Shen Zhuoran

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Work Experience

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

- 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. Prepared a first-author submission to ICLR 2021.
- Developed an on-device age detector for privacy-preserving auditing of a federated dataset using cross-dataset distillation.

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

- 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. Presented a first-author paper at ECCV 2020.
- Developed the first real-time video object segmenter with state-of-the-art accuracy to support an on-device smart video editing feature of WeSee (a TikTok-like app in China with 40M+ DAUs).

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

- 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. To present a first-author paper at WACV 2021.
- Integrated *efficient attention* to the BG-wide object detection framework that supports research teams of 100+ people.

Education

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

Projects

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

- Developed the 2nd most popular PyTorch template on GitHub with 180+ stars and high code quality.

Awards

- **First Runner-up**, *ACM-HK Programming Contest 2017*
- **Second Runner-up**, *ACM-ICPC Hong Kong PolyU International Invitational 2017*

Publications and Preprint

- **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

- **Languages**: Python, C, C++, Java, Shell script, Markdown, LaTeX
- **Technologies**: PyTorch, TensorFlow, Keras, Caffe, Git, Slurm, Vim, CUDA, NumPy, OpenCV, Piper, Blaze
- **Skills**: Deep learning, machine learning, computer vision, natural language processing, neural networks