Wei-Chih Hung (Wayne)

Curriculum Vitae

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Education

2016–Present **Ph.D. Student**, *University of California, Merced*, CA, USA.
Electrical Engineering and Computer Science
Vision and Learning Lab link

2014–2016 **Masters of Science**, *University of Southern California*, CA, USA.
Electrical Engineering
Media Communication Lab link

2011–2013 **Masters of Science**, *National Taiwan University*, Taipei, Taiwan.
Communication Engineering

2007–2011 **Bachelor of Science**, *National Taiwan University*, Taipei, Taiwan.
Electrical Engineering

Research Interests

Computer Vision, Machine Learning

Publications (Google Scholar profile)

ECCV 2016 **Unsupervised Visual Representation Learning by Graph-Based Consistent Constraints**.
Dong Li, Wei-Chih Hung, Jia-Bin Huang, Shengjin Wang, Narendra Ahuja, Ming-Hsuan Yang
IEEE Conference on Computer Vision and Pattern Recognition, 2016 paper project

GlobalComm 2013 **Iterative decoding for uncompressed wireless video transmission**.
Wei-Ting Lin*, Wei-Chih Hung* (*indicates equal contribution), Kuan-Yu Lin, Ping-Cheng Yeh
IEEE Global Communications Conference, 2013

WCNC 2012 **Dynamic source-channel rate-distortion control under time-varying complexity constraint for wireless video transmission**.
Tsu-Hao Kuo*, Po-Hsuan Chen*, Wei-Chih Hung, Chih-Yu Huang, Chia-han Lee, and Ping-Cheng Yeh
IEEE Wireless Communications and Networking Conference, 2012

Research Experience

May. 2016 - Aug. 2016 **Computer Vision Lab, GE Research, Niskayuna, NY**.
Research Intern with Xiao Bian and Ser Nam Lim

- **Instance Semantic Segmentation by Learning Pairwise Affinity**
  This work aims to solve the instance segmentation by learning from the semantic affinity between pixels based on a fully convolutional network.

Aug. 2016 – Present **Vision and Learning Lab, EECS, University of California, Merced**.
Graduate Research Assistant with Prof. Ming-Hsuan Yang

- **Scene Parsing with Global Context Encoding (Collaborate with Adobe Research)**
  This work aims to solve scene parsing by incorporating the scene category information with the Siamese network and improving the parsing results through both parametric and non-parametric methods.
- **Unsupervised Learning by Graph-Based Consistent Constraints**
  This work aims to perform deep unsupervised learning by leveraging the graph consistency between images.

Jul. 2014 - Jul. 2016 **Media Communication Lab, University of Southern California**.
Research Assistant with Prof. C.-C. Jay Kuo

- **Object Verification for Pedestrian Detection**
  This work aims at handling intra-class variation in the pedestrian detection problem under low image quality using figure-ground segmentation and contour straddling measure as a second-stage classifier.
- **Data Driven Indoor Scene 3D Layout Understanding**
  This work aims to approach indoor scene understanding by using geometry cues with structure learning algorithms.
- **Remote Mentoring System based on Smart Glasses for Aircraft Maintenance**
  Developed a remote mentoring system with smart glasses with optimized streaming quality for Korean Air and United Technology.

Jul. 2011 - Jun. 2013 **Multimedia Communication Lab, National Taiwan University, Taipei, Taiwan**.
Research Assistant with Prof. Ping-Cheng Yeh

- **Iterative 3D-MRF based Decoder for Uncompressed Wireless Video Transmission**
  This work aims to improve the wireless video transmission quality by introducing a 3-dimensional (spatio-temporal) Markov random field (MRF) model to formulate the natural redundancy of video sequences .
- **Joint Research on 3GPP LTE and LTE-Advanced Physical Layer with HTC Cooperation**
  This project aims to contribute to the latest 4G protocol meeting by proposing a new MIMO precoder codebook by interpolating multiple feedback precoder matrix index (PMI) using geodesic field Interpolation.

Jul. 2010 - Jun. 2011 **Wireless Communication Lab, Academia Sinica, Taipei, Taiwan**.
Research Assistant with Prof. Chia-Han Lee

- **Joint Source-Channel Rate-Distortion Control under Dynamic Complexity Constraint for Wireless Video Transmission**
  This work proposes an online algorithm searching for H.264 parameters to reach sub-optimal distortion in real-time.
- **Software-defined Radio based Wireless H.264 Video Streaming System**
  This project develops a software-defined radio (SDR) based wireless H.264 video streaming system over Universal Software Radio Peripheral (USRP) and GNU Radio.

Jul. 2011 - Sep. 2011 **Qualcomm, Taipei, Taiwan**.
Software Intern, Multimedia Group

- **Mobile GPU Analysis**
  This project develops internal tools using opengl-es on the most advanced mobile platform with mobile GPU team.

Teaching Experience

Aug. 2016 – Present **EECS, University of California, Merced**.

- CSE 020 Introduction to Computing [Java Programming] (Fall 2016)

Awards

Feb. 2011 **First Prize**, Nvidia Parallel Computing Contest 2011.
Develop a real-time indoor sound simulation system with CUDA.

Oct. 2010 **Undergraduate Student Research Grant**, Academia Sinica, Taipei, Taiwan.
Lead a research project on wireless video transmission system.

Technical Skills

Programming C/C++, Python, Java

Toolbox / Software Caffe, MATLAB, OpenCV, CUDA

References

Ph.D. Advisor **Ming-Hsuan Yang**, *Associate Professor*, University of California, Merced.
✉ mhyang@ucmerced.edu ℹ homepage

Research Mentor **Ser Nam Lim**, *Lab Manager, Computer Vision Lab*, GE Global Research, Niskayuna, NY.
✉ limser@ge.com ℹ homepage

M.S. Advisor **C.-C. Jay Kuo**, *Dean's Professor*, University of Southern California, Los Angeles.
✉ cckuo@sipi.usc.edu ℹ homepage

M.S. Advisor **Ping-Cheng Yeh**, *Professor*, National Taiwan University, Taiwan.
✉ pcyeh@ntu.edu.tw ℹ homepage