Yuxuan Si / Sue

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EDUCATION

Department of Information and Electronic Engineering, **Zhejiang University,** China Aug 2017 – Jul 2021
B.E. of Engineering (expected in Jul 2021).

- **GPA:** 3.91/4.0（88.38/100） **Ranking**: top 5% among 312 students
- **Core Courses:** Computer vision（98/100）, Computer organization and design（95/100）, Information System Security (100/100), Digital signal processing (97/100), Complex variable function and integral transformation (94/100), Probability Theory and Mathematical Statistics (95/100), Java programming (95/100), Electronic circuit foundation (94/100), Data structure foundation (92/100), Electromagnetic Fields & Waves (91/100).

RESEARCH EXPERIENCE

Massachusetts Institute of Technology (Department of Electrical Engineering and Computer Science)
Research Assistant to Professor Samuel Madden Jul. 2020 – Oct. 2020
Spark-based end-to-end anomaly detection and interpretation system

- Proposed a novel model for outlier detection. By using the results of the unsupervised outlier detector as labels and automatically converting the detection results into high-quality labels, a supervised classification model is trained, pruning the entire data set, and generating the final outlier results. We update the results iteratively through two models, AutoOD-Augment and AutoOD-Clean.
- AutoOD-Augment starts with a small but reliable training data. It uses a learning-based methods to iteratively prune the 'bad' unsupervised outlier detectors. The training data then gets progressively augmented based on the agreements among the 'good' outlier detectors, and the agreements among the predictions produced.
- AutoOD-Clean starts with a large but noisy training data and keeps cleaning it. Leveraging the observation that the accuracy on "clean" samples is higher than that on the "bad" samples in early epochs of training a neural network, our AutoOD-Clean approach iteratively purifies training data by removing points with large early loss.

Zhejiang University (Department of Information and Electronic Engineering) Hangzhou, China
Research Assistant to Professor Cheng Zhuo Dec. 2019 – Mar. 2020
Research on Efficient Convolutional Neural Network Search Method for Medical Image Segmentation

- By using the optimized Neural Architecture Search (NAS) method based on gradient descent, we presented a more effective neural network model for medical images segmentation.
- We searched the unit structure and the network-level architecture simultaneously to automatically construct a medical image segmentation model without tuning the network parameters.
- We improved the search space to make it possible to search the classic networks which include skip-connect units like U-Net.
- Our automatically constructed model ranks 31th in the Combined (CT-MR) Healthy Abdominal Organ Segmentation (CHAOS) challenge, exceeding the performance of the U-Net model.

Zhejiang University (Department of Information and Electronic Engineering) Hangzhou, China
Research Assistant to Professor Chunguang Li Oct. 2019 – Apr. 2020
Hash learning based on deep neural network and its application in image retrieval

- Proposed an end-to-end model for large-scale image retrieval using Learn to Deep Hash technology.
- Presented an equivalent continuous formulation to transform the discrete hashing problem into a continuous optimization problem without any relaxations.
- Treated the query points and database points in an asymmetric way with double-bit quantization.

National University of Singapore (School of Computing) Singapore
Research Assistant to Professor Dong Jin Song Jul. 2019 – Oct. 2019
Phishpedia: Identifying Phishing Target with Visual Explanation

- Proposed a visual analysis based approach to detecting phishing website, identifying its target, and explaining the reason with annotated regions on the screen shot Specific achievements.
- Automatically detected identity UI component in the screenshot, such as logo, via training the modified Yolov3 algorithm.
- Constructed and published two datasets for cyber-security and AI community. Namely, (1) 15,790 phishing webpages with their screenshot and html content, and (2) the labelled identity UI component in 35,090 webpage screenshots.

SELECTED AWARDS AND HONORS

- China National Scholarship 2020
- Zhejiang University First Class Scholarship 2019
- Provincial Government Scholarship of Zhejiang University 2019
- Corporate Cooperation Award of 2019 Hangzhou Future Technology City-Smart City Construction Partner Competition (1/405) 2019
- Second prize of College Student Physics Academic Competition 2019
- Zhejiang University Third Class Scholarship 2018
- First Prize of Smart Car Competition (1/92) 2018

ADDITIONAL INFORMATION

Additional Professional and Extracurricular Experiences

- Scala, Python, C/C++, MATLAB, Verilog, Java
- PyTorch, Tensorflow, LaTeX