Yongming Rao

饶永铭

Education

2014.9–Present **Undergraduate student**, *Dept. of Electronic Engineering*, *Tsinghua University*, Beijing.

Experience

Research

2015.9–2016.12 **Search algorithm on road network**, *Database*, Cloud computing student interest group.

Research on a new algorithm for efficient kNN search on moving objects with road-network constraints.

- The project won the second prize and "EMC Innovation Prize" of Tsinghua "Challenge Cup" in April 2016;
- The paper was accepted to 2017 IEEE International Conference on Data Engineering (ICDE2017).

2016.6–2016.8 **Lane detection for autonomous driving**, *Computer vision & deep learning*, 3D image lab of Tsinghua University, Summer intern.

Research on lane detection based on image semantic segmentation. My work is to design a robust method for result post-processing to boost detection performance.

2016.9–Present **Computer vision & deep learning**, Intelligent vision group of Automation department, Tsinghua University, Advised by Professor Jiwen Lu.

Research on face recognition, efficient inference methods for deep neural network and other interesting topics about computer vision and deep learning.

- I worked on a deep reinforcement learning approach to find the most important frames in video for face recognition, which is based on a hard attention model;
- I worked on an aggregation network to integrate information across frames in video by aggregating raw video frames, which is based on generative adversarial model and metric learning.
- I worked on a dynamic pruning approach to accelerate deep convolutional network at runtime, which gains significant speed-up with sight accuracy drops on CIFAR and ILSVRC2012 image classification tasks.

Two papers on video face recognition were accepted to 2017 International Conference on Computer Vision (ICCV2017) as the first author (1 poster and 1 **spotlight**) and the paper on neural network acceleration was accepted to the Thirty-first Annual Conference on Neural Information Processing Systems (NIPS2017) as the co-first author.

2017.5–Present **Object Detection**, *Computer vision & deep learning*, Megvii (Face++) Inc., Research intern. Advised by Xiangyu Zhang & Jian Sun.

Research on object detection and improving region proposal module.

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2017.7–2017.9 **Computer vision & deep learning**, Multimedia Lab., The Chinese University of Hong Kong, Research Assistant. Advised by Prof. Dahua Lin.

Projects

2015.9–2015.12 **Access control system based on face recognition**, Skyworks student interest group.

2016.1–2016.4 **Hand gesture recognition based on motion sensor and RNN**, Skyworks student interest group.

- The project won the third prize and "Huawei Innovation Prize" of Tsinghua "Challenge Cup" in April 2016;

Skills

Related courses learned in university:

Computer: C & C++, Java, Matlab, Algorithm, Operating system, Parallel computing, Database, Computer architecture.

Pattern recognition: Pattern recognition, Artificial intelligence, Media and cognition, Statistical Learning

Math: Calculus, Linear algebra, Probability theory, Stochastic process

Other skills: Python, Caffe, Tensorflow, PyTorch

Publications

Ji Lin*, **Yongming Rao***, and Jiwen Lu. Runtime neural pruning. *In NIPS*, 2017 (* equal contribution).

Bilong Shen, Ying Zhao, Guoliang Li, Weimin Zheng, Qin Yue, Bo Yuan, and **Yongming Rao**. V-tree: Efficient knn search on moving objects with road-network constraints. *In ICDE*, 2017.

Yongming Rao, Ji Lin, and Jiwen Lu. Learning discriminative aggregation network for video face recognition. *In ICCV*, 2017, *spotlight*.

Yongming Rao and Jiwen Lu. Attention-aware deep reinforcement learning for video face recognition. *In ICCV*, 2017.

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