ZHENLI ZHANG

Room 1007, 1# Gaokeyuan ⋄ Fudan University ⋄ Shanghai, P.R. China, 201203

Email: zhenliz@andrew.cmu.edu ⋄ Tel: (+86)15121089023 ⋄ https://zhangzhenli.github.io

EDUCATION

Fudan University, Shanghai, China   *2014.9 - 2019.6*
Bachelor of Science, Honor Class, School of Computer Science
Cumulative GPA: **3.51/4.00**, Major GPA: **3.75/4.00**

University of California, Irvine, CA, USA   *2016.9 - 2017.1*
Exchange student in UCEAP Program in Donald Bren School of Information and Computer Sciences
(50 students selected from Fudan University, 2 from School of Computer Science)
Cumulative GPA: **4.00/4.00**, Major GPA: **4.00/4.00**
Top 3 in courses including Digital Image Processing and Computer Graphics, which are closely related
to my research interests

Johns Hopkins University, Baltimore, MD, USA   *2018.7 - 2018.10*
Undergraduate visiting research assistant in Department of Computer Science

RESEARCH EXPERIENCE

Johns Hopkins University, Baltimore, MD, USA   *2018.7 - 2018.10*
CCVL Research Group   *Advisor:* **Prof. Alan Yuille**

· Proposed the research topic "Learning a Loss Function for Semantic Segmentation" myself.
· Identified the limited competence and irrational prior of current per-pixel cross-entropy loss function in
  semantic segmentation, and hence suggested a new perspective to enhance the performance of semantic
  segmentation.
· Proposed to model a more expressive learnable loss function using neural network and then iteratively
  refine the segmentation map with this loss function during inference stage.
· A new submission is in preparation.

Megvii Inc. (Face++), Beijing, China   *2019.1 - 2019.4, 2017.7 - 2018.3*
Team Research Model   *Advisor:* **Dr. Xiangyu Zhang**

· Focusing on the occlusion problem between things and stuff in panoptic and semantic segmentation
  and propose to address it in a disentangled manner.

· Discovered the nonparallel fact of different backbone network's performance on classification and later
  transferred task such as detection or segmentation, which is a brand new topic in computer vision
  community.
· Identified the ineffective feature fusion problem in currently prevalent "U-shaped" network structure
  and suggested a new perspective to boost the performance of different computer vision tasks which
  employ the "U-shaped" neural network structure.
· Proposed several methods on backbone network to alleviate the feature fusion problem on latter decoder
  stages for detection and contributed to the backbone network of "MegDet", which won the first place
  of MS COCO detection challenge 2017.
· Proposed several techniques (LR, SS, SEB, ECRE, DAP, refer to the ECCV 2018 paper for more
  details) to bridge the gap between high level and low level features from different stages in "U-shaped"
  network structure to tackle the ineffective feature fusion problem for semantic segmentation.
· Achieved the state-of-the-art 87.9% mIoU on PASCAL VOC 2012 benchmark, and a paper is accepted
  by ECCV 2018.

· Applied techniques above to human portrait segmentation project and boosted performance by a large margin.

TuSimple Inc., Beijing, China   *2017.2 - 2017.5*
Team of Visual Computing Algorithms   *Advisor:* **Dr. Naiyan Wang**
· **Project: Camera Abnormal Condition Detection**
· Trained a 2-classes classification network using small patches of pictures drawn from videos of a contaminated camera, trying to predict a heatmap of the contaminated area.
· Formulated this task as a segmentation problem eventually, using Fully Convolutional Networks to add more context info to the inherent local feature of contaminated area by a large receptive field.
· Combined with traditional blur detection method to further enhance performance.

University of California, Irvine, CA, USA   *2016.10 - 2017.1*
Computational Vision Group of UC Irvine   *Advisor:* **Prof. Charless Fowlkes**
· **Project: Instance Segmentation and Tracking of Worms in Biological Experiments**
· Modified the scanner and wrote a script to automate scanning.
· Created a baseline using multi-stage cascading networks combining traditional clustering methods.

Fudan University, Shanghai, China   *2016.7 - 2016.8*
Shanghai Key Laboratory of Intelligent Information Processing   *Advisor:* **Prof. Xiangyang Xue**
· **Project: Detection of Cars and Persons in Low-Resolution Video and Small-Size Pictures**
· Fine-tuned Faster R-CNN to adjust it to our project.
· Combined Vibe for localization and VGG16 pretrained on Cifar-10 for classification on video input.
· Wrote a domestic labelling system using Python.
· Exploited the temporal characteristics of video to further enhance model's performance and got a mAP of 85%.

PUBLICATION

Zhenli Zhang, Xiangyu Zhang, Chao Peng, Xiangyang Xue, and Jian Sun,
"ExFuse: Enhancing Feature Fusion for Semantic Segmentation",
in Proc. of European Conference on Computer Vision (ECCV), 2018 [arxiv], [CVF], [leaderboard]

AWARDS

2019	Outstanding Graduates of Fudan University
2016	Top Ten Students of School of Computer Science (10/200+)
2016	Excellent League Member of Fudan University (Top 5%)
2015	Excellent Student of Fudan University (Top 5%)
2015	Tung OOCL First-class Scholarship (Top 5%)
2014	Fudan University Second-class Freshman Scholarship

SKILLS AND OTHERS

Computer	Python, C/C++, LaTeX
Language	Chinese (native), English (fluent)
	TOEFL 110/120, Reading 30, Listening 30, Speaking 22, Writing 28
	GRE Verbal 154/170, Quantitative 168/170, Analytical Writing 3.5/6.0