

Po-Cheng Pan

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Education

The University of Texas at Austin, TX, U.S.A.

Aug. 2016 - Now

M.S. IN COMPUTER SCIENCE

National Taiwan University, Taipei, Taiwan

Sep. 2011 - Jun. 2015

B.S. IN ELECTRIC ENGINEERING- GPA: 3.93

(*:graduate-level courses)

- Got **Presidential Award three times** which is awarded to students ranked **top 5%** in their departments
- Selected Courses: Machine Learning and Having it Deep and Structured*, Digital Visual Effects*, The Design and Analysis of Algorithms*, Multimedia Signal Processing*, Data Structure and Programming

Skills

Programming Languages C/C++, Matlab, Java, Python, Objective-C, UNIX shell script, LaTeX

Tools OpenCV, Kaldi, CUDA, Blender 3D

Work Experience

Research Assitant, Research Center for IT Innovation, Academia Sinica, Taiwan

Mar. 2014 - Jun. 2015

- Proposed a novel approach to **enhance images' aesthetic** by automatically altering the composition and aspect ratio of the input image according to a reference image **without pre-collected data or predetermined aesthetics rules**
- Built an **image emotion classifier** by combining Gaussian Mixture Model with Bag of Words, **achieving ~50% accuracy** on IAPS datasets

Projects

Automatic Speech Recognition System (C/C++, CUDA, Kaldi)

Mar. 2015 - Jul. 2015

- Implemented a deep neural network and N-best Viterbi algorithm to get n-best phone sequences and used Weighted Finite State Machine to decode them into word sequences
- Built a Recurrent Neural Network Language Model to rescore all possible word sequences to get the best one

Special Effect Film (Blender3D)

Mar. 2015 - Jul. 2015

- Created 3D models by Blender3D and used match moving to insert them into live-action footage

Query-by-Singing/Humming System Based on Dynamic Programming (Matlab)

Sep. 2014 - Jan. 2015

- Designed a system based on pitch tracking and dynamic time warping that allows users to find a song from music databases by singing or humming a short snippet of the song, which **achieves accuracy ~90%**

Functionally Reduced And-Inverter Graph (C++)

Sep. 2013 - Jan. 2014

- Applied optimization techniques to reduce the digital circuit size and simulation time by finding functionally equivalent candidate (FEC) pairs in C++

Research and Laboratory Experience

Local Contrast Preserving Decolorization (Advisor: Prof. Shao-Yi Chien, NTU)

Sep. 2014 - Jul. 2015

- Proposed a color-to-gray transformation approach that enhances the original luminance contrast, especially salient parts of images.
- Increased color contrast preserve ratio **by 5%** over other methods

Mac Remoter (Advisor: Prof. Tsung Nang Lin, NTU)

Sep. 2014 - Jan. 2015

- Developed an App on iPad that allows users to remotely control the MacBook as a Magic Trackpad
- Used the gyroscope inside iPad to turn it into a steering wheel for playing racing games

Wireless Audio Pitch Shifter (Advisor: Prof. Ping-Cheng Yeh, NTU)

Sep. 2014 - Jan. 2015

- Implemented a phase vocoder in Matlab for shifting the pitch of voice in real-time
- Built communication between two radio wave transceivers to transmit audio signal wirelessly by LabVIEW

Publication

R2P: Recomposition and Retargeting of Photographic Images

Oct. 2015

- Hui-Tang Chang, **Po-Cheng Pan**, Yu-Chiang Frank Wang and Ming Syan Chen, **ACM Multimedia Conference 2015**