

## EDUCATION BACKGROUND

**University of Leeds - Southwest Jiaotong University Joint School** Sep 2020 – Jun 2024

- B.Eng. in Electronic and Electrical Engineering Degree from University of Leeds Expected June 2024
- B.Eng. in Electronic Information Engineering Degree from SWJTU Expected June 2024
- **Cumulative GPA: SWJTU: 91.52/100; Rank 2/73**

**University of Leeds: 3.94/4 (2nd and 3rd year); First Class Honors Expected**

- Major Modules: Algorithms and Numerical Mathematics, Digital Electronics and Microcontrollers, Circuit Analysis and Design, Embedded Systems Project, Microprocessors and Programmable Logic

## PATENTS AND PUBLICATIONS

- *An in-vehicle driver health monitoring and alarming system*, Authorized Patent ID: ZL 2022 2 2724438.7, Jan 10<sup>th</sup>, 2023, Inventor: **Jiongtao Huang**; (Patent has been granted)
- *Data transmission method, apparatus, storage medium and electronic device*, Patent Application ID: 202310832816.X, July 9<sup>th</sup>, 2023, Inventor: **Jiongtao Huang**, Liwen Ke; (Patent accepted, pending grant)
- *A vehicle-mounted human health index monitoring device*, Patent Application ID: 202310832811.7, July 9<sup>th</sup>, 2023, Inventor: **Jiongtao Huang**, Liwen Ke, Changquan Huang; (Patent accepted, pending grant)
- *A wearable health index monitoring device*, Patent Application ID: 202310832813.6, July 9<sup>th</sup>, 2023, Inventor: Changquan Huang, Liwen Ke, **Jiongtao Huang**, Yuchun Zhao, Yixuan Bu; (Patent accepted, pending grant)
- *Research on Driver fatigue monitoring System based on deep learning*, Paper Application ID: AIDSCE 639, Author(s): **Jiongtao Huang**; (Paper accepted, pending publication)

## RESEARCH PROJECTS

**Recognition and reconstruction of the elements in scanned page** Jan 2023 – Mar 2023

*Team Leader; Advisor: Prof. José Miguel Hernández-Lobato, University of Cambridge*

- Utilized the PaddleOCR library, employing the DBnet model for text detection with a precision of **96%** and a recall of **94%**.
- Applied the Mask R-CNN model and LayoutParser toolkit for layout analysis, successfully identifying and classifying page elements with **95%** accuracy across **1,500** multi-format documents.
- This approach was tested on a dataset of **10,000** images containing distorted and low-resolution text, where it maintained an accuracy rate of **97%**.

**Research on Driver fatigue monitoring System based on machine learning** Aug 2022 – Jun 2023

*Individual Project*

- Developed a comprehensive machine learning system, employing **10+** algorithms which were rigorously tested, resulting in a system performance enhancement of **15%** over baseline models.
- Engineered and integrated four robust functional modules handling over **500 GB** of data across the pipeline stages of data collection, preprocessing (achieving **99.5%** data integrity), feature extraction (isolating **50+** key features with a selection accuracy rate of **98%**), and machine learning.
- Executed over **200** experiments on driver fatigue detection, reaching **95%** accuracy and outperforming previous models by **20%**.

**In-vehicle driver health monitoring and alarming system (National Project)** Apr 2022 – may 2023

*Team Leader; Advisor: Prof. Yi Zhang, Southwest Jiaotong University*

- Implemented real-time transmitters that monitor in-vehicle temperature and CO2 levels, maintaining environmental parameters within **5%** of optimal conditions to ensure driver alertness.
- Developed non-contact fabric electrodes for ECG signal collection, capturing cardiac activity with a signal fidelity of **97%**, enabling the detection of subtle physiological changes indicative of fatigue.

**Data collection and processing based on Python and Wi-Fi** Apr 2021 – May 2022

*Team Leader; Advisor: Prof. Yongzhi Jing, Southwest Jiaotong University*

- Directed a specialized team of six, leading to the successful completion of the project **20%** ahead of schedule, with a track record of **100%** adherence to progress milestones.
- Implemented a Python-based TCP interactive data collection system, achieving a data transmission reliability of **99.5%** between senders and receivers.
- Enhanced voice signal clarity using a Deep Clustering algorithm, resulting in a **30%** improvement in the segregation of overlapping speech signals and boosting the accuracy of voice frequency extraction.

## HONORS AND AWARDS

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- **National** 1st Prize, The 16th National University Computer Programming Competition of China  
**Project name:** Intelligent loading and unloading solutions for urban logistics Jul 2023
- **Provincial** Comprehensive Quality Level A Award, Sichuan Province Student Federation Feb 2023
- **District** 3rd Prize and 8000 RMB Award, Pidu District Elite Entrepreneurship Competition  
**Project name:** In-vehicle Human Health Monitoring Leader in the Internet of Things Era Dec 2022
- **National** Bronze Award, The 8th National "Internet+" Student Entrepreneurship Competition  
**Project name:** In-vehicle Human Health Monitoring Leader in the Internet of Things Era Dec 2022
- **National** 2nd Prize, National College E-Commerce Entrepreneurship and Innovation Challenge  
**Project name:** In-vehicle Human Health Monitoring Leader in the Internet of Things Era Jul 2022
- **School** Level 1st Prize and 6000 RMB Award, Double Excellence Fund Scholarship Sep 2021
- **School** Record Holder in 100 m, Southwest Jiaotong University for general student (11'10s) Apr 2021

## ENTREPRENEURIAL EXPERIENCE

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**Sichuan Jiemin Technology Co.,Ltd** - Chengdu, China Nov 2021

*Co-founder, Percentage of shares: 80 %*

- Launched a vehicle health monitoring system and an online medical payment platform, directly leading a software team to meet critical industry needs.
- Initiated and closed strategic partnerships with Chengdu Hikvision Research Institute and Chengdu Extreme Viewpoint Technology, expanding company reach and capability.
- Streamlined our supply chain by securing a pivotal agreement with Guilin Jingrui Sensor Technology Co., significantly enhancing the quality and efficiency of our product offerings.

**Hunan Chuangben Technology Co., Ltd** - Xiangtan, China Jan 2023

*Co-founder, Percentage of shares: 95 %*

- Pioneered a university competition tutoring enterprise, and aligning services with academic rigor and career readiness.
- Drove the company's inaugural success by enrolling 70 students in an e-commerce innovation and entrepreneurship intensive during the 2023 winter term, reflecting strong student engagement and program appeal.
- Designed an expansion strategy to diversify offerings, paving the way for inclusion of various academic competitions and a suite of university-level educational services.

## LEADERSHIP AND SOCIAL ACTIVITIES

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- President of the University Student Campus Self-Management Committee **May 2023 – Present**
- Most Contributive Volunteer Award in the 31st Chengdu World University Games **May 2022**
- Class Leader of the New Youth Global Competency Development Programme **Mar 2022 – Dec 2022**
- Ministry of the University Student Campus Self-Management Committee **May 2021 – Apr 2023**

## RESEARCH AND PROJECT COMPETENCIES

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- Programming languages: **Python with TensorFlow and PyTorch** (Machine learning), **MATLAB** (Simulations of signal processing), **VHDL** (Designing digital circuits), and **C++** (Programming on microcontrollers), **Quartus** (Circuit simulation), **Java** (General-purpose programming, particularly useful for Android app development), **R** (Data analysis and statistical computing), **JavaScript** (Web development, including front-end frameworks like React or Angular)
- Hardware: **Mbed and Keil** (On STM32 boards), **FPGA boards** (For advanced digital design and prototyping), **Oscilloscopes and Logic Analyzers** (For hardware debugging and analysis)
- Writing tools: **LaTeX** and **Markdown**, **Microsoft Office Suite** (Word, Excel, PowerPoint for professional document preparation), **Jupyter Notebooks** (For interactive coding and data visualization), **Git and GitHub** (Version control and code repository management)

## CERTIFICATES AND SKILLS

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- **Certificates:** Intermediate Level of Certificate for E-Commerce Professionals (E-Commerce Big Data Analysis and App Development), National 2nd-Class Athlete Certificate (China)
- **Language:** Native Mandarin, Fluent in English
- **Design and Editing Skills:** Advanced level in Adobe Photoshop, Proficient in Adobe Premier, Skilled in using X-Mind (Mind mapping and brainstorming tool)