

# JINGJING GUO

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## EDUCATION

### Lanzhou University

*Computer Science and Technology, School of Information Science and Engineering*

Gansu, China

Sep 2018 – Jun 2022

- Bachelor of Engineering
- GPA: 84.06/100
- Thesis Title: Deep Fusion of Multimodal Bio-signals for Emotion Recognition

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## RESEARCH EXPERIENCE

### Deep Fusion of Multimodal Bio-signals for Emotion Recognition

Nov 2021 – May 2022

*Bachelor's Thesis*

China

- Personal Project, Excellent Thesis Awarded
- Supervisor: Prof. Xiaowei Zhang
- Based on model-level fusion to applied DCCA model to DEAP dataset in order to research multimodal emotion recognition.
- Extracted the initial features of EEG signal and EOG signal by fast Fourier transform and wavelet transform.
- Constructed the DCCA model to fully model the initial features of two modalities to generate a more specific joint fusion representation.
- Used Support Vector Machines (SVM) and Multilayer Perceptron (MLP) to classify and recognise emotion states on valence, arousal and valence-arousal dimensions.
- Concluded that the results generated by the DCCA fusion revealed multimodal emotion recognition effect than unimodal signal is improved.

### Emotion Analysis Models of Chinese Handwriting Based on Machine Learning

Mar 2021 – Mar 2022

*The 23rd Hui-Chun Chin and Tsung-Dao Lee Chinese Undergraduate Research Endowment Program*

China

- Personal Project, Funded
- Supervisor: Prof. Yonggang Lu
- Only 10 of all students in the university were selected to be funded in mathematics and sciences group, and each of us takes charge of one project by own.
- Rewarded one of the best programs in pre-research stage in mathematics and sciences group.
- Researched the history and cases of Emotion Psychology, graphology and machine learning. Discovered the gap between emotion analysis and graphology, and the advantages of applying machine learning to Psychology, presented constructive suggestions to this project.
- Designed two experiment to collect positive, calm and negative emotions and matched Chinese handwritings. The first experiment was conducted during the internship in WICT, Peking University(See Below). The second experiment was conducted at Lanzhou University, data of a particular subject were collected continuously for 5 months.
- Used Tensorflow and Pytorch to build VGGNet, Convolutional Neural Networks, Random Forest and SVM models to analysis the correlation of Chinese handwriting and emotions.
- Successfully complete the program and awarded the honour of Chun-Tsung Scholar in March.
- Finished a paper named "*Emotion Analysis of Chinese Handwriting Based on Machine Learning*", and waited for it to be submitted.

### The Winter Camp Program of Chongqing Xiantao Big Data School

Jan 2021 – Feb 2021

*Organizer: Chongqing Xiantao Big Data School*

Chongqing, China

- Personal Participation, Funded for the Cost of Accommodation
- Hands-on inquiry based learning program
- Had an in-depth conversations with excellent seniors, mainly focus on the probability and feasibility of the organic combination of Philosophy and Computer Science.
- Applied Python | Anaconda | Jupyter Notebook | Tensorflow to practising NLP program: analysing reviews of some films and predicting the types of films that are most likely to be popular.
- Applied Python | Tensorflow to image recognition program: MNIST hand-written numeral recognition, the recognition accuracy achieved 90.61%.
- Analysed the paper Detecting events and key actors in multi-person video, applied OpenCV to reproducing part of the paper.

- As an intern produced videos and photos of daily events. Helped with schedule arrangement.

### **One Life, One Operating System**

*Lab: Distributed & Embedded System Lab of Lanzhou University*

Jul 2019 – Sep 2020

Lanzhou, Gansu, China

- Team Program**

- Supervisor: Dr. Hubin Yang
- Successfully completed the development of *Linux From Scratch (LFS)* based on Ubuntu as the principal person in charge.
- Developed the ISO file of the Linux distribution for Lanzhou University.
- Completed the document of how to build a *LFS* in Chinese.
- Helped with examining the document of how to developing an ISO file of Linux.
- Researched Linux kernel 0.12, and applied assembly | C to simply controlling the I/O devices in Ubuntu 18.

### **Qinglan Cyberspace Studio**

*National College Student Innovation and Entrepreneurship Training Program*

Nov 2018 – Apr 2020

Gansu, China

- Team Program, Funded**

- Supervisors: Assoc. Prof. Chaoqun Tuo TA. Xuena Wang
- Excellent Innovation and Entrepreneurship Training Program of Lanzhou University in 2019.
- As one of the main producers contributed more than 10 high-quality videos.
- Using camera | Final Cut Pro | Motion | After Effects for producing videos, including micro documentary, creative videos, propaganda film and animation.

### **Mathematical Contest In Modelling in 2020**

*Organizer: the Consortium for Mathematics and Its Application*

Mar 2020

Remote

- Team Participation, Leader**

- Participated in MCM Problem C (data insights) solving. Awarded *Successful Participant*.
- Took charge of modelling and coding parts with Python | Anaconda | Jupyter Notebook.

## WORK/INTERNSHIP EXPERIENCE

### **Department of Information Engineering, Chinese University of Hongkong**

Oct 2022 – present

- Supervisor: Prof. Xiangyu Yue

### **Academic Affairs Office, Lanzhou University**

Apr 2022 – Jun 2022

Lanzhou, Gansu, China, part-time

- Supervisor: Director Pengfei Zhao
- As a teaching assistant, explain teaching related issues to undergraduates and help them plan their university life.
- In view of the problem that offline lectures are not effective for a long time, Designed a plan to make the lecture content into animated videos and put it on the official website of the university.

### **Wangxuan Institute of Computer Technology, Peking University**

Jul 2021 – Aug 2021

Beijing, China, full-time

- Supervisor: Prof. Zhouhui Lian

- Independently collecting and summarising methods of emotion elicitation and assessment in the face of a paucity of literature.
- Designed an experiment to elicit positive (pride, happiness) and negative (anger, disturbed, sadness) emotions in the absence of data. Corresponding emotions were successfully induced in 7 out of 8 subjects. Handwriting data were collected for each subject during this period in the corresponding emotions.
- In order to automate the experiment, built a front-end web application for the experiment using Struts2+SpringMVC+Hibernate4 as the experiment vehicle in one week, and MySQL was used to collect data for the database.

### **Department of Psychology, Tsinghua University**

Dec 2020 – May 2021

Remote, part-time

- Supervisor: Dr. Congyu Wang
- As a technical collaborator collected correlational research papers of Psychology and assisted in data analysis with Python.
- Researched the history and cases of Emotion Psychology (especially the cases combined with machine learning), determined emotional valence-arousal model as the basic computer applied emotion analysis model.

## Volunteer Teaching in Shangyao Primary School

Jul 2019 – Aug 2019

Tianshui, Gansu, China

- As the only author of the research paper *Investigation and Analysis of Teachers' Willingness to Stay and Teach in Rural Primary Schools*, which has been accepted by China Educational Technology & Equipment in April 2021.
- Taught English in Shangyao primary school during the internship.
- Had in-depth communication with the local parents, completed the field research of local parents' attitude towards their children's education.
- Investigated the situation of rural primary education with questionnaires and wrote a research paper.
- Took in charge of propaganda work with videos and photos. Using camera | Final Cut Pro | After Effects | Lightroom | Photoshop produce more than 10 videos and about 100 high-quality photos of the volunteer teaching procedure. Among them, the mini-documentary "the Bad Teachers" won the first prize in the 4th College Student Cyberspace Festival Competition.

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## GRANTS, ACHIEVEMENTS AND REWARDS

### Honour: Chun-Tsung Scholar

Awarded from Hui-Chun Chin and Tsung-Dao Lee Chinese Undergraduate Research Endowment

Apr 2022

### Scholarship: EIT Digital Master School scholarship

Awarded from EIT Digital Academy: partial tuition fees waiver in total of €14,000

Mar 2022

### Scholarship: Undergraduate Outstanding Student Scholarship of 2021-2022

Awarded from Lanzhou University: RMB ¥1,500

Oct 2021

### Software Copyright: Artificial Intelligence Identification Management System

Certified by National Copyright Administration of the People's Republic of China

Jul 2021

### Grant: Chun-Tsung Endowment

Funded for "Emotion Analysis Models of Chinese Handwriting Based on Machine Learning": RMB ¥14,000 Mar 2021

### Honour: Excellent Innovation and Entrepreneurship Training Program

Awarded from Lanzhou University

Apr 2020

### Honour: Successful Participant

Awarded from Mathematical Contest In Modeling

Mar 2020

### Honour: The First Price for the Mini-Documentary the Bad Teachers

Winner in the 4th College Student Cyberspace Festival Competition with a prize money: RMB ¥100

Nov 2019

### Grant: National Innovation and Entrepreneurship Training Program

Funded for Qinglan Cyberspace Studio: RMB ¥12,000

Nov 2018

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## TECHNICAL SKILLS

**Programming Language:** Python, C/C++, CLI shell script, Assembly, HTML/CSS, Java

**Machine Learning:** Tensorflow

**Operating System:** Linux, MacOS, Windows

**Developer Tools:** Jupyter Notebook, Xcode, Sublime, Eclipse

**Virtual Machine:** Parallel Desktop, VMWare

**Database:** MySQL

**Editing:** L<sup>A</sup>T<sub>E</sub>X, Markdown, Microsoft Word

**Game Development:** Unity

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## CAREER INTERESTS

Human-Computer Interaction (esp. Affective Computing)      Artificial Intelligence

Multimodal Machine Learning      Computational Social Science

Game & Physics Engine Development

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## OTHER SKILLS

<b>Language:</b>	Chinese: L1 English: IELTS 6.5 ETIC Advanced
<b>Video Production:</b>	Proficient in pre-production, filming and post-editing
<b>Photography:</b>	Mainly work in portrait and creative photography

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## PUBLICATIONS

**Investigation and Analysis of Teachers' Willingness to Stay and Teach in Rural Primary Schools**  
has been accepted by China Educational Technology & Equipment in April 2021.