

Chuan Qin

Newcastle 1, Blandford Street,
Newcastle Upon Tyne, NE1 4HZ

Mobile: +4407536350208
Email: c1005667@newcastle.ac.uk

EDUCATION

2021 – 2022 **Newcastle University** Newcastle, UK

MSc in Computer Science

- **Core Modules:** Database Systems, Java, Web Technology, Computer Networks, Cybersecurity, HCI...
- **Dissertation:** Machine Learning for Medical Diagnosis
- **Expected Degree Award:** Distinction

2017 – 2021 **University of Essex** (Joint with Northwest University, China)

BSc in Electronic System Engineering

- **Core Modules:** Advanced Embedded System Design, High Level Digital Design, Telecommunication Principles, Digital Signal Processing...
 - **Dissertation:** Gait Recognition Based on Deep Learning (Achieved a first-class score of 74)
 - **Degree Award:** Honours Class II (Division I)
-

WORK EXPERIENCE

2021 – Present **Course Representative** (On campus)

Represent 150 students on my course. Gather feedback about the program and raise it at Student-Staff Committee meetings. Furthermore, address the raised issues and report back to students.

2019 – 2020 **Student Headmaster Assistant** (On campus)

Assisted the principal by dealing with affairs, communicating with students and holding seminars for over 10 departments that aimed to solve on-campus problems raised by students.

2018 – 2019 **Beijing TAL Education Group** (Teacher and Group Leader)

Taught Senior high school students and led 30 colleagues to complete work related to project operation.

PROJECT

2021-2022 **Postgraduate Thesis** **Machine Learning for Medical Diagnosis**

This project used chest X-ray image classification and discrimination algorithms to diagnose COVID-19 and other lung diseases. These algorithms were based on a convolutional neural network. The aim was to compare with and improve on the classical CNN models (LeNet, AlexNet and VGG-19) to achieve better diagnostic results in the future. The experimental results show that the VGG19-based model performs best overall with an accuracy of 95%. This project also used the Grad-CAM method to highlight the suspected area of infection in chest X-ray images, as well as developing a graphical user interface to assist patients with their diagnosis and provide appropriate advice. Finally, the project explored a Hilbert Curve based method for image size reduction, reducing the amount of computation required in the neural network. This increase the efficiency of model training and can be utilized effectively on the COVID-19 dataset.

2021-2022 IBM Data Science Capstone Project SpaceX Launch Success Rate Prediction

Following my Undergraduate thesis, I appreciated that AI is a very complex field, which requires comprehensive knowledge in data processing, data visualization, machine learning and other aspects. So, I decided to study with the data science program published by IBM. In this project, I used an Application Programming Interface (API) provided by Wikipedia and SpaceX to collect and mine data, using data visualization methods to find connections between different features that affect the success rate of rocket launches. Different machine learning models were used to predict the rocket's launch success rate, with a final prediction accuracy of 89%.

2020-2021 Undergraduate Thesis Gait Recognition Based on Deep Learning

Due to my interests in the field of artificial intelligence, I chose to complete a project on Gait Recognition based on deep learning. I recorded 10 samples of volunteers walking and processed this footage including by clipping and compressing the video. Then, an AlphaPose framework was used to extract human key points and input them into a neural network for classification. Since people's walking posture is a continuous track, as input, I selected the coordinates of human key points within different numbers of consecutive frames. I tried 9, 12, 15 and 20 consecutive frames and finally achieved the maximum accuracy of 86.5% in the 15th frame. However, this project still could be improved. At first, I used the size of the entire video background as the coordinate system. However, it would be better to use the outline of the human body as the coordinate system, so that the classification would not be affected by the different positions of people in the picture.

AWARDS

2018 – 2019 Northwest University Scholarship

Achieved Outstanding Student Cadre Scholarship

2017 – 2018 Northwest University Scholarship

Achieved 2nd class scholarship

SKILLS

- **Computer-related:**
Experienced in Python, Java, MySQL, Vivado, JavaScript, HTML, CSS, MATLAB and a variety of computer programs such as MS Office. Earned the IBM Data Science Professional Certificate and IBM AI Engineering Professional Certificate
- **Languages:**
Mandarin (Native), English (Academic)
- **Healthcare & Others:**
AHA cardiopulmonary resuscitation (CPR) certification
Driving License (China)

EXTRACURRICULAR ACTIVITIES

- **Sports:**
Member of Northwest University volleyball and basketball teams
Won the 1st prize in the university volleyball competition
- **Voluntary work:**
Participate in the community of computing and the community of environment at Northwest University. This involved organizing IT workshops to students and local communities 4 times a year and holding events on environmental protection for 200 students at the university.