Curriculum Vitae

Zhijun Xue | U-M ID:
Program: M.S. in Electrical and Computer Engineering

EDUCATION

Huazhong University of Science & Technology - *School of Electronic Information and Communications*

- Bachelor of Engineering in Electronic and Information *Expected June. 2020*
- Cumulative GPA: **3.75/4.0** Major GPA: **3.86/4.0**

Imperial College London – *Hamlyn Centre for Robotic Surgery*

- Summer Research Program: Machine Learning, Robotics and Sensor Networks *Jul. 2018 – Aug. 2018*
- GPA: **4.0/4.0**

Standard Tests:

- **TOFEL**: **105**(Listening 30) **GRE**: V: 159 Q: 169

PUBLICATION

Amir Moeini, **Zhijun Xue**, Alan F. Lynch, Qing Zhao **'Disturbance Observer-Based Integral Backstepping Controller for Multirotor UAVs'.** Submitted to **IFAC 2020** Conference (Currently under review)
Code: *https://github.com/ANCL/UAV_IBS*

PATENT

End-to-End identification method for scene text of arbitrary shape

- Application No.: 201810294058X
- Date of Receiving Certificate: 2018-09-18

RESEARCH EXPERIENCE

Image-Based visual Servoing of Unmanned Aerial Vehicle University of Alberta
*Undergraduate researcher at **ANCL Lab*** *July 2019 – Oct. 2019*
Field: Robotics; Drone; Computer Vision
Mentor: Prof. Alan F. Lynch
Demo: *https://www.youtube.com/watch?v=Nkaf59vUjKM*

- Conducted UAV Line Detection on Nvidia Jetson TX 2 platform and passed the line movements features to another microprocessor
- Utilized MAVLink protocol to communicate between open-source autopilot and other onboard hardware
- Implemented Integral Backstepping Controller on open source *PX4* Firmware and modified *PX4* to support Vicon data for in-door navigation
- Conducted *Software in the Loop (SITL)* quadrotor simulation on jMAVSim and Gazebo platform

Text Semantic Understanding in Image and Video for Network Information Security Wuhan
*Research assistant at **Vision & Learning Representation Group*** *Oct. 2018 – present*
Field: Scene text detection & recognition; OCR; Computer vision
Mentor: Prof. *Xiang Bai*, Prof. *Wenyu Liu*

- Designed algorithm for generating large scale Chinese Character synthetic text images dataset (80k images)
- Implemented PyTorch-based Scene text detection & recognition toolbox for the lab
- Devised an end-to-end, segmentation-based method to solve scene text detection bottleneck with respect to curved text
- Proposed a Multi-Attention CNN network for Handwritten Chinese character recognition, network can adaptively integrate information from different regions to do final prediction
- Tested network on ICDAR2013 dataset, achieved 97.66% accuracy, outperforming all single-network methods.

Intelligent voice-control Assisting Robot (***Code at Github***) Imperial College London
*Visiting student at **Hamlyn Centre for Robotic Surgery*** *July 2018 – Aug. 2018*
Field: Object detection & tracking; Speech recognition; Human computer interaction; Robotics
Mentor: Prof. Guang-zhong Yang

- Chief programmer. Integrated speech recognition, image recognition and grabbing algorithms into single robotic arm
- Utilized misjudgment feedback mechanism to improve robotic arm grasping accuracy by reinforcement learning
- Team Leader. Led 6 teammates won the "First Runner-up" prize in final competition

SELECTED PROJECTS

Distributed Spider System *Sep. 2018 – Dec. 2018*

- **Project Introduction**: A high-level distributed crawling framework used to crawl pages and extract structured data from websites. It provides simple and fast yet flexible way to achieve data acquisition objective.
- **Data Collection**: Build a distributed spider system using Selenium+Celery+Redis to crawl information from Weibo, Zhihu, which are the 2 biggest social media in China.
- **Data Analysis**: Analyze the main opinion of netizens for public events using traditional natural language processing methods, such as TF-IDF, LDA, LSI, etc.

Whole Slide Tissue Image classifier with CNN Network *May 2019 – July. 2019*

- **Model**: Devised one-stage patch-based CNN network to classify tumor tissues which achieved AUC = 0.9324
- **GUI**: Utilized QT to develop cross platform user interface for tumor tissue classification

ACADEMIC AWARDS

- **2019: Outstanding Undergraduate Scholarship for Overseas Exchange**, awarded by CSC (*China Scholarship Council*)
- **2019:** VLR team achieved **4 championships** in ICDAR2019 competitions. See our results of competition *ReCTS*
- **2018、2019: Science Progress Scholarship,** awarded by *School of EIC*
- **2017: Self-improvement scholarship**, awarded by *School of EIC*

CAMPUS SERVICE

Students Union – Team Leader of Coding For Fun Club *Apr. 2017 – Apr. 2019*

- Organized Hackthon; Conducted Coding & Deep Learning undergraduate seminar
- Co-hosted Innovative Software Programming Contest "Seed-Cup" with *Beibei.com* and Qiming College of Huazhong University of Science & Technology
- Built *EIC BBS forum*; Maintained student union website

BINGYAN Studio – Back-end developer *Oct. 2017 – Mar. 2019*

- Co-developed and maintained WeChat mini program "Helping HUST", "Link-HUST" for students' convenience, which are used by thousands of students in school

VOLUNTEERING

Volunteered at Red Cross China Yunnan Branch Disaster Relief and Preparedness Centre

Time: January, 2018 ~ Febuary, 2018; January, 2019 ~ February, 2019

Role: Helped to draft Fund Prospectus for Red Cross's non-profit foundation

SKILLS

- **Proficient in Python, C/C++, PyTorch, MATLAB, SQL, skilled in ROS, Java, Arduino, Verilog**
- **Software** Xilinix Vivado, Gazebo, SolidWorks, LaTeX, JetBrains, Vim, Microsoft Office