Shanlin Sun

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EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA *Aug 2017 - May 2019*

Graduate student Electrical Engineering *Los Angeles*

- GPA: 3.82 / 4.00

BEIHANG UNIVERSITY *Aug 2013 - May 2017*

Bachelor of Engineering Measurement & Control Technology and Instrumentation *Beijing*

- GPA: 86.7 / 100

TECHNICAL UNIVERSITYOF DENMARK *Aug 2016 - Jan 2017*

Guest student Electrical Engineering *Copenhagen*

- Fellowship awarded by China's Scholarship Council (CSC)

PROJECTS

TGS Salt Identification Challenge *Sep 2018 – Oct 2018*

Kaggle Competition *Los Angeles*

- It is held by TGS, looking for an algorithm that automatically and accurately identifies if a subsurface target is salt or not, one of the most popular deep learning competitions in Kaggle right now.
- Using Pytorch framework, we build an Unet-based segmentation neural network, but is highly improved by introducing several pretrained ResNet/ ResNext encoders, random padding augmentation method, snapshot ensembling, deep supervision, Lovasz Loss and some other ideas.
- Our team's best LB record was top 10% and we are still working on it.

Series of Image Style Transfer Research *Mar 2018 – May 2018*

Toy Project *Los Angeles*

- Using gram features as the style loss criterion, using L2 distance as the content loss criterion, the final goal is to minimize the weighted sum of style loss between generated images and style images, and content loss between generated images and content images.
- Realize the goal of 'one-time training, one stylized image generated'
- Inspired by GAN, divide one CNN network into one generator network and one loss network. Using millions of samples training, empower the generator network to generate one kind of stylized images. (in progress)
- Todo list: one-time training, any stylized images with any content generated

Detection of Truck Brakes Malfunction Using Image Recognition Technology *Feb 2017 - May 2017*

Graduation Project *Beijing*

- Using Hough transform algorithm extracts the obvious straight lines to help roughly locate ROI
- Based on HOG characteristics, an AdaBoost Cascade classifier slides to detect some regions where the brake shoe possibly exists, and the final ROI is decided by the posterior probability of each possible ROIs, tested by an SVM classifier.
- Due to the relatively small number of our training samples, we apply transfer learning method built on a pre-trained AlexNet CNN to identify the status of a brake shoe.

Recognition of Baidu CAPTCHA *Mar 2016 - May 2016*

Leading researcher of a course project group *Beijing*

- Final course project for Digital Imaging Processing
- Established project framework, built the algorithm of the segmentation and normalization of characters and took charge of code writing and debugging
- Use very old-school morphological methods such as open and close operation to segment connected characters
- Using SVM to classify the segmented characters or number

PUBLICATIONS

1. Yi Ji, **Shanlin Sun**, Hong-Bo Xie. Stationary Wavelet-based Two-directional Two-dimensional Principal Component Analysis for EMG Signal Classification. Measurement Science Review, 17(3), 117-124.
2. Wenhao Wang, **Shanlin Sun**, Mingxin Jiang, Yunyang Yan, Xiaobing Chen. Traffic Lights Detection and Recognition Based on Multi-feature Fusion. Multimed Tools Appl (2017) 76: 14829.

RESEARCH INTEREST

- Computer Vision, Natural Language Processing (starter)
- Object detection, segmentation and classification
- Image/Video captioning
- Bayesian (Deep) Learning

SKILLS

Computer Knowledge

- Programming Language: C (proficient), C++ (basic), Python (proficient), Matlab (proficient)
- Library: OpenCV, sklearn, tensorflow, Pytorch, Keras

Certificates

- Neural Networks and Deep Learning (Coursera Certificated)
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization (Coursera Certificated)
- Sequence Models (Coursera Certificated)