

Xiao Chu

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EDUCATION

08/2013 – Present **Ph.D. The Chinese University of Hong Kong**

Advisor: Prof. Xiaogang Wang Expected graduation date: 07/2017
Research interests: Computer vision, Deep learning and Human pose estimation

09/2009 – 06/2013 **B.Eng. Shandong University**

Dept. of Electronic Engineering & Instrument Dept. GPA: 90.67/100 Major GPA: 93.8/100 Rank: 1/86

SELECTED PUBLICATIONS

2017

Multi-Context Attention for Human Pose Estimation

X. Chu*, W. Yang*, W. Ouyang, C. Ma, A. Yuille, X. Wang. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.

Incorporate convolutional neural networks with a multi-context attention mechanism into an end-to-end framework for human pose estimation. Codes are available at <https://github.com/bearpaw/pose-attention>

2016

CRF-CNN: Modelling Structured Information in Human Pose Estimation.

X. Chu, W. Ouyang, H. Li, and X. Wang. Neural Information Processing System (**NIPS**), 2016.

Perform Human pose estimation with 2D image. Incorporating Conditional Random Field with mean field approximation in the inside of CNN to regularize model parameters and improves the performance. Our model achieve state of art performance on 2 benchmark datasets.

2016

Structured Feature Learning for Pose Estimation

X. Chu, W. Ouyang, H. Li, and X. Wang. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016. (**SPOTLIGHT**, Acceptance rate 9.7%)

Perform Human pose estimation with 2D image. Modify CNN structure to do feature level bi-directional tree message passing. Codes and models are available at <https://github.com/chuxiaoselena/StructuredFeature>

2015

Multi-task Recurrent Neural Network for Immediacy Prediction

X. Chu, W. Ouyang, W. Yang, and X. Wang. IEEE Conference on Internal Conference on Computer Vision (**ICCV**), 2015. (**ORAL**, Acceptance rate: 3.3%)

Build up social network by estimating 2D images. predict the relationship between a pair of people based on their poses, interactions, standing orientation etc. Proposed to Learn the correlations among multiple tasks by Recurrent Neural Network. Contribute a dataset for this task.

2014

Multi-source Deep Learning for Human Pose Estimation.

W. Ouyang, X. Chu, and X. Wang. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.

Improved pose estimation results by rescoring the appearance score, deformation term among joints and mixture types with a fully connect neural network

RESEARCH EXPERIENCES

10/2016 – 04/2017

Visiting Scholar with Prof. Alan Yuille

I'm working on recovering **3D human poses** from 2D images. Collaborate with people from conjugate science on the project of recognizing human parts from the aperture to understand the limitation of deep models.

11/2015

ILSVRC 2015 Object Detection Challenge

Our team (CUImage) **ranked #3** in provided training data track, and **ranked #2** in additional training data track. I fine-tuned a set of GoogLeNet models to achieve hierarchy feature representations, which are used for model ensemble.

- 01/2014 – 03/2014 **Collect a Large Scale Dataset for Immediacy Estimation**
Crawled 10,000 images from websites such as Getty Images and Pound5 and wrote a tool for image labelling. Hired people to label human poses, interactions and relationship orientated attributes for every image. This dataset is available at http://www.ee.cuhk.edu.hk/~xgwang/projectpage_immediacy.html
- 02/2012 – 02/2013 **Intelligent Robot for Building Service** (National-founded project)
Built a robot with self-orientation function to serve in buildings. This project focused on controlling the robot to the use elevator through analysing income videos.
- 09/2011 – 01/2012 **Exchange Student at the University of Hong Kong** (Undergraduate)
One of the three students selected from Shandong University to study at the University of Hong Kong
- 03/2012 – 05/2012 **Temperature and Humidity Supervision and Control System** (Undergraduate)
Set up a supervise system based on sensor network to collect the temperature and humidity information in the field, and expanded the control function to the website

HONORS AND AWARDS

- 2013 – 2017 **Hong Kong Ph.D. Fellowship**
Highest scholarship for students study in Hong Kong. Selection based on: academic excellence, research ability and potential, communication and interpersonal skills, as well as leadership abilities.
- 2014 – 2015 **Outstanding Tutor Award**
- 2011 – 2013 **National Scholarship** (2011, 2012, 2013, top 2%)
Highest national wide scholarship for undergraduate students in China
- 2013 **The President Scholarship of Shandong University** (1 out of 600)
Highest award for students in Shandong University
- 09/2012 First-Prize of Mathematical Modelling Competition in Shandong Province
- 2010 – 2013 First-class Scholarship of Shandong University (2011, 2012, 2013, top 5%)

PROFESSIONAL ACTIVITES

Reviewer of Journals and Conferences (In total 20 conference and journal papers are reviewed)

- IEEE Transactions on Multimedia (**TMM**),
- Transactions on Multimedia Computing Communications and Applications (**TOMM**),
- IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**)
- Computer Vision and Image Understanding (**CVIU**)
- Neural Information Processing System (**NIPS**)
- IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)
- IEEE Conference on Internal Conference on Computer Vision (**ICCV**)
- Asian Conference on Computer Vision (**ACCV**)

Invited Talks

- IEEE Conference on Internal Conference on Computer Vision, oral presentation (2015)
- IEEE Conference on Computer Vision and Pattern Recognition, spotlight presentation (2016)
- Microsoft Research Asia doctoral forum, invited speaker (2016)
- Vision and Learning Seminar, invited speaker (2017)

Teaching Assistant at CUHK

Duties at various times have included: weekly tutorial classes, weekly computer lab exercises, and office hours.

- ENGG1110: Problem Solving by Programming (C++)
- ENGG2420D : Complex Analysis and Differential Equations for Engineers
- ELEG2202-L01 : Circuits and Devices

SKILLS

Programming skills: C/C++, MATLAB, Lua, Python, LaTeX. **Deep Learning Frameworks:** Caffe and Torch
Tools: Linux Shell, Vim, Visual Studio.