Yushi LAN

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EDUCATION

School of Software, Beijing University of Posts and Telecommunications (BUPT) *08/2016-Present*
B.E. in Software Engineering, Overall GPA: 3.8/4.0, Major GPA：3.85/4.0, Rank 10/127

YePeiDa Innovation College, Beijing University of Posts and Telecommunications *03/2018 -06/2019*
Elite Selection and Development Plan (top 1% of 3600 undergraduates)

Wolfson College, University of Cambridge *08/2018*
BUPT - Cambridge University exchange program (Top 1% of 3600 undergraduates)

PUBLICATIONS & PATENT

Yushi Lan, Yuan Liu, Maoqing Tian and Hongsheng Li, "MagnifierNet: Towards Semantic Regularization and Fusion for Person Re-identification", submitted to ***IEEE Conference on Computer Vision and Pattern Recognition (CVPR)***, Nov 2019.

Patent Number: ZL 201910741663.1 "A base station height measurement method, electrical equipment and storage medium". Author: **Yushi Lan**, 2019.

RESEARCH EXPERIENCE

Deep Learning to Segment Cell and Tissue Microscopy
University of Texas at Austin | Research Assistant *07/2019 -11/2019*
Advisor: Chandrajit Bajaj, professor at Department of Computer Science, Computational Visualization Center, UT Austin

- Aimed to effectively segment microscopy organelles slides, which suffer from problems of class imbalance and limited data samples; this is a long-standing challenge in semantic segmentation and classification.
- Analyzed the distribution and size variation of organelles based on microscopy slides and built datasets for training; implemented encoder-decoder networks and attention modules in PyTorch and established pipeline for training, testing and evaluation; added organelle statistical distribution as training supervision.
- Proposed to combine Neural-ODE with hierarchical encoder-decoder architecture to improve segmentation performance; Composed *Hierarchical ResUnet for Semantic Segmentation* paper as co-first author*;* our code is available on GitHub.

Enhancing Person Representation Learning by Semantic Fusion and Regularization
SenseTime Research Beijing | Research Intern *03/2019-11/2019*
Advisor: Hongsheng Li, assistant professor at Department of Electronic Engineering, Multimedia Laboratory, CUHK

- Aimed to enhance representation alignment in the task of cross-camera person retrieval (ReID); added pedestrian segmentation and attributes distillation branches after the backbone network; trained our CNN model on a million scale datasets and showed improved performance and generalization ability under both source-domain and cross-domain settings.
- Proposed *Semantic Regularization Branch* and *Semantic Fusion Branch*, which boosted the performance of person representation learning; the proposed modules can help distinguish visually similar identities and identify occluded people.
- Composed *MagnifierNet* paper as the first author and achieved state-of-the-art results on 3 benchmarks by large margins; the paper was submitted to CVPR 2020.

CV aided Cardiomyopathy Pathological Classification
Tsinghua University | Research Assistant *10/2018-Present*
Advisor: Hairong Lv, assistant professor at Department of Automation, Tsinghua University

- Aimed to classify cardiomyopathy by digital pathological analysis rather than through observation, and provided references for future pathological diagnosis.
- Analyzed large quantities of RCM (Restrictive Cardiomyopathy) pathological stained (H&E, MASSON) slides using computer vision algorithms; extracted valuable features and performed correlation analysis and unsupervised clusters based on the results.
- Implemented a GUI system independently that could read, process, and analyze pathological slides in parallel; extracted cardio features and statistical information that could be directly saved in csv format for later use.
- This research can aid doctors to efficiently classify and diagnose cardiomyopathy with over 85% accuracy.

Efficient Optimization of Graph Convolution Network on Large Graphs

Microsoft Research Asia | Research Intern *11/2019-Present*

Advisor: Hui Xue, assistant researcher at System Research Group, MSRA

- Researched on optimization acceleration on large-scale GCNs training. The majority of recently proposed GCN architectures require full-batch training and do not scale to large graphs or inductive settings.
- Improved the graph batch sampling strategy by utilizing pre-defined category information; generated better partitions of nodes with higher intra-class compactness.
- Imposed margin-based constraints after each graph convolution layer to drive the model to magnify the influence of positive samples and stabilize the GCN optimization.

Community Detection with Dynamic Graph Convolution Networks

BUPT | Research Assistant *10/2019-Present*

Advisor: Advisor: Yingxia Shao, assistant professor at Department of Computer Science, BUPT

- Researched on the End-to-End overlapping community detection with dynamic evolution. Traditional methods have inherent drawback to discover overlapping community and neural models for community detection has received little attention.
- Adopted GCN to extract community graph embedding and recurrent model to capture the dynamism of graph sequence; implemented dynamic graph convolution networks with PyTorch, and then evaluated them on public graph datasets.
- Proposed mini-batch stochastic optimization strategy which reduced computational cost and memory use.

PROFESSIONAL EXPERIENCE

China Unicom Xiongan Industrial Internet Co Ltd

Department of Network | Summer Intern *07/2018-09/2018*

- Engaged in the maintenance of Base Station and Clusters; ensured the stable operation of the carrier communication system.
- Aided experts in improving the measurement of base station height; the proposed new method will significantly improve the accuracy and reduce the difficulty of measurements.

HONORS & AWARDS

Academic Outstanding Scholarship, Top 6% of BUPT for 3 consecutive years *2016-2019*

National Award, BUPT Undergraduate Research Innovative Projects (top 2%) *2019*

Finalist, China College Student's Innovation Competition (top 5%) *2018*

Scholarship, Ansheng.WANG Foundation Elite Award (top %5) *2017*

SKILLS

Programming Languages: Python, C/C++/C#, Linux, Java, Django, JavaScript, SQL

Machine Learning Frameworks: PyTorch, Numpy, SciPy, OpenCV, Hadoop

Professional Software: LaTeX, MATLAB, VS/VS Code