Zhihua Liu (刘志华)

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Educations:_____

University of Leicester, Leicester, UK   *09/2018 – 12/2024*
- MPhil, 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*
- **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 in DOMINOES (Smart Grid) project.

Teaching Experience:_____

Graduate Teaching Assistant, University of Leicester   *09/2018 - 01/2024*

Teaching Assistant, USTB   *09/2012 - 02/2014*

Research Projects:___ _____

Medical Image Analysis Based on Deep Relational Learning (MPhil Thesis)   *09/2020*
- Glioma context modeling with feature relational learning on accurate sub-region semantic segmentation
- Spatial correlation modeling with query-key-value relation learning on fetoscopy image mosaicking

Multi-Classes Training and Testing in Food Preparation Recognition Tasks (BEng Dissertation) *06/2015*
- 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:

- "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 (Complex & Intelligent Systems, 2022)
- "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 (IEEE TNNLS, 2022)
- "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, Yinhai Wang, Ling Li, Huiyu Zhou (IEEE TAC, 2022)
- "CANet: Context Aware Network for Brain Glioma Segmentation" **Zhihua Liu**, Lei Tong, Long Chen, Feixiang Zhou, Zheheng Jiang, Qianni Zhang, Yinhai Wang, Caifeng Shan, Ling Li, Huiyu Zhou (IEEE TMI, 2021)
- "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)

Professional Service:

- **Reviewer of:**
  Conference: ICRA(2019, 2020), **BMVC** (2019, 2020, 2021), **ACCV** (2020), **ECCV** (2021) **CVPR** (2020, 2021, 2022), ICCV (2021)
  Journals: IEEE THMS, IEEE JBHI, Medical Physics
- **Organizer of:**
  1st Workshop for Sino-UK to Promote the Development and Application of Artificial Intelligence (Leicester, 12th Jun 2019,)
  Winter Seminar on Data Science (Leicester, 11th 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)
- People's Scholarships (Top 10%, 2012, 2013)
- USTB First Class Scholarship for Fresh year student (Top 5%, 2011)

Skills:

Language
- Python, C/C++, MATLAB

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

English

Extracurricular Activities:

- 2014   James Hutton Institute Volunteer
- 2015   Edinburgh Art Festival Volunteer
- 2020   Candidate at the UCL Medical Image Computing Summer School (MedICSS 2020)
- 2021   Candidate at the PRAIRIE / MIAI Artificial Intelligence Summer School (PAISS 2021)
- 2022   Candidate at the UCL Medical Image Computing Summer School (MedICSS 2022)