

# Zhihua Liu

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

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## Educations:

### University of Leicester, Leicester, UK

09/2018 – 09/2023

- PhD 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

- **Advertisement Banner Recommendation** Research works on feature extraction and classification of advertisement banner using neural networks. Proposed a modified neural matrix factorization method for matching banner between tags and potential customers.
- **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.

## Teaching Experience:

### Teaching Assistant, University of Leicester

09/2018 – 06/2020

Introduction to Machine Learning (Distance Learning Project with University in Malaysia), Computational Intelligence and Software Engineering (CO3091), System-Re-engineering (CO7506), Generative Development (CO7507), STEM Foundation Year Lab-Physics (FS0023)

### Teaching Assistant, USTB

09/2012 – 02/2014

Introduction to C, Computer Network, Mathematical Analysis I, Mathematical Analysis II.

## Publications:

- Jiang, Zheheng, Zhihua Liu, Long Chen, Lei Tong, Xiangrong Zhang, Xiangyuan Lan, Danny Crookes, Ming-Hsuan Yang, and Huiyu Zhou. "Detection and Tracking of Multiple Mice Using Part Proposal Networks." arXiv preprint arXiv:1906.02831 (2019).
- Chen Long, Zhihua Liu, Tong Lei, Zheheng Jiang, Shengke Wang, Junyu Dong and Huiyu Zhou. "Underwater Object Detection Using Invert Multi-Class Adaboost with Deep Learning." (Proc. of IJCNN2020)
- Tong, Lei, Zhihua Liu, Qianni Zhang, Abdul Sadka, Ling Li, and Huiyu Zhou. "Inverse boosting pruning trees for depression detection on Twitter." arXiv preprint arXiv:1906.00398 (2019).
- Liu Zhihua, Long Chen, Lei Tong, Feixiang Zhou, Zheheng Jiang, Qianni Zhang, Caifeng Shan, Xiangrong Zhang, Ling Li, Huiyu Zhou. "Deep Learning Based Brain Tumor Segmentation: A Survey". arXiv preprint arxiv.org/pdf/2007.09479 (2020)

- Chen Long, Zheheng Jiang, Lei Tong, Zhihua Liu, Aite Zhao, Qianni Zhang, Junyu Dong, Huiyu Zhou. Detection perceptual underwater image enhancement with deep learning and physical priors. (IEEE Trans. on Circuits and Systems for Video Technology). (2020)
- Liu Zhihua, Lei Tong, Long Chen, Feixiang Zhou, Zheheng Jiang, Qianni Zhang, Yinhai Wang, Caifeng Shan, Li Ling and Huiyu Zhou. "CANet: Context Aware Network for 3D Brain Tumor Segmentation." arXiv preprint arXiv:2007.07788 (2020)

## Professional Service: \_\_\_\_\_

- **Reviewer of:**  
**Conference:** ICRA2019, ICRA2020, BMVC2019, CVPR2020, BMVC2020, ACCV2020, WACV2021, CVPR2021  
**Journals:** IEEE Access, IEEE Transaction on Human-Machine System, EURASIP Journal on Advances in Signal Processing, Signal Processing: Image Communication, Computers in Biology and Medicine, BioMed Research International.
- **Organizer of:**  
**1<sup>st</sup> Workshop for Sino-UK to Promote the Development and Application of Artificial Intelligence** (Leicester, 12<sup>th</sup> Jun 2019,) **Winter Seminar on Data Science** (Leicester, 11<sup>th</sup> Dec 2019)

## Honors: \_\_\_\_\_

- Second Prize in Beijing District Contest in China Undergraduate Mathematical Modeling
- First Prize in Beijing Contest District, Third prize in National Trail of International Contest of Innovation (iCAN'13)
- USTB First Class Scholarship for Fresh year student (Top 5%, 2011)
- People's Scholarships (Top 10%, 2012, 2013)

## Skills: \_\_\_\_\_

### Language

- Python, C/C++, CUDA Parallel Programming, MATLAB, JAVA, SQL

### Frameworks

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

### English

- IELTS 6.5 (Listening 6.0, Reading 6.5, Writing 6.0, Speaking 6.5)
- TOEFL 96 (Listening 21, Reading 22, Writing 20, Speaking 23)

## Extracurricular Activities: \_\_\_\_\_

- 2011-2013      Product Department Director of iBeiKe, Vice-Minister of Students' Union
- 2014            James Hutton Institute Volunteer
- 2015            Edinburgh Art Festival Volunteer