

Haichen Liu

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in haichen-liu-0555a4350 📶 Haichen-Liu

Personal Information

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Address: School of Engineering, The King's Buildings Campus, Edinburgh, EH9 3FB, United Kingdom

Education Background

University of Edinburgh *Sept 2025 – Recent*
MSc in Signal Processing and Communications

- **GPA:** In progress/100
- **Key Courses:** Discrete-time Signal Analysis, Digital Communication Fundamentals, Image Processing, Probability, Estimation Theory and Random Signals, Adaptive Signal Processing, Wireless Communications, Coding Techniques, Array Processing and MIMO Systems, Machine Learning in Signal Processing

10-Week Pre-sessional English Programme *June 2025 – August 2025*

Tianjin University of Technology and Education *Sept 2019 – July 2023*
BEng in Electronic Information Engineering

- **GPA:** 86.26/100
- **Key Courses:** Signals and Systems, Digital Signal Processing, Data Communication, Internet of Things, Embedded system, Artificial Intelligence and Machine Learning, Programming Skills: C and Python

Internship Experience

Student Research Assistant *Tianjin*
Tianjin University of Technology and Education *Sept 2023 - May 2025*

- Led image processing tasks, including the development and optimization of algorithms for human pose estimation and behavior recognition, significantly improving detection accuracy and system robustness.
- Collaborated with a team from Tianjin University on the research and implementation of an automatic gain control (AGC) method for time-difference ultrasonic gas meters, ensuring stable signal amplitude under varying environmental conditions.
- Contributed to the preparation and writing of technical papers, effectively communicating complex methodologies and findings to both academic and industry audiences.
- Engaged in interdisciplinary cooperation, integrating knowledge from digital signal processing, image processing, machine learning, and Internet of Things to solve practical engineering problems.

Intern *Lu'an, Anhui*
Housing Provident Fund Center of Lu'an City *Jan 2023 - Feb 2023*

- Studied the construction work of the city's housing provident fund information technology and the management of the housing provident fund computer database
- Learned the construction work of the housing provident fund system network information sharing platform and database
- Handled the problems arising in the operation of the housing provident fund business network
- Learned the work of ensuring the normal operation of various businesses and the safe operation of the network system and the management and maintenance of the provident fund information system and the networking of the city's housing provident fund system
- Participated in the civilization practice activities organized by the company on the theme of "Civilization and Health, You and Me", "Our Festival, Spring Festival" and "Epidemic Prevention, Love and Health"

Intern

China Mobile Group Anhui Co., Ltd.

Lu'an, Anhui
July 2022 - August 2022


- Learned the daily management of government and enterprise projects, ICT project business opportunities, and the whole life cycle management of projects
- Understood how to carry out research on industry informatization, expansion planning, program production, industry informatization communication and promotion, and pre-sales support for projects
- Studied management systems, processes and evaluation systems related to government and enterprise network service support
- Dealt with how to coordinate network maintenance departments for scheduling, data configuration, testing and opening of government and enterprise resources


Publications

Journal papers (Indexed by SCI)

Dark-YOLO: A Low-Light Object Detection Algorithm Integrating Multiple Attention Mechanisms (Applied Sciences, major revisions) 2025
Ye Liu, Shixin Li, Liming Zhou, **Haichen Liu**, Zhiyu Li,

Conference papers (Indexed by EI)

AuraPose: Accurate Human Pose Detection and Behavior Recognition via Enhanced OpenPose with Angular Measurement 2024
Haichen Liu, Jianqiang Mei et al
ieeexplore.ieee.org/document/10561032 

Research and Implementation of Automatic Gain Control Method for Time-Difference Ultrasonic Gas Meter 2024
Lishui Liang, Dandan Zheng, Maosen Wang, **Haichen Liu**, Jianqiang Mei
ieeexplore.ieee.org/document/10561236 

Journal papers (in chinese, chinese provincial journal, not indexed by SCI or EI)


Design of intelligent integrated elevator system based on Huawei LiteOS 2025
Haichen Liu, Jianqiang Mei et al


An Enhanced Floating Debris Detection Algorithm Based on YOLOv8n 2025
Tianyi Wei, **Haichen Liu** et al




Design of an Improved YOLOv11n-Based Clothing Detection Algorithm 2025
Wanxin Wang, **Haichen Liu** et al

Design of a Multifunctional Cleaning Robot Based on AIoT Technology 2025
Tianyi Wei, Xuewen Ding, Wenjing Liu, **Haichen Liu**

Intelligent Clothing Storage System Based on AIoT Technology 2025
Wanxin Wang, Xuewen Ding, Chenqian Xu, Hao Liang, Gangyang Chen, **Haichen Liu** et al

Design of Medical Bluetooth Ranging System Based on RSSI 2024
Yuanjing Lei, Tianhui Wang, Xinyu Zhai, Shaoyan Liu, **Haichen Liu**
Article/Detail?id=7113236034 

Design of Multi-functional Medical Car Based on Single-chip Microcomputer and Deep Learning 2024
Yue Tong, Xuewen Ding, Haoqi Kang, Ye Li, **Haichen Liu**
Article/Detail?id=7111910531 

<i>Smart Greenhouse Garden Design Based on AIoT Technology</i>	2023
Haichen Liu, Xuewen Ding et al Article/Detail?id=7109681394 	
<i>Design of Echarts Human Physical Data Visualization Monitoring System</i>	2023
Haichen Liu, Dan Cheng et al Article/Detail?id=7109996192 	
<i>Design of Smart Home Fitness Monitor</i>	2023
Xiaokun Ji, Dan Cheng, Haichen Liu et al Article/Detail?id=7109681398 	

Projects

National College Student Innovation Training Project

- Echarts Human Physical Fitness Data Visualization and Monitoring System
- Smart Home Fitness Monitoring Device

Tianjin Provincial College Student Innovation Training Project

- Intelligent Greenhouse Garden Based on AIoT Technology
- Multifunctional Medical Cart Based on Digital Image Processing and Wireless Sensor Networks
- Contact Tracing System for Infectious Diseases in the Context of COVID-19

Honors & Awards

National Awards

- The national second prize of Circuit Simulation Design Circuit in the Second National Simulation Innovation Application Competition, 2023
- The national second prize of Circuit Simulation Design Circuit in the First National Simulation Innovation Application Competition, 2022
- The first prize of C language /C++ in the National College Student Information Technology Certification Challenge, 2023

Provincial and Ministerial Awards

- The first prize of Tianjin in the Circuit Simulation Design Circuit of the Second National Simulation Innovation Application Competition, 2023
- The third prize of Tianjin in the Circuit Simulation Design Circuit of the Second National Simulation Innovation Application Competition, 2023
- The third prize of the 6th National College Students IC Innovation and Entrepreneurship Competition, 2022
- The Exploration Award of Huawei Cloud IoT Innovation Application Development Competition (the first), 2022
- The third prize of the 5th Tianjin College Students Information Technology "New Engineering" Engineering Practice Innovation Technology Competition, 2022
- The first prize and the third prize of the 4th Tianjin College Students Information Technology "New Engineering" Engineering Practice Innovation Technology Competition, 2021

University-Level Awards

- The Excellent Graduation Project (Thesis) at Tianjin University of Technology and Education in 2023 — "Design of Intelligent Greenhouse Garden Based on AIoT Technology" (**Grade: 94 points, Ranked First in the School of Electronic Engineering**)
- The first prize and the third prize of college students' scientific and technological innovation works of Tianjin University of Technology and Education, 2022
- The second prize and the school excellence award of college students' scientific and technological innovation works of Tianjin University of Technology and Education, 2021

- The third prize of Tianjin University of Technology and Education college students mathematical contest in modeling, 2021, and 2022
- The first prize of the industrial track in the university-level selection competition of the 8th China International "Internet Plus" College Student Innovation and Entrepreneurship Competition, 2022

Scholarships

- The first class Scholarship, the second semester of the 2022-2023 academic year (Top 10%)
- The first class Scholarship, the second semester of the 2021-2022 academic year (Top 10%)
- The second-class Scholarship, the first semester of the 2020-2021 academic year (Top 20%)
- The academic excellence Scholarship, the second semester of the 2020-2021 academic year (Top 20%)

Extracurricular Activities

Director of New Media Department

Tianjin

Wings of Dream Web Studio, Tianjin University of Technology and Education

Sept 2020 - Sept 2021

- Responsible for video editing work for the club's promotional videos, teaching video editing techniques, and working with PhotoShop for graphic design and teaching

Head of Website Management Department

Tianjin

Wings of Dream Web Studio, Tianjin University of Technology and Education

Sept 2021 - Sept 2022

- Responsible for producing PowerPoint presentations for the club, teaching webpage production and programming, and maintaining the school's WeChat public account "Electronic Core"

Technologies

Languages: Python, C, MATLAB

Technologies:

- Proficient in using deep learning frameworks such as PyTorch, TensorFlow for implementing and training models like YOLO, DETR, SSD, Faster RCNN for object detection.
- Experienced with OpenPose, YOLOPose, and VideoPose for human pose estimation, capable of developing and optimizing algorithms to improve accuracy and performance.
- Skilled in utilizing computer vision libraries (OpenCV) and tools for image processing tasks, including data preprocessing and augmentation.
- Familiar with model deployment techniques on various platforms, ensuring efficient inference on edge devices or cloud services.