

# LITAO CHENG

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## EDUCATION

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**The university of Edinburgh**, Edinburgh, UK 09/2021-11/2022

**Degree:** *MSc High Performance Computing with Data Science*.

Full-time local classes in the UK

Related course: Message-passing Programming, Threaded programming, software development, parallel design patterns, HPC architectures, machine learning, fundamentals of data management.

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**University College Dublin**, Dublin, Ireland 09/2017-07/2021

**Degree:** Bachelor of Engineering Degree in *Internet of Things Engineering*

Overall GPA: 3.66/4.2; Ranking: 5/70.

Selected Coursework: Data Mining and Machine Learning A; Cloud computing A; Information Security A+;

Distributed Systems A+; Computer Networks A-; Operating System A; Object-oriented Programming A-; Data

Structure and Algorithms A; Electronics for Sensors A+; Digital Signal Processing A; Electronic Circuits A-.

**Beijing-Dublin International College, Beijing University of Technology (BJUT)**, Beijing, China 09/2017-07/2021

**Degree:** Bachelor of Engineering Degree in *Internet of Things Engineering*

**Dual Degree:** Bachelor of Economics Degree in *Finance*, expected.

Selected Coursework: Computer Architectures B+; Digital System Design A.

## SKILLS

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- Data process skills: familiar with the theory and general processes of machine learning; some experience in data cleaning and model tuning; knowledge of data visualization and analysis.
  - Engineering building skills: familiar with the programming languages such as Python, C++, R; experience with high performance computing clusters (Archer2); knowledge of streaming processing framework (Flink, Spark).
  - Native Speaker of Mandarin Chinese and Fluent in English (6.5 IELTS); familiar with academic literature search and analysis; skillful to English academic writing.
  - Education background in communications and IoT, which developed a particular interest in the topic of intelligent city.
  - Industry experience: advanced some projects in cloud computing.

## RESEARCH INTERESTS

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Academic area: Data science, Stream data processing, Machine learning, High performance computing.

Application areas: Devote to harnessing the value of stream data to optimize modern urban life and explore more reliable and efficient solution for computation models.

## RESEARCH & PROJECT

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**Final year project *MSc (HPC with DS)* Guided by Roubickova Anna** 02/2022-08/2022

- Stream processing frameworks can be used for business analytics, IoT and social media analytics. Stream processing framework, such as Spark, Flink, and Storm, is able to deploy a streaming application quickly.
- Investigated about stream processing frameworks, explored the performance of stream processing under different data pressures.
- Discussed the usage of several different stream processing benchmark tests, and explored the prospect of applying stream processing on HPC clusters.

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**Final year project *Bachelor (IoT)* Guided by John Healy** 03/2021-06/2021

- Implement the system of heart rates detection by an 8-second video on faces using signal processing and machine learning methods. Achieved an accuracy rate of 4rpm finally.
- Subtle changes in human skin can indicate the physical signal, so some methods of noise reduction are applied to

increase accuracy.

- Regard the heart rate measured from electrocardiogram (ECG) as the label, train various neural networks solve regression problems. Use the pytorch framework and matlab simulation tools.

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**Beijing Embedded System Key Lab, Beijing University of Technology**  
**Research Assistant; Adviser: Prof. Guangsheng Wang**

09/2019-06/2021

Project 1 - Video Conferencing System Design for Winter Olympic Venues

- Jointly designed a spherical panoramic acquisition device via the principle of mirror reflection for effective capture of the surrounding scenes and the elimination of the blind field of vision.
- Improved the traditional image fusion method by changing the selection of weighting factors, which resulted into a significant increase in sharpness.
- Constructed real-time distribution system to realise free interaction between server and client.
- Participated in the development of security and communication parts of the video conferencing system as well as the design of low power consumption embedded system.

Project 2- Panoramic Video Live Streaming Platform for BJUT's 60<sup>th</sup> Anniversary

- Applied spherical video enhancement technology and panorama mosaics rendering to deliver immersive VR and 360-degree experiences for BJUT alumni during the 60<sup>th</sup> anniversary.
- Used Three.js to map streamed 360 video onto a sphere and jQuery to optimise map area.

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**MIPS Processor Implementation via Verilog HDL**

05/2020

- Took charge of the hardware design for the instruction sets of MIPS processor via hardware describe language.
- Built the pipeline architecture that can deal with data hazard and control hazard by forwarding and stall technique.
- Reduced the handle time with branch prediction technique.

**Electronic Design Competition of Beijing University of Technology**

03/2019

- Developed a rotary LED light capable of showing a list of special words based on 51 microcontroller; programmed with C language.
- Applied the effects of rotating electromagnetic to drive the LED strip rotate horizontally.

## HONORS & AWARDS

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**First-class Scholarship** for Outstanding Merits, Beijing University of Technology, 2020.

**Outstanding Student Leader Award**, Beijing-Dublin International College, 2020.

**The Third Prize** of "Tai Di" Cup Data Mining Challenge, 2020.

**First-class Scholarship** for Outstanding Merits, Beijing University of Technology, 2019.

**Second-Class Scholarship** for Technological Innovation, Beijing University of Technology, 2019.

**Honorable Mention**, Interdisciplinary Contest in Modeling (ICM), 2019.

**First-Class Scholarship** for Outstanding Merits, Beijing University of Technology, 2018.

## INTERNSHIP

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**Huawei cloud computing apass department**

12/2022-Present

*General Software Development*

- Java back-end microservices software development for Cloud Drive project. Familiar with Spring Framework based development, independent Story design, developer testing, consumer cloud platform release and deployment.
- Familiar with enterprise software development architecture and project process, with some specific knowledge of cloud computing industry.

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**Dawning Information Industry Co., Ltd.**

07/2020-09/2020

*Field Application Engineer of Sugon Solution Center*

- Self-studied the Hadoop framework, mastered the configuration of different operating systems and the use of command line, got familiar with the common functions and usage scenarios of middleware.
- Helped with installing the specific versions of Linux system for customers as well as configuring distributed computers to test the compatibility of software.

## EXTRACURRICULAR ACTIVITY

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*Volunteer*, **Volunteer Abroad Program of International Volunteer HQ**, Auckland, New Zealand 07/2018-09/2018

- Helped with collecting harmful litter from harbors, inlets and estuaries in the West and East Coasts of Auckland's picturesque coastline.
- Worked in the native plant nursery, removed invasive species, planted native trees, collected seeds, as well as composted and mulched.

*Debater*, **Debate Team of Beijing University of Technology**, Beijing, China 09/2017-06/2018

- Won the Best Debater Award in 2017 "Qiuxin Cup" Chinese Debating Competition; participated in the 2018 "FLTRP Cup" National English Debating Competition.

*Team Member*, **Table Tennis Team of Beijing University of Technology**, Beijing, China 09/2017-06/2018

- Participated in regular training and intra-school competitions.
- Won the 5th prize in 2018 University Students "May Fourth Cup" Table Tennis Competition of Beijing.