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Ligeng Zhu

Education

2015 – now **Simon Fraser University**, *Vancouver*, BC, Canada.
B.Sc in Computing Science, Dual Degree Program exchange. GPA: 3.71/4.0

2013 – now **Zhejiang University**, *Hangzhou*, Zhejiang, China.
B.Eng in Computer Science & Technology. GPA: 3.8/4.0

Publications and Manuscripts

To be submitted **Sparsely Connected Convolutional Networks**.
Ligeng Zhu, Ruizhi Deng, Zhiwei Deng, Greg Mori and Ping Tan
Will be under review in CVPR 2018
A sparsely connected network architecture leads to better performance-parameter efficiency.

To be submitted **Spatial Semantic Encoder as Regularizer in Semantic Segmentation**.
Ligeng Zhu*, Dazhou Guo*, Yuhang Lu and Song Wang (* denotes equal contribution)
Will be under review in CVPR 2018
Learn a soften probability distribution that fits for semantic segmentation tasks.

To be submitted **Composite Future Video Frame Synthesis via GAN**.
Mengyao Zhai, Jiacheng Chen, Ruizhi Deng, Ligeng Zhu, Lei Chen and Greg Mori
Will be under review in CVPR 2018
an approach for forecasting sports video involving multiple play- ers.

January 2018 **Colorize Color Images**.
Ligeng Zhu and Brian Funt
To appear in 30th Human Vision and Electronic Imaging Conference (HVEIC 2018).
Propose a method to improve color quality by colorizing it.

October 2016 **Attribute Recognition from Adaptive Parts**.
Luwei Yang, Ligeng Zhu, Yichen Wei, Shuang Liang and Ping Tan
In 27th British Machine Vision Conference (BMVC 2016)
An end-to-end deep learning approach to optimize parts detection for attribute recognition.

Research Experiences

May 2017 – **Research Assistant**, *CVL Lab*, Simon Fraser University, Advisor: Prof.Brian Funt.
Research in deep learning and color vision
- Research on color vision with learning techniques.
- Contribution to Gehler's Dataset

May 2017 – Aug 2017 **Deep Learning Engineer**, TuSimple @ California, Mentor: Dr.Panqu Wang.
- (In a patent) Designed an algorithm that generates the road area from lidar cloud points.
- (In a patent) Designed vehicle back-light understanding system.
- Improved deep semantic segmentation model for real time scene parsing.

TuSimple Inc. is an unicorn startup aiming to achieve the first commercially viable autonomous truck driving platform with L4 (SAE) levels of safety.

Sept 2015 – May 2017 **Research Assistant**, *GruVi Lab*, Simon Fraser University, Advisor: Prof.Ping Tan.
Research in computer vision and 3D reconstruction
- One publication on conference BMVC 2016
- Contribution to garment dataset

Sept 2014 – Jan 2015 **Research Assistant**, *CAD & CG Lab*, Zhejiang University.
Research in computer graphics
- Implemented a image depth-detect algorithm
- Participated a material simulation system.

Talks and Teachings

Oct 2017 **Deep Learning for Computer Visioners**, Simon Fraser University, Slide1, Slide2.
Two invited lectures for undergraduate/graduate course Computer Vision CMPT 412.

May 2017 **Neural Style Transformations Explained**, TuSimple, Slide.
Tech talks during summer internship.

Jan 2017 **Deep Learning Live for Beginners**, Zhejiang University, Slide.
A general introduction for beginners who have backgrounds of programing and math basics but never touched deep learning before.

Honors and Awards

2017 **Open Source Scholarship**, Issued by Simon Fraser University.
To reward students who made a major contribution in a open source projects.

2017 **Academic Scholarship**, Issued by Simon Fraser University.
Offered to students who show good academic behaviors.

2015 **ACM-ICPC Contest**, Issued by Zhejiang University.
Second prize

2015 **The Mathematical Contest In Modeling**, Issued by Zhejiang University.
First prize, ranking 3/143

2015 **The Mathematical Contest In Modeling**, Issued by COMAP.
Honorable Mention

Projects

2017 **MXBox:a toolbox for mxnet framework**, *GitHub*.
- Define preprocess as transformation flow.
- Efficient and flexible DataLoader.
- Rich state-of-the-art models and their pretrained weights.

2016 **Colorize gray-scale image using deep neural networks**, *Released model*.
- Implemented the state of the art model, and accelerated training time from 3 weeks to 3 days.
- Introduced a simple feed-forward network for colorization task, which needs much less training time while keeping competitive results to the state-of-the-art model.

2016 **Fast Artistic Stylization for Videos**, *Online Demo*.
Proposed an stable (no flash between frames) and fast (30x faster than Ruder's method) artistic style transfer approach for videos.

2016 **Play with Multimedia**.
- Implemented RAW-to-JPEG converter with standard JPEG 2000.
- Implemented a simple video-gif converter based on GIF89 standardization.
- Built a image retrieval system with Deep Neural Networks which reaches mAP 0.62 on Caltech 256 dataset.

2015 **An Efficient Ray-tracing Render Engine**.
- Most of modern render engine features - shadow, reflection, refraction, diffuse, super-sampling.
- Support reading from 3d texture file (SMF / OBJ).
- Used octree to avoid unnecessary intersection check, and openmp for parallel acceleration.

Language Proficiency

English Fluent, IELTS 7.0/9.0, GRE V: 152/170, Q: 168/170, W: 3.5/6