KAN CHEN

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EDUCATION

PhD of Electrical Engineering • University of Southern California, LA, CA, USA   2013-2018
Master of Computer Science • University of Southern California, LA, CA, USA   2016-2017
   Major GPA: 4.00/4.00 • **Rank:** 1/300
Bachelor of Electronics Engineering • Tsinghua University, Haidian, Beijing, China   2009-2013
   Major GPA: 3.94/4.00 (94.4/100) • **Rank:** 7/242

INTERNSHIP

Research Intern, Facebook Research (May - August.2018)
KNN-regression for large scale image classification
- Applied KNN regression method to explore non-parametric method for image classification task
- Trained a better image ranking model to improve retrieving performance using PyTorch
- Achieved state-of-the-art performance of KNN regression method and 20x faster speed in image classification
- Preparing a paper for CVPR 2019

Research Intern, Adobe System Inc. (May - August.2016)
Multimodal Image Ranking system
- Constructed a multimodal image ranking system for retrieving related images based on users' queries
- Improved the ranking performance over 5% using Torch
- Incorporated in Adobe Stock search engine
- A paper published in IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017
- A patent for this technique (P6545-US/ADBS.263071)

Research Intern, Institute of Deep Learning in Baidu USA LLC (May - August.2015)
Visual Question Answering
- Proposed a configurable convolutional neural network to address visual question answering
- Realized *LSTM* model to extract semantic information from question sequence on PaddlePaddle platform
- Achieved 5% improvement on *Toronto-COCO-QA* dataset and 7% improvement on *DAQUAR* dataset
- A paper published in IEEE Conference on Computer Vision and Pattern Recognition Workshop 2016
- A patent for this technique (US Patent No. 9965705)

Research Intern, Toyota Technological Institute in Chicago (July.2012)
Recovering Layout of indoor Images
- Combined Kinect's data with Geometric context and orientation map to get a more accurate estimation of Layout of single indoor picture.
- Combined Geometric context and Normal vectors features to boost performance
- Developed a labeling tool to generate sufficient training data
- A paper published in International Conference on Computer Vision (ICCV), 2013

PROJECT

Image Grounding, The Defense Advanced Research Projects Agency (September.2015 - Current)
Project: MEDIFOR image manipulation detection system
- In charge of image grounding part
- Developed a multimodal regression network for proposal generation in TensorFlow
- Applied reinforcement learning technique to leverage context information
- Achieved more than 14% and 17% improvement in accuracy on two academic datasets
- Two papers published for our system (*ICMR* 2017 and *ICCV* 2017)

People Re-identification, The Defense Advanced Research Projects Agency (Feburary.2017 - Current)
Project: MEDIFOR image manipulation detection system
- Applied people re-identification technique to detect potential manual image manipulation
- Applied a Domain Guided Dropout Network (CVPR 2016) to extract visual features
- Achieved 15% improvement in accuracy on a project re-identification dataset
- Apply metric learning technique to further boost performance

SKILLS

- Proficiency in software development in Python, C, C++, MATLAB, LATEX.
- Proficiency in deep learning platforms: TensorFlow, Torch, PyTorch, Caffe, PaddlePaddle.
- Familiarity with Android, Swift, Database Design, SQL.

- **Poster: Kan Chen**⋆, Jiyang Gao⋆, Ram Nevatia: CTAP: Complementary Temporal Action Proposal Generation, *European Conference on Computer Vision (ECCV), 2018*
- **Poster: Kan Chen**⋆, Chuanxi Zhang⋆, Chen Fang, Zhaowen Wang, Trung Bui, Ram Nevatia: Visually Indicated Sound Generation by Perceptually Optimized Classification, *European Conference on Computer Vision Workshop (ECCVW), 2018*
- **Poster: Kan Chen**, Jiyang Gao, Ram Nevatia: Knowledge Aided Consistency for Weakly Supervised Phrase Grounding, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018*
- **Poster:** Jiyang Gao⋆, Runzhou Ge⋆, **Kan Chen**, Ram Nevatia: Motion-Appearance Co-Memory Networks for Video Question Answering, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018*
- **Journal: Kan Chen**, Rama Kovvuri, Jiyang Gao, Ram Nevatia: MSRC: Multimodal Spatial Regression with Semantic Context for Phrase Grounding, *International Journal of Multimedia Information Retrieval (IJMIR), 2017*
- **Spotlight: Kan Chen**⋆, Rama Kovvuri⋆, Ram Nevatia: Query-guided Regression Network with Context Policy for Phrase Grounding, *International Conference on Computer Vision (ICCV), 2017*
- **Poster:** Jiyang Gao⋆, Zhenheng Yang⋆, Chen Sun, **Kan Chen**, Ram Nevatia: TURN TAP: Temporal Unit Regression Network for Temporal Action Proposals, *International Conference on Computer Vision (ICCV), 2017*
- **Oral: Kan Chen**, Rama Kovvuri, Jiyang Gao, Ram Nevatia: MSRC: Multimodal Spatial Regression with Semantic Context for Phrase Grounding, *ACM International Conference on Multimedia Retrieval (ICMR), 2017*
- **Poster: Kan Chen**, Trung Bui, Chen Fang, Zhaowen Wang, Ram Nevatia: AMC: Attention guided Multimodel Correlation Learning for Image Search, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017*
- **Poster: Kan Chen**, Jiang Wang, Wei Xu, Liang-Chieh Chen, Haoyuan Gao, Ram Nevatia: ABC-CNN: An Attention Based Approach for Visual Question Answering, *IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRW), 2016*
- **Poster:** Song Cao, **Kan Chen**, Ram Nevatia: Abstraction Hierarchy and Self Annotation Update for Fine Grained Activity Recognition, *WACV, 2016*
- **Poster:** Song Cao, **Kan Chen**, Ram Nevatia: Activity Recognition and Prediction with Pose based Discriminative Patch Model, *WACV, 2016*
- **Poster: Kan Chen**, Jiang Wang, Wei Xu: Attention Based Model in Visual Question Answering, *Bay Learn Forum, 2015*
- **Poster:** Jian Zhang, **Kan Chen**, Alexander G. Schwing, Raquel Urtasun: Estimating the 3D Layout of Indoor Scenes and its Clutter from Depth Sensors, *IEEE International Conference on Computer Vision (ICCV), 2013*
- **Journal:** Qiang Ning, **Kan Chen**, Li Yi, Chuchu Fan, Yao Lu, Jiangtao Wen: *Image super resolution via analysis sparse prior*, IEEE transaction of Signal Process, (2013) 1-1

- **Conference reviewer**: ICCV 2017, CVPR 2018, ECCV 2018, ACCV 2018, WACV 2019
- **Journal reviewer**: Visual Communication and Image Representation (JVCI), IEEE Transaction on Image Processing (TIP)