

# Shen Zhuoran

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## Education

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**The University of Hong Kong**, Hong Kong Sep. 2015 - Present  
Bachelor of Engineering in Computer Science; CGPA: 3.97/4.30; standing: 1/111; major CGPA: 4.13/4.30.

**University of California, Davis**, CA, United States Sep. 2017 - Dec. 2017  
Bachelor's Reciprocity Student in Computer Science; GPA: 4.00/4.00.

## Work Experience

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**SenseTime**, Hong Kong Jun. 2017 - Present  
Research Intern, Generic Object Analytics Team, SenseTime Research

- Developed a research project template that facilitated a team of ~40 to transition from Caffe to PyTorch.
- Conducted academic research projects listed in *Research Experience*.

## Research Experience

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**Visual Embedding of Chinese**, Final-Year Project Sep. 2018 - Present  
Supervised by Dr. Kenneth K. Y. Wong, Associate Professor, Computer Vision Group, The University of Hong Kong

- Designing a novel model to improve Chinese embedding accuracy by utilizing visual features.
- Developed a PyTorch embedding library. Reduced single-GPU training time from 82 days to 28.1 hours compared to existing open-source implementations.

**Factorized Attention**, Research Experience in Industry Sep. 2018 - Nov. 2018  
Supervised by Dr. Yi Shuai, Vice Director of Research, SenseTime Research

- Proposed *factorized attention*, which reduced the memory and computational complexities of the self-attention mechanism from quadratic to linear and is applicable to computer vision and NLP.
- Achieved new states-of-the-art on object detection (43.1 over 41.8 in AP on MS-COCO 2017) and stereo depth estimation (0.477 over 1.09 in EPE on Scene Flow) and significant improvement on instance segmentation (37.9 over 36.6 in AP on MS-COCO 2017).
- Submitted a first-author paper to CVPR 2019.

**Project on Stereo Depth Estimation**, Research Experience in Industry May 2018 - Aug. 2018  
Supervised by Dr. Yi Shuai, Vice Director of Research, SenseTime Research

- Developed a stereo depth estimator based on PSMNet with improved training procedures.
- Achieved 2x reduction in error rate (EPE) over the previous state-of-the-art on the Scene Flow dataset.

## Projects

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**beauty-net**, Personal Project May 2018 - Present

- Developed a PyTorch project template. Applied deduplication, modularization, and a consistent code style to improve maintainability, testability, and analyzability.
- Became 2nd most popular PyTorch template on GitHub, got 180+ stars, and trended for 3 days.

## Awards

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- **First Runner-up**, ACM-HK Programming Contest 2017
- **Second Runner-up**, ACM-ICPC Hong Kong PolyU International Invitational 2017
- **Dean's Honours Lists, 2015-2018**, Faculty of Engineering, The University of Hong Kong
- **Dean's Honor List, Fall Quarter 2017**, College of Letters and Science, University of California, Davis
- **YC Cheng Engineering Scholarship, 2017**, Faculty of Engineering, The University of Hong Kong

## Preprint

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- **Shen Z.**, Zhang M., Yi S., Yan J., Zhao H. (2018). *Factorized Attention: Self-Attention with Linear Complexities*. In submission to CVPR 2019.

## Skills

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- **Programming:** Python, C, C++, Java, Shell script, Markdown, LaTeX
- **Technologies:** PyTorch, Caffe, Git, Slurm, Django, Jekyll, Vim, CUDA, NumPy, OpenCV
- **Languages:** Mandarin Chinese (native), English (116 in TOEFL)