acoustic simulation with CUDA
DSP Programming and Experiments	- Real-time video stabilizer for recording
Networking and Multimedia Lab	- A augmented reality based music synthesizer
Digital Video Technology	- Adaptive offset in H.265 codec
Digital Visual Effect	- Direct/Editing opening film for graduation prom using visual effects

WORKING EXPERIENCE

Graduate Research Assistant, MCL Lab, University of Southern California 08/2014-05/2016

- Engaged in a collaborative research project as team leader between USC and PWICE on computer vision on wearable devices

Software Engineer, Intern | Multimedia group, Qualcomm Taiwan 07/2011-09/2011

- Developed the internal tools using opengl-es/Android on the most advanced mobile platform with mobile GPU team

SKILLS

Programming languages:	C/C++, Python, Matlab, Java
Tools:	Caffe(Deep learning toolbox), OpenCV, CUDA, OpenGL/GL-ES, Android

REFERENCES

Ming-Hsuan Yang

Associate Professor

University of California, Merced

E-mail: mhyang@ucmerced.edu

C.-C. Jay Kuo

Dean's Professor

University of Southern California

E-mail: cckuo@sipi.usc.edu

Ping-Cheng Yeh

Professor

National Taiwan University

E-mail: pcyeh@ntu.edu.tw