Xiaoyu WANG

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Educational Background

University of Science and Technology of China (USTC), Hefei *Sept.'15-Jun.'19*

Bachelor of Engineering in Department of Electronic Engineering and Information Science

- **Major GPA:** 3.83/4.3 89.65/100
- **Overall GPA:** 3.71/4.3 88.09/100

Core courses related to Electronic Engineering:
Digital Logic Circuits (94/100), Basic Circuit Theory (93/100), Signals and Systems (92/100), Nonlinear Electronic CircuitsB (90/100), Experiments of Basic Circuit Theory (95/100), Experiments of Linear Electronic Circuits (95/100), Electromagnetism C (96/100)
Core courses related to Information Science:
Stochastic Processes B (95/100), Fundamentals of Multimedia Technology (93/100), Fundamentals of Speech Signal Processing (97/100), Digital Image Processing (92/100), Computer Network (90/100), Information Theory A(90/100), Design Innovation (A+)

Awards:

- Electromagnetism Course paper Contest, First Prize (Top 1/70) Dec.'16
- Scholarship of Institute of Electrics,Chinese Academy of Sciences (Top 4/75) Sept.'17
- Outstanding Student Scholarship of USTC, Silver Award (Top 9/70) Sept.'18
- Kaggle RSNA Pneumonia Detection Challenge, Silver Award (21/1499, Top 1.4%) Oct.'18

University of Florida (UF), Florida *Jul.'18-Sept.'18*

Undergraduate Visiting Researcher Program, supervised by Professor Xiaolin Li

Research Experiences

Federated Learning Come Across With Label Noise Learning Sep.'19-Jan.'20
Open Source Platform Project Team, AI Department, Pengcheng Lab *Research Assistant*
Advisor: **Xinwei Zheng**, Associate Professor, Department of Electronic Engineering and Information Science, USTC

- Eliminated the label noise in federated learning and improved performance accuracy, evaluated by CIFAR and MNIST data.
- I came up with this idea besides my intern about building the Pengcheng Cloudbrain (ranked first in the IO500 rankings), when I built up some autoML systems and Federated Learning applications on Cloudbrain, ect.
- Key Points: Federated Learning, Class-dependent label noise, Estimated probabilities transition matrix, Anchor point samples.
- In the worst case, accuracy dropped to 30 percent, but by estimating and recovering from noise, it arrived 88 percent accurate.
- Seriously considered by the advisor of team to be one of next research points and potentially to be a paper.

Instance-Dependent NN Learning by Bayesian Optimal Relabeling Jan.'19-Jun.'19
Microsoft Key Laboratory, USTC *Undergraduate Thesis*
Advisor: **Xinmei Tian**, Associate Professor, Department of Electronic Engineering and Information Science, USTC

- Established a mathematical method to eliminate the noise among the binary labels, evaluted by synthetic dataset and UCI Benchmark dataset.
- Modified Bayes classifier and used synthetic anchors to determine the boundary for relabeling, then used kernal matching to elimitate the statistical bias between the relabeled data and origin data.
- Key Points: Relabel Technique, Boundary estimate via SVM+sigmoid, Synthetic anchor set.
- This method greatly improved the accuracy of SVM in most noise distributions.

Histopathologic Cancer Detection and Diagnosis Based on Deep Learning May.'18-May.'19
Medical Imaging Center, Centers for Biomedical Engineering, USTC *Research Assistant*
Advisor: **Bensheng Qiu**, Professor, Chairman, Department of Electronic Science and Technology, USTC

- An algorithm to identify metastatic cancer in small image patches, evaluated on PCam benchmark dataset.
- Preprocessed and argumented data, then used SGD and binary Crossentropy Loss to training the modified neural networks.
- Three applied networks: ResNet-50 based on Octave Convolution, Non-local Neural Networks, ResNeXt-101.
- Outstanding 2018-2019 Undergraduate Innovative Research, School of Information Science and Technology, USTC. (Top 4/16)

SceneText algorithm optimization based on SSTD Jul.'18-Sept.'18
Li Lab, University of Florida(UF) *Research Assistant*
Advisor:**Xiaolin Li**, Professor, Department of Electrical and Computer Engineering, University of Florida

- Modified the network structure of Single Short Text Detector for better scene-text detection and location, evaluated by precision of output mask of predicting location box.
- Added deformable convolutional layers to the neural network to better localize deformed scene text and eventually improved its performance.
- Evaluated on the ICDAR 2015 dataset, the modified network improved precision from 93.40% to 93.86%.

Course Project

AR Campus Guide Oct.'17-Jun.'18
Group Work, Design Innovation(A+)

- To make an APP based on augmented reality to guide guests visit the USTC campus during the university's 60th anniversary.
- I was responsible for implementing animation effects in 3D models and the GPS function by unity and programming on C and JavaScript.
- Showed at Stanford University Global Alliance for Re-Design (SUGAR) in Stanford University in June, 2018.
- Project got the highest score A+.

Skill

Software Programming:	C, Python/Pytorch, JavaScript, Matlab
Hardware Programming:	VHDL, FPGA, Assembly Language
Other Software:	Unity, Delphi, Mysql, NetSim, HTML, Letax

English Proficiency

TOEFL:	105
GRE:	320