Yihui He

Contact Information

E-mail: he2@andrew.cmu.edu *Website:* yihui-he.github.io

Research Interests

I'm interested in algorithms for efficient visual perception, like CNN compression [1, 2, 4] and lightweight architecture [7, 5]. I also explore topics in object detection [6, 1], reinforcement learning [2] and security surveillance [3].

Education

Carnegie Mellon University Pittsburgh, PA
Robotics Institute, Master of Science in Computer Vision Sept 2018 - Dec 2019

Xi'an Jiaotong University Xi'an, China
Bachelor of Computer Science Sept 2014 - June 2018

Research Experience

Carnegie Mellon University Pittsburgh, PA
Research Assistant with Prof. Marios Savvides Sept, 2018 - Present

- Improved localization accuracy for object detection [6].

Massachusetts Institute of Technology Cambridge, MA
Research Assistant with Prof. Song Han Oct 2017 - Dec 2017

- Designed automated CNN compression [2], which successfully compressed NASNet and MobileNet via reinforcement learning.

Megvii Inc. (Face++) Beijing, China
Research Intern with Dr. Xiangyu Zhang and Dr. Jian Sun Dec 2016 - Aug 2017

- Devised CNN channel pruning [1], which accelerated VGG-16 5× with negligible accuracy loss.
- Conducted research on head boxes aided pedestrian detection to distinguish overlapped pedestrians by detecting heads.

Xi'an Jiaotong University Xi'an, China
Undergrad Researcher in Computer Vision and AI Lab with Jinjun Wang.

- Proposed lightweight architecture for image super resolution [5].

Undergrad Researcher in Intelligent Network and Network Security Lab with Xiaopu Luo.

- Designed traffic driven camera placement strategies [3] for security surveillance.

Industry Experience

DeepGlint Inc. Beijing, China
Engineering Intern June 2016 - Aug 2016

- Conducted experiments on improving gastrointestinal stromal tumor image segmentation.

Service

Reviewer for IEEE Transactions on Image Processing (**TIP**, AE: Prof. Jie Liang).

Publications

[1] **Yihui He**, Xiangyu Zhang, and Jian Sun. "Channel Pruning for Accelerating Very Deep Neural Networks". In: ***ICCV***. Oct. 2017, pp. 1389–1397. [PDF] [arXiv] [Code], cited by **77**.

[2] **Yihui He**, Ji Lin, Zhijian Liu, Hanrui Wang, Li-Jia Li, and Song Han. "AMC: AutoML for Model Compression and Acceleration on Mobile Devices". In: ***ECCV'18***. [PDF] cited by **9**.

[3] Xiaobo Ma*, **Yihui He***, Xiapu Luo, Jianfeng Li, Mengchen Zhao, Bo An, and Xiaohong Guan. "Vehicle Traffic Driven Camera Placement for Better Metropolis Security Surveillance". In: *IEEE Intelligent Systems (**IS**)*. 2018. *Equal contribution, [PDF] [arXiv], cited by **2**.

Under review

[4] **Yihui He**, Xiangyu Zhang, and Jian Sun. "Pruning Very Deep Neural Network Channels for Efficient Inference". In: ***TPAMI*** (2018).

[5] Yudong Liang, Ze Yang, Kai Zhang, **Yihui He**, Jinjun Wang, and Nanning Zheng. "Single Image Super-resolution via a Lightweight Residual Convolutional Neural Network". In: ***TMM*** (2018). [arXiv], cited by **9**.

Preprints

[6] **Yihui He**, Xiangyu Zhang, Kris Kitani, and Marios Savvides. *Softer-NMS: Rethinking Bounding Box Regression for Accurate Object Detection*. 2018. [arXiv][Code].

[7] Huasong Zhong*, Xianggen Liu*, **Yihui He***, and Yuchun Ma. *Shift-based Primitives for Efficient Convolutional Neural Networks*. 2018. [arXiv].

Honors and Awards

Baidu Big Data and AI scholarship	2018
Siyuan scholarship, Xi'an Jiaotong University	2016-2017
Outstanding student, Xi'an Jiaotong University	2016