

# 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: 88.3/100, Major GPA: 88.7/100, 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: CN201911242690.0 “A Person Reidentification Model Based on Segmentation-Assisted Training”. Author: **Yushi Lan**, Xuesen Zhang, Shuai Yi. 2019.

Patent Number: CN201911242467.6 “A Person Reidentification Model Based on Attribute-Assisted Training”. Author: **Yushi Lan**, Xuesen Zhang, Shuai Yi. 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 accurately segment microscopy organelles slides, which has been a highly challenging yet rewarding task.
- Analyzed the distribution and size variation of organelles based on microscopy slide; established pipeline for training, testing and evaluation; implemented encoder-decoder segmentation networks and attention modules with PyTorch.
- Proposed to combine Neural-ODE with hierarchical segmentation architecture to boost 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](#), Associate Professor at Department of Electronic Engineering, Multimedia Laboratory, CUHK

- Aimed to magnify local features in person re-identification (ReID) task; added semantic recognition branches after backbone network; our CNN model showed improved generalization ability under cross-domain settings on million scale datasets.
- 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 4 benchmarks by large margins; the paper was submitted to CVPR 2020.

### Efficient and Robust Optimization of Graph Convolution Network

Microsoft Research Asia | Research Intern 11/2019-Present

Advisor: [Hui Xue](#), Associate Researcher at System Research Group, MSRA

- Visualized and analyzed error cases in previous popular GCN methods; summarized their advantages and limitations. Proposed to train a subgraph generator towards improving learning ability of graph neural network.
- Researched optimization acceleration on large-scale GCNs training. Improved the graph batch sampling strategy by utilizing pre-defined category information and generated better partitions of nodes with higher intra-class compactness.

### CV aided Cardiomyopathy Pathological Classification

Tsinghua University | Research Assistant 10/2018-Present

Advisor: [Hairong Lv](#), Associate 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.

### Community Detection with Dynamic Graph Convolution Networks

BUPT | Research Assistant

10/2019-Present

Advisor: Advisor: [Yingxia Shao](#), Associate 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.

### PROJECT EXPERIENCE

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#### SharpTorch: An Open Source Deep Learning Framework with C#

BUPT | Team Leader

12/2018-01/2019

Course: C# Programming (Only Full score out of all undergraduates)

- Implemented a Deep Learning Framework using C# which builds and trains artificial neural network in PyTorch API.
- Supports auto differentiation and propagation for most activation functions, matrix calculation and loss functions.
- Code available here on [GitHub](#) using MIT License.

#### End-to-End Person Re-identification (ReID) System Development

BUPT | Team Member

09/2017-06/2019

Innovation and Entrepreneurship Training Program

- Built an end-to-end person re-identification (ReID) system that supported efficient retrieval and distributed deployment.
- Goal is to help enterprises better understand their customers' needs by tracking consumer behavior.
- Code available here on [GitHub](#).

### PROFESSIONAL EXPERIENCE

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#### 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

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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

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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