Huikai **Wu**

PHD STUDENT

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Summary

Deep Learning Researcher

GOOGLE SCHOLAR

I'm currently a PhD candidate student at Institute of Automation, Chinese Academy of Sciences, affiliated with National Laboratory of Pattern Recognition and supervised by Professor Kaiqi Huang. I work on image processing, computer vision and deep learning. My research interests are pixel-level image understanding, geometric deep learning and network architecture design.

Research Experience

Palmwin Information Technology   *Nanjing, China*

RESEARCHER   *Aug. 2015 - Oct. 2015*

- Website: `http://www.chatgame.me/en/`
- Write a survey on SLAM and AR.

NLPR (National Laboratory of Pattern Recognition)   *Beijing, China*

RESEARCHER   *Dec. 2014 - Apr. 2015*

- Website: `http://www.nlpr.ia.ac.cn/nlpren/EN/volumn/home.shtml`
- Design and implement a car recognition system with 95% accuracy based on CNNs.

Education

CASIA (Institute of Automation, Chinese Academy of Sciences)   *Beijing, China*

PHD IN COMPUTER VISION AND DEEP LEARNING   *Sep. 2015 - Present*

Topic: Pixel-level vision understanding   GPA: **3.67**/4

NJU (Nanjing University)   *Nanjing, China*

B.S. IN SOFTWARE ENGINEERING   *Sep. 2011 - Jun. 2015*

Thesis: Deep Active Learning   GPA: **3.87**/4   Rank: **5**/257

Publications

Fast End-to-End Trainable Guided Filter   *Project Website*

HUIKAI WU, SHUAI ZHENG, JUNGE ZHANG, KAIQI HUANG

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018

A2-RL: Aesthetics Aware Reinforcement Learning for Image Cropping   *Project Website*

DEBANG LI, HUIKAI WU, JUNGE ZHANG, KAIQI HUANG

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018

MSC: A Dataset for Macro-Management in StarCraft II   *Project Website*

HUIKAI WU, JUNGE ZHANG, KAIQI HUANG

arXiv preprint arXiv:1710.03131

GP-GAN: Towards Realistic High-Resolution Image Blending   *Project Website*

HUIKAI WU, SHUAI ZHENG, JUNGE ZHANG, KAIQI HUANG

arXiv preprint arXiv:1703.07195

Highlighted Research Experience

Fast End-to-End Trainable Guided Filter

PROJECT WEBSITE (TO BE APPEARED IN CVPR 2018)

We present a deep learning block for joint upsampling, which aims at generating high-resolution output. With the proposed block, we achieve the state-of-the-art performance and run 10-100 times faster. The proposed block can be widely deployed in dense prediction tasks ranging from image processing to computer vision. The technique report is published in CVPR 2018.

A2-RL: Aesthetics Aware Reinforcement Learning for Image Cropping

PROJECT WEBSITE (TO BE APPEARED IN CVPR 2018)

We formulate image cropping task as a sequential decision-making process and propose an algorithm based on deep reinforcement learning. The proposed algorithm achieves the state-of-the-art performance with much fewer candidate windows and much less time. The technique report is published in CVPR 2018.

GP-GAN: Towards Realistic High-Resolution Image Blending

PROJECT WEBSITE

We propose GP-GAN for image blending task, which is a framework combining the strengths of gradient-based image editing and GANs. The proposed approach can deliver high-resolution, realistic images with fewer bleedings and unpleasant artifacts.

Honors & Awards

INTERNATIONAL

2017   **4th Place**, StarCraft Competition in AIIDE 2017, beat Facebook's team.

DOMESTIC

2016   **1st Place**, CCF Big Data Competition: Movie Box Prediction.

Project

Face Swap   *Jan. 2018*

PROJECT WEBSITE

Swap face between two photos with Python 3, OpenCV and dlib.

MSC: A Dataset for Macro-Management in StarCraft II   *Sep. 2017*

PROJECT WEBSITE

A dataset for macro-management in StarCraft II based on PySC2.

Chainer implementation of Pix2Pix   *Mar. 2017*

PROJECT WEBSITE

Chainer implementation of *Image-to-Image Translation Using Conditional Adversarial Networks*

Chainer version of neural-style and fast-neural-style   *Mar. 2017*

PROJECT WEBSITE

Chainer implementation of *A Neural Algorithm of Artistic Style* and *Perceptual Losses for Real-Time Style Transfer and Super-Resolution*

Chainer implementation of realismCNN   *Mar. 2017*

PROJECT WEBSITE

Chainer implementation of realismCNN proposed in *Learning a Discriminative Model for the Perception of Realism in Composite Images*

References

Prof. Kaiqi Huang

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Prof. Junge Zhang

HOMEPAGE   *E-mail: jgzhang@nlpr.ia.ac.cn*

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