Shen Zhuoran

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Work Experience

Google, *Seattle, WA, United States* *Oct. 2019 – Present*
AI Resident, Personal AI, Google Research

- Working on foundations for fully-attentional visual modeling. Proposed the *global self-attention* module. Details in *Research Experience*.

Tencent, *Shenzhen, China* *Jul. 2019 – Sep. 2019*
Research Intern, Applied Research Center, Platform and Content Group

- Designed the *global context* module for video object segmentation. Details in *Research Experience.*

SenseTime, *Hong Kong* *Jun. 2017 – Jun. 2019*
Research Intern, Intelligent Perception and Services Team, Smart City Group

- Designed *efficient attention* that boosted the performance of object detectors in the company's intelligence infrastructure supporting various teams. Details in *Research Experience*.

Education

The University of Hong Kong, *Hong Kong* *Sep. 2015 – Jun. 2019*
Bachelor of Engineering in *Computer Science*; GPA: 3.85/4.30; standing: 1/111.

Research Experience

Global Self-Attention Networks, Google *Dec. 2019 - Oct. 2020*

- Proposed *global self-attention networks* (GSA-Nets), one of the first to use efficient attention mechanisms to fully replace convolution for computer vision applications.
- Demonstrated superior trade-offs for accuracy vs. parameters, computation, and latency over CNNs.

Global Context Module, Tencent *Jul. 2019 - Sep. 2019*

- Proposed the *global context* module, which effectively and efficiently propagates information through an arbitrarily long video with constant complexity w.r.t. video length and linear complexity w.r.t. resolution.
- Developed the first real-time video object segmenter that has state-of-the-art accuracy.

Efficient Attention, SenseTime *Sep. 2018 - Jun. 2019*

- Proposed *efficient attention*, which reduces the memory and computational complexities of the attention mechanism from quadratic to linear.
- Demonstrated significant improvement in performance-cost trade-offs on a variety of tasks including object detection, instance segmentation, and stereo depth estimation.

Projects

BeautyNet, Personal Project *May 2018 – Oct. 2019*

- Developed the 2nd most popular PyTorch template on GitHub with 190+ stars and very high code quality.

Awards

- **First Runner-up**, *ACM-HK Programming Contest 2017*

Publication and Preprints

- **Shen Z.**, Zhang M., Zhao H., Yi S., Li H. (2021). *Efficient Attention: Attention with Linear Complexities*. WACV 2021.
- **Shen Z.**, I. Bello, R. Vemulapalli, Jia X., Chen C.-H. (2020). *Global Self-Attention Networks for Image Recognition*. arXiv: 2010.03019.
- Li Y.*, **Shen Z.***, Shan Y. (2020). *Fast Video Object Segmentation using the Global Context Module*. ECCV 2020. **Equal contribution.*

Skills

- **Programming**: Python, C, C++, Java, Shell script, Markdown, LaTeX
- **Technologies**: PyTorch, TensorFlow, Keras, Caffe, Git, Slurm, Vim, CUDA, NumPy, OpenCV, Piper, Blaze