Sucheng **Ren**

South China University of Technology

(+86) 159-0202-7041 | oliverrensu@gmail.com | https://oliverrensu.github.io

Education

Tsinghua University — *Beijing, China*

Visting Student — *Nov. 2020 – Jun. 2021*

- Work with Prof. Hang Zhao in the institute for Interdisciplinary Information Sciences

South China University of Technology — *Guangzhou, China*

Master of computer science — *Aug. 2020 – June 2022*

- Work with Prof. Shengfeng He in the Computer Vision Lab.

South China University of Technology — *Guangzhou, China*

Bachelor of computer science — *Aug. 2016 – June 2020*

- GPA: 3.72/4.0

Publications

Zihui Xue, **Sucheng Ren**, Zhengqi Gao, Hang Zhao "Multimodal Knowledge Expansion", International Conference on Computer Vision **(ICCV2021)**

Tianyu Hua, Wenxiao Wang, Zihui Xue, **Sucheng Ren**, Yue Wang, Hang Zhao "Feature Decorrelation for Self-supervised Learning", International Conference on Computer Vision **(ICCV2021) (Oral, Acceptance 3.0%)**

Sucheng Ren, Yong Du, Jianming Lv, Guoqiang Han, Shengfeng He. "Learning from the Master: Distilling Cross-modal Advanced Knowledge for Lip Reading", IEEE Conference on Computer Vision and Pattern Recognition **(CVPR2021)**

Sucheng Ren, Wenxi Liu, Yongtuo Liu, Haoxin Chen, Guoqiang Han, Shengfeng He. "Reciprocal Transformations for Unsupervised Video Object Segmentation", IEEE Conference on Computer Vision and Pattern Recognition **(CVPR2021)**

Haoxin Chen, Hanjie Wu, Nanxuan Zhao, **Sucheng Ren**, Shengfeng He "Delving Deep into Many-to-many Attention for Few-shot Video Object Segmentation", IEEE Conference on Computer Vision and Pattern Recognition **(CVPR2021)**

Sucheng Ren, Chu Han, Xin Yang, Guoqiang Han, and Shengfeng He. "TENet: Triple Excitation Network for Video Salient Object Detection", European Conference on Computer Vision **(ECCV2020) (Spotlight, Acceptance 5.0%)**

Sucheng Ren, Qiang Wen, Nanxuan Zhao, Yongtuo Liu, Liangyu Chai, Guoqiang Han, Shengfeng He "Unifying Global-Local Representations in Salient Object Detection with Transformer" In submission to IEEE Transaction on Image Processing (TIP).

Sucheng Ren, Wenxi Liu, Jianbo Jiao, Guoqiang Han, and Shengfeng He. "Edge Distraction-aware Salient Object Detection", In submission to IEEE Transaction on Learning System and Neural Network (TNNLS).

Sucheng Ren, Zhengqi Gao, Tianyu Hua, Yonglong Tian, Zihui Xue, Shengfeng He, and Hang Zhao. "Co-advise: Cross Inductive Bias Distillation", In submission to NeurIPS2021.

Yongtuo Liu, **Sucheng Ren**, Liangyu Chai,Hanjie Wu,Dan Xu, Jing Qin, Shengfeng He"Break the Image-level Chain: Exploit Spatial Labeling Redundancy for Semi-supervised Crowd Counting", In submission to IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Yongtuo Liu, **Sucheng Ren**, Dan Xu,Hanjie Wu ,Hongmin Cai, Shengfeng He, "Fine-grained Domain Adaptive Crowd Counting via Point-derived Segmentation", In submission to IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Liangyu Chai, Wenxi Liu, Yongtuo Liu, **Sucheng Ren**, Jing Qin, Shengfeng He "Glance to Count: Learning to Rank with Anchors for Weakly-supervised Crowd Counting", In submission to IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Completed Research Projects

TENet: Triple Excitation Network for Video Salient Object Detection. — *SCUT*

Computer Vision Lab, Supervisor: Shengfeng He — *Jun. 2019 – March. 2020*

- Proposed a spatial-temporal excitation mechanism to solve the saliency shifting problem and to enable accurate temporal features extraction.
- The developed excitation mechanism could be updated in an online manner so it could refine itself during the testing phase.
- Achieved new state-of-the-art on common used salient object detection and video salient object detection benchmarks.
- The corresponding paper was published on **ECCV2020** as a **spotlight** paper.

Knowledge Distilling for Cross-modal Lip Reading — *SCUT*

Computer Vision Lab, Supervisor: Shengfeng He — *Feb. 2020 – Oct. 2020*

- Proposed to transfer lip reading knowledge from audio to video model based on the observation that audio greatly outperforms video models.
- Built a co-evolving teacher model to adaptively bridge the inherent cross-modal gap between video and audio model.
- Incorporated a couple of teacher networks, trained respectively pretrained by audio and video data, to mimic the modality characteristics and offer the cross-modality information.
- The corresponding paper is accepted by **CVPR'2021**.

Reciprocal Transformations for Unsupervised Video Object Segmentation

SCUT

Computer Vision Lab, Supervisor: Shengfeng He — *Feb. 2020 – Oct. 2020*

- Proposed a reciprocal transformation to identify primary objects from distracting co-moving outliers in the input video.
- The reciprocal transformation promotes both the in-domain and cross-domain feature interactions in and the mutual evolution & integration of appearance and motion representations.
- The corresponding paper is accepted by **CVPR'2021**.

Edge Distraction-aware Salient Object Detection

SCUT

Computer Vision Lab, Supervisor: Shengfeng He — *Aug. 2019 – Sep. 2020*

- Proposed a distraction-aware edge features extraction module to avoid noisy edge distraction.
- Designed a boundary-filling loss that can automatically fill noncontinuous edges for better edge feature extraction.
- Built a cross-scale holistic contrast features extraction module that explored long-range relations cross different feature scale.
- Achieved new state-of-the-art on 6 salient object detection benchmarks.
- The corresponding paper is in submission to TNNLS.

Deep Learning based Class Behavior Recognition

SCUT

Student research project, Supervisor: Chuhua Xian — *Jun. 2018 – Jun. 2019*

- Implemented a object detection model to detect the special undisciplined behavior in class like sleeping or playing smart phones.
- Built a people Re-ID pipeline to match the detected persons with those in the database.
- The patent application is in submission.

Honors & Awards

2020 **Outstanding Student**, South China University of Technology scholarship

2019 **Outstanding Student**, South China University of Technology scholarship

2017 **Outstanding Student**, South China University of Technology scholarship

Skills

Programming Python, C, C++, Java, PyTorch, Tensorflow, LaTeX

English IELTS 7.0: Listening 8.0, Reading 7.0, Writing 6.0, Speaking 6.0