Keze Wang

CURRICULUM VITAE

PERSONAL DATA:

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EDUCATION:

Hongkong Polytechnic University, Hongkong, China 2015~Present

Sun Yat-sen University, Guangzhou, China 2012~Present

- Joint PhD Programmes Leading to Dual Awards.
- PhD candidate in Technology of Computer Application.

Sun Yat-sen University, Guangzhou, China

2008~2012

- *School of Software*, Bachelor of Software Engineering (GPA 89/100, ranking 5/89)

PUBLICATIONS:

[1]. Liang Lin, **Keze Wang**, Deyu Meng, Wangmeng Zuo, and Lei Zhang. Active Self-Paced Learning for Cost-Effective and Progressive Face Identification. In *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**T-PAMI**), 2017.

[2]. Yukai Shi, **Keze Wang**, Chongyu Chen, Li Xu and Liang Lin. Structure-Preserving Image Super-resolution via Contextualized Multi-task Learning. To appear in *IEEE Transactions on Mulitmedia* (**T-MM**), 2017.

[3]. Ziliang Chen, **Keze Wang**, Xiao Wang, Pai Peng and Liang Lin. Deep Co-Space: Sample Mining Across Feature Transformation for Semi-Supervised Learning. To appear in *IEEE Transactions on Circuits and Systems for Video Technology* (**T-CVST**), 2017.

[4]. Mude Lin, Liang Lin, Xiaodan Liang, **Keze Wang**, and Hui Cheng, Recurrent 3D Pose Sequence Machines. *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2017. (**oral**)

[5]. Liang Lin, **Keze Wang**, Wangmeng Zuo, Meng Wang, Jiebo Luo, Lei Zhang, A Deep Structured Model with Radius–Margin Bound for 3D Human Activity Recognition. In *International Journal of Computer Vision* (**IJCV**), 118(2), 256-273, 2016.

[6]. **Keze Wang**, Liang Lin, Jiangbo Lu, Chenglong Li, Keyang Shi, PISA: Pixelwise Image Saliency by Aggregating Complementary Appearance Contrast Measures with Edge-Preserving Coherence. In *IEEE Transactions on Image Processing* (**T-IP**), 24(10), 3019-3033, 2015. (***IF=3.735***)

[7]. **Keze Wang**, Dongyu Zhang, Liang Lin, Ya Li and Ruimao Zhang, Cost-Effective Active Learning for Deep Image Classification. In *IEEE Transactions on Circuits and Systems for Video Technology* (**T-CSVT**), 2016.

[8]. **Keze Wang**, Shengfu Zhai, Hui Cheng, Xiaodan Liang, Liang Lin. Human Pose Estimation from Still Depth Image via Inference Embedded Multi-task Learning. In Proceedings of the

ACM International Conference on Multimedia (**ACM MM**), 2016. (**oral**, full paper)

[9]. **Keze Wang**, Liang Lin, Wangmeng Zuo, Shuhang Gu, Lei Zhang. Dictionary Pair Classifier Driven Convolutional Neural Networks for Object Detection. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2016.

[10]. **Keze Wang**, Xiaolong Wang, Liang Lin, Meng Wang, Wangmeng Zuo, 3D human activity recognition with reconfigurable convolutional neural networks. In *Proceedings of the ACM International Conference on Multimedia* (**ACM MM**), pp. 97-106, 2014. (**oral**, full paper)

[11]. Yukai Shi, **Keze Wang**, Li Xu, Liang Lin, Local- and Holistic- Structure Preserving Image Super Resolution via Deep Joint Component Learning. In *Proceedings of the IEEE International Conference on Multimedia and Expo* (**ICME**), 2016. (**oral**)

[12]. Linnan Zhu, **Keze Wang**, Liang Lin, Lei Zhang, Learning a Lightweight Deep Convolutional Network for Joint Age and Gender Recognition. In *Proceedings of the IEEE International Conference on Pattern Recognition* (**ICPR**)*, 2016.* (**oral**)

[13]. Keyang Shi, **Keze Wang**, Jiangbo Lu, Liang Lin, Pisa: Pixelwise image saliency by aggregating complementary appearance contrast measures with spatial priors. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), pp. 2115-2122, 2013.

HONORS & AWARDS:

2015~2016 Graduate National Scholarship
2014~2015 Graduate National Scholarship
2010~2011 National Encouragement scholarship *(top 5% of 89)*
2010~2011 First-class scholarship - Superior Student *(top 5% of 89)*
2009~2010 National Encouragement scholarship *(top 5% of 89)*

INTRESTED FIELD:

Computer Vision and Machine Learning (Image saliency, Human-computer interaction, human activity recognition in RGB-D data, and Deep Learning via convolution networks)

RESEARCH EXPERIENCE:

Research Assistant at Human Cyber Physical Intelligence Integration Lab, Sun Yat-sen University *Sep 2016 ~ Present*

- **Project: 3D Human Pose Estimation from RGB Data**

  Developed a novel Recurrent 3D Pose Sequence Machines (RPSM) for estimating 3D human pose from a sequence of monocular images. Through the proposed unified architecture with 2D pose, feature adaption and 3D pose **LSTM** modules, the developed model can learn to recurrently integrate rich spatio-temporal long-range dependencies in an implicit and comprehensive way. (Accepted by **CVPR** 2017)

  Project Advisor: Liang Lin

- **Project: 2D Human Pose Estimation from Depth still images**

  Proposed a novel inference embedded multi-task learning framework, which is implemented with a deep architecture of neural networks. Specifically, we handle two cascaded tasks: i)

generating the heat (confidence) maps of body parts via a fully convolutional network (FCN); ii) seeking the optimal configuration of body parts based on the detected body part proposals via an inference built-in MatchNet, which measures the appearance and geometric kinematic compatibility of body parts and embodies the dynamic programming inference as an extra network layer. (Published by **ACM MM** 2016)
Project Advisor: Liang Lin

Research Assistant at Hong Kong Polytechnic University

July 2015 ~ Aug 2016

- **Project: Active Self-Paced Learning for Visual Recognition**

  Designed a novel cost-effective framework for face identification, which progressively maintains a batch of classifiers with the increasing face images of different individuals. By naturally combining two recently rising techniques: active learning (AL) and self-paced learning (SPL), the designed framework is capable of automatically annotating new instances and incorporating them into training under weak expert recertification. (Published in **T-CSVT** 2016 and **T-PAMI** 2017)
  Project Website: http://hcp.sysu.edu.cn/aspl
  Project Advisor: Liang Lin and Lei Zhang from Hong Kong Polytechnic University

- **Project: Dictionary Pair Classifier Driven CNN for Object Detection**

  Presented a dictionary pair classifier driven CNNs for object detection, where dictionary pair back propagation is proposed for the end-to-end learning of dictionary pair classifiers and CNN feature representation. From the extensive experiments on PASCAL VOC 2007/2012 benchmarks, our approach demonstrates the effectiveness to substantially improve the performances over the popular existing object detection frameworks (e.g., R-CNN [13] and FRCN [12]), and achieves new state-of-the-arts. (Published in **CVPR** 2016)
  Project Advisor: Lei Zhang from Hong Kong Polytechnic University

Research Assistant at Intelligent Media Computing (IMC) Lab, Sun Yat-sen University

May 2012 ~ July 2015

- **Project: RGB-D activity recognition**

  Proposed a novel deep reconfigurable model using the convolutional neural networks (CNNs), which adaptively decomposes an activity instance into temporally segmented parts in terms of discriminative classification. (Published by **ACM MM** 2014 and **IJCV** 2016)
  Project Advisor: Liang Lin

- ***Project***: **Image Saliency**

  Proposed a generic and fast computational framework called PISA–Pixelwise Image Saliency Aggregating complementary saliency cues based on color and structure contrasts with spatial priors holistically. It has superior detection accuracy and competitive runtime speed over the state-of-arts approaches. (Published in **CVPR** 2013 and **TIP** 2015)
  Project Website: http://hcp.sysu.edu.cn/pixelwise-image-saliency-by-aggregation/
  Project Advisor: Liang Lin and Jiangbo Lu from Advanced Digital Science Center, Singapore.

- ***Project***: **Natural human-computer Interaction**

  Developed a natural human-computer Interaction Library based on RGB-D data. This Library contains robust gesture and action recognition component and has already been embedded into the commercial product of Bonait Company, Guangzhou, China.

  Project Advisor: Liang Lin.

Intern at Advanced Digital Science Center(ADSC), Singapore

Sep 2011 ~ April 2012

- ***Project***: **Interactive Digital Media Program**

  Proposed a model hybrid method for gaze estimation and tracking.

  Project Advisor: Stefan Winkler from Advanced Digital Science Center, Singapore, Liang Lin.

Intern at Intelligent Media Computing Lab, Sun Yat-sen University

Dec 2010 ~ May 2011

- ***Project***: **Chinese Money Recognition System**

  Developed prototype system recognizes face value and serial number information of the money only from its picture.

  Project Advisor: Liang Lin and Zeng Kun

TEACHING EXPERIENCE:

- **Programming with C++** in School of Software, Sun Yat-sen University

  Teaching Assistant with Prof. Liang Lin Spring semester, 2012

- **Discrete Mathematics** in School of Software, Sun Yat-sen University

  Teaching Assistant with Dr. Zeng Kun Spring semester, 2010