# Shen Zhuoran

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## Work Experience

**Pony.ai**, *San Francisco Bay Area, United States* *Nov. 2021 – Present*
*Software Engineer, Prediction Department*

- Responsible for the development of the next-generation, end-to-end, general-purpose vehicle trajectory prediction model for autonomous driving.

**Google**, *Seattle, United States* *Oct. 2019 – Aug. 2021*
*AI Resident, Google Brain, Google Research*

- Designed global self-attention networks (GSA-Nets), a novel family of neural networks for computer vision that use efficient attention mechanisms to fully replace convolution. Demonstrated superior trade-offs for accuracy vs. parameters, computation, and latency over CNNs.
- Worked on zero-shot object detection. Contributed a novel loss function that enables the method to learn from a variety of weak and strong training signals.
- 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 a novel efficient method for information propagation 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 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 a novel efficient attention mechanism, 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.
- Integrated the efficient attention mechanism 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.

## 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++, Shell script, Markdown, LaTeX
- **Technologies**: PyTorch, TensorFlow, Keras, Git, Slurm, Vim, NumPy, OpenCV, Bazel, Django
- **Skills**: Deep learning, machine learning, computer vision, neural networks