

Zhihua Liu

G3-04, Informatics Building, University of Leicester, Leicester, England, UK, LE1 7RH

☎ +4407421319091

✉ zhliu.ustb.cn@gmail.com

🔗 zhihualiu.github.io

Education:

University of Leicester, Leicester, UK

09/2018 – 09/2023

- MPhil, DPhil in Computer Science, Biomedical Image Processing Lab (BIPL), University of Leicester.
- Supervisor: Prof. Huiyu Zhou

University of Edinburgh, Edinburgh, Scotland, UK

09/2015 – 11/2016

- MSc in Artificial Intelligence, School of Informatics
- Supervisor: Dr. Myungjin Lee

University of Science and Technology Beijing, Beijing, China

09/2011 – 06/2015

- BEng of Internet of Things, School of Computer Science and Communication Engineering
- Supervisor: Prof. Stephen McKenna, Prof. JianGuo Zhang, Dr. Sebastian Stein, University of Dundee, Scotland, UK
- Major GPA: 3.56/4.0, Overall GPA: 3.21/4.0 (Top 10%)

Working Experience:

Algorithm Engineer, JD.COM, Beijing, China

09/2016 – 09/2018

- **Obstacle Detection in Point Cloud** Research works on car, pedestrian and cyclist detection in 3D Point Clouds generated from LiDAR. Proposed a modified Single Shot MultiBox Detector (SSD) and an adaptive Fully Convolutional Network (FCN) using 3D voxels. Deployed trained models within autonomous driving cars and high-definition map production pipeline under ROS environment.
- **Point Cloud Data Storage System** Core developer on Point Clouds data storage system based on HBase. Contribution includes serialization and deserialization module, Kerberos authentication development, Elastic retrieval deployment, message-oriented middleware (MOM) development using RabbitMQ.

Research Assistant, University of Leicester & Astrosat

04/2020 - 11/2020

Automated building construction detection and grading in satellite images.

Research Assistant, University of Leicester

12/2020 - 06/2021

Deep learning based anomaly detection using in DOMINOES project.

Teaching Experience:

Teaching Assistant, University of Leicester

2019 - 2020

Computational Intelligence and Software Engineering (CO3091), System-Re-engineering (CO7506), Generative Development (CO7507), STEM Foundation Year Lab-Physics (FS0023)

Teaching Assistant, University of Leicester

2020 - 2021

Business and Financial Computing (CO1109), Financial Services Information Systems (CO7218), Foundations of Cybersecurity (CO3099)

Research Projects:

Superspreader Detection in Software Defined Network (SDN) (MSc Dissertation)

01/2016 - 08/2016

- Software Defined Network environment set up using Mininet and OpenFlow
- Proposed a Bayesian model to detect a host machine which scans various ports of various servers or clients as we call it a superspreader.
- Proposed an authentication method to shut down the connection between targets and potential superspreader based on OpenFlow.

Multi-Classes Training and Testing in Food Preparation Recognition Tasks (BEng Dissertation) 10/2014 - 05/2015

- Data collection and processing from environments for the food preparation in kitchen, generated from sensors like Kinect

camera, and accelerators

- Using structured svm as the classier to do time serious vision behavior recognition training and testing. Complete the initial and transaction matrix of hidden markov model.

Publications:

- "CANet: Context Aware Network for Brain Glioma Segmentation" **Zhihua Liu**, Lei Tong, Long Chen, Feixiang Zhou, Zheheng Jiang, Qianni Zhang, Yin Hai Wang, Caifeng Shan, Ling Li, Huiyu Zhou (IEEE Trans. on Medical Imaging, 2021)
- "Perceptual underwater image enhancement with deep learning and physical priors" Long Chen, Zheheng Jiang, Lei Tong, **Zhihua Liu**, Aite Zhao, Qianni Zhang, Junyu Dong, Huiyu Zhou (IEEE Trans. on Circuits and Systems for Video Technology, 2020)
- "Structured Context Enhancement Network for Mouse Pose Estimation" Feixiang Zhou, Zheheng Jiang, **Zhihua Liu**, Fang Chen, Long Chen, Lei Tong, Zhile Yang, Haikuan Wang, Minrui Fei, Ling Li, Huiyu Zhou (arXiv, 2021)
- "Deep Learning Based Brain Tumor Segmentation: A Survey" **Zhihua Liu**, Long Chen, Lei Tong, Feixiang Zhou, Zheheng Jiang, Qianni Zhang, Caifeng Shan, Xiangrong Zhang, Ling Li, Huiyu Zhou (arXiv, 2020)
- "Underwater object detection using Invert Multi-Class Adaboost with deep learning" Long Chen, **Zhihua Liu**, Lei Tong, Zheheng Jiang, Shengke Wang, Junyu Dong, Huiyu Zhou (IJCNN, 2020)
- "Detecting and Tracking of Multiple Mice Using Part Proposal Networks" Zheheng Jiang, **Zhihua Liu**, Long Chen, Lei Tong, Xiangrong Zhang, Xiangyuan Lan, Danny Crookes, Ming-Hsuan Yang, Huiyu Zhou (arXiv, 2019)
- "Cost-sensitive Boosting Pruning Trees for depression detection on Twitter" Lei Tong, **Zhihua Liu**, Zheheng Jiang, Feixiang Zhou, Long Chen, Jialin Lyu, Xiangrong Zhang, Qianni Zhang, Abdul Sadka, Yin Hai Wang, Ling Li, Huiyu Zhou (arXiv, 2019)

Professional Service:

- **Reviewer of:**
Conference: ICRA (2019, 2020) **BMVC** (2019, 2020) **CVPR** (2020, 2021) **ACCV** (2020) **WACV** (2021) **ICCV** (2021)
Journal: IEEE Access, IEEE Transaction on Human-Machine System, EURASIP Journal on Advances in Signal Processing, Signal Processing: Image Communication, Computers in Biology and Medicine
- **Organizer of:**
Sino-UK to Promote the Development and Application of Artificial Intelligence (Leicester, 12th Jun 2019,) **Leicester Winter Data Science Seminar** (Leicester, 11th Dec 2019)

Skills:

Language

- Python, C/C++, MATLAB, JAVA

Frameworks

- PyTorch, Tensorflow, OpenCV, Point Cloud Library, Git

English

- IELTS 6.5/TOEFL 96

Extracurricular Activities:

- 2011-2013 Product Department Director of iBeiKe, Students' Union
- 2014 James Hutton Institute Volunteer
- 2015 Edinburgh Art Festival Volunteer
- 2020 Student at UCL Medical Image Computing Summer School (MedICSS2020)