Kai KANG

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kangk.ai

Research Interests

Deep Learning, Computer Vision, Video Object Detection, Crowd Analysis

Education

08/2013 - present	The Chinese University of Hong Kong Department of Electronic Engineering Degree: PhD
09/2009 - 07/2013	University of Science and Technology of China School of the Gifted Young Degree: B.S. in Optics with an honor degree (top 5%)

Awards & Honors

2016 **Winner** (CUVideo, **first author**), **ImageNet** Large Scale Visual Recognition Challenge 2016 (ILSVRC2016), Object detection from video/track with provided data.

2015 **Winner** (CUVideo, **first author**), **ImageNet** Large Scale Visual Recognition Challenge 2015 (ILSVRC2015), Object detection from video with provided data.

2012 **Best Software Tools Project** (team leader), International Genetically Engineered Machine (iGEM) Competition World Championship, MIT, Massachusetts, USA

2012 **Gold Medal** (team leader), International Genetically Engineered Machine (iGEM) Competition Asia Jamboree, HKUST, Hong Kong

2013 First Outstanding Graduates with Honor Degrees (**top 5%**), University of Science and Technology of China

2012 Innovation Scholarship, Institute of Physics, Chinese Academy of Sciences

Publications

1 **Kang, K.**, Ouyang, W., Li, H., & Wang, X. (2016). Object Detection from Video Tubelets with Convolutional Neural Networks. CVPR, 2016. (**Spotlight**)

2 **Kang, K.**, Li, H., Xiao, T., Ouyang, W., Yan, J., Liu, X., & Wang, X. (2017). Object Detection in Videos with Tubelet Proposal Networks. CVPR, 2017.

3 **Kang, K.***, Li, H.*, Yan, J., Zeng, X., Yang, B., Xiao, T., ... & Ouyang, W. (2017). T-CNN: Tubelets with Convolutional Neural Networks for Object Detection from Videos. TCSVT Special Issue on Large Scale and Nonlinear Similarity Learning for Intelligent Video Analysis (Accepted). (**Winning** method for ILSVRC 2015 challenge)

4 **Kang, K.**, & Wang, X. (2014). Fully Convolutional Neural Networks for Crowd Segmentation. arXiv preprint arXiv:1411.4464.

5 Shao, J., **Kang, K.**, Loy, C. C., & Wang, X. (2015, June). Deeply Learned Attributes for Crowded Scene Understanding. CVPR, 2015 (**Oral**)

6 Shao, J., Loy, C. C., **Kang, K.**, & Wang, X. (2016). Slicing Convolutional Neural Network for Crowd Video Understanding. CVPR, 2016. (**Spotlight**)

7 Zhang, C., **Kang, K.**, Li, H., Wang, X., Xie, R., & Yang, X. (2016). Data-driven Crowd Understanding: a Baseline for a Large-scale Crowd Dataset. IEEE Trans on Multimedia.

8 Shao, J., Loy, C. C., **Kang, K.**, & Wang, X. (2016). Crowded Scene Understanding by Deeply Learned Volumetric Slices. T-CSVT, 2016.

Experiences

02/2012 - 11/2012	Team leader of USTC-Software team participating in iGEM competition (International Genetically Engineered Machine Competition) Project Topic: Reverse Engineering for Biological Regulatory Networks (REBORN) Medal: Gold Medal Prize: Best Software Tools Project
08/2013 - present	PhD candidate in Electronic Engineering Advisor: Prof. Xiaogang Wang Research topics: deep learning and computer vision

1. surveillance crowd analysis	Crowd analysis and management are of great importance in public security. I have done related works in crowd detection and segmentation, crowd density estimation, crowd scene understanding, and have several papers published.
2. object detection in videos	We participated in ImageNet, the biggest challenge in computer vision, and won task on object detection in videos with provided data in 2015. I, as the speaker, gave a talk at the workshop in ICCV 2015. In 2016, we participated again in this challenge and won the task on object detection in video/track with provided data.

Featured Open-source Projects (GitHub)

vdetlib	First open-source Python library for ImageNet object detection from video challenge
T-CNN	**Winning** project for ImageNet 2015 object detection from video challenge
REBORN	**Winning** project for iGEM 2012 Best Software Tools

Skills

Programming	Python, C, C++, MATLAB, Mathematica
Web development	HTML, CSS, JavaScript