

# Jiancheng Zhang

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## Personal Profile

A Shandong University undergraduate student. Dedicated to Artificial Intelligence in Software Engineering (undergraduate major), having three or more years of expertise, and specialising in algorithms, machine learning, and deep learning.

## Education

### Shandong University

Shandong, China

BEng in Software Engineering

Sept 2020 - Current

- Studying at AI experimental class
- GPA 89.30/100
- Academic record :** Advanced Mathematics (93), Linear Algebra (100), Probability and Statistics (95), Fundamentals of machine learning (98), Mathematical Logic and Mathematical Analysis (91), Deep Learning and Its Applications (95), Intelligent Robotics and Algorithm Design (95), Biological Informatics and Computing (Bilingual) (91), Data Analysis and Mining (Bilingual) (90)

## Publications

### JOURNAL ARTICLES

nsde gene expression

[In preparation]

EAPR: explainable and augmented patient representation learning for disease prediction

Jiancheng Zhang, Yonghui Xu, Bicui Ye, Yibowen Zhao, Xiaofang Sun, Qi Meng, Yang Zhang, Lizhen Cui

Health Information Science and Systems 11.1 (2023) p. 53. Springer, 2023

### CONFERENCE PROCEEDINGS

A Survey on Knowledge Enhanced EHR Data Mining

Jiancheng Zhang, Xiao Yang, Hefeng Meng, Zhiqiang Lin, Yonghui Xu, Lizhen Cui

5th International Conference on Crowd Science and Engineering, 2022, Jinan, China

## Research Projects

### National Natural Science Foundation of China (Major Project)' Sub Project: Data Governance and Cross Domain Analysis in the Environment of Medical Network

Shandong, China

The Joint SDU-NTU Centre for Artificial Intelligence Research (C-FAIR), Shandong University

Feb 2023 - Jul 2023

- Under the leadership of Professor Xu, some achievements have been achieved by applying data mining and analysis techniques to different data under the medical network.
- Participated in the development of relevant software throughout the process.
- Technical Skills:** Medical Data Mining, Medical Data Analysis.
- Soft Skills:** Logical thinking, Presentation skills, Teamwork.

### Parallel Computing Optimization For First Principles Calculation of GW Estimation in Generalized Plasmon-pole Model

Shandong, China

Shandong University

Mar 2023 - Jun 2023

- After analyzing the source code for calculating GW estimation, I used toolkits such as MPI, OpenMP, and Pthread to rewrite the source code into parallel computable function code.
- Through experimentation, under single thread, the program initially took half an hour and finally took about a minute. Under 64 threads, the program finally took about 4 seconds.
- Technical Skills:** Parallel Computing Logic and Technology, C++, Parallel computing tips.
- Soft Skills:** Report writing, Logical thinking, Presentation skills.

### Multimodal Short Video Analysis and Product Retrieval for Temporal Media

Shandong, China

Shandong University

Oct 2022 - Jan 2023

- Analyzing the multimodal data under the short video product recommendation tasks to realize the product retrieval based on multimodal data.
- Based on the machine learning model for processing different types of data, the task was realized through the recommendation algorithm using the technology of multimodal feature fusion.
- Technical Skills:** Multimodal Processing, Recommendation Algorithm, Deep Learning.
- Soft Skills:** Report writing, Logical thinking, Presentation skills.

## Research on Knowledge Fusion and Complementation Methods for Medical Knowledge Graph

Shandong, China

### Graph

The Joint SDU-NTU Centre for Artificial Intelligence Research (C-FAIR), Shandong University

May 2022 - Oct 2022

- Based on the proposed knowledge fusion and completion of the Knowledge Graph, participated in the process of proposing the knowledge fusion technology and completion method applicable to the medical Knowledge Graph.
- During this process, participated in writing some programs and preparing for presentations.
- Technical Skills:** Knowledge Fusion, Knowledge Completion.
- Soft Skills:** Report writing, Time management, Presentation skills.

## The Vehicle Type Identification Based on Vehicle Traffic Records

Shandong, China

Shandong University

Oct 2021 - Feb 2022

- Analyzing the track data of the vehicle recorded by the camera for 30 days from November 1 to November 30, 2019, to judge the category of the vehicle.
- Each field of the given data was analyzed to excavate potential vehicle patterns by building features and models, and the effectiveness of our model was verified through experiments.
- From the experimental results, the patterns we had discovered were satisfactory.
- Technical Skills:** Machine Learning, Data Analysis, Feature Engineering.
- Soft Skills:** Time management, Report writing, Group cooperation.

## Research Experience

Feb 2023 - **Research on Computational Biology**, I followed Dr.Xia for research on biological trajectories and noise reconstruction.

China

May 2022 - **Explainable AI + data augmentation for EHR**, I did some work on data augmentation with respect to data scarcity and explainable technology for the public large medical dataset mimic-iii, and submitted to a journal.

China

Sep 2021 - **Review on EHR**, I conducted an extensive survey of the relevant literature on EHR (Electronic Health Record) and published a review on EHR.

China

Jul 2021 **Adviser: Prof. Yonghui Xu**, I joined Xu's lab in July 2021. (The lab is in Joint SDU-NTU Centre for Artificial Intelligence Research (C-FAIR))

China

## Skills

**Programming** Python (Pandas, PyTorch, NumPy, Scikit-learn, Matplotlib. etc.), C/C++, Parallel Computing, HTML/CSS, JavaScript, SQL, JAVA.  
**Miscellaneous** Linux, TeX(Overleaf), Microsoft Office, Web, Git.  
**Soft Skills** Time Management, Teamwork, Logical Thinking, Documentation, Presentation.

## Achievements

2022 **Second-class**, Special Skills Scholarship of Shandong University

China

2022 **Second-class**, Academic Scholarship of Shandong University

China

2022 **Honorable Winner**, Mathematical Contest In Modeling/Interdisciplinary Contest In Modeling(MCM/ICM)

China

2021 **First Prize in Shandong Province**, China Undergraduate Mathematical Contest in Modeling(CUMCM)

China

## Interests

**Basketball** Although I am not tall, I enjoy playing basketball, which is beneficial for my health.

**Movies** I am keen on watching movies in my leisure time, especially science fiction films.

**Reading** I enjoy reading all kinds of novels, and I like science fiction best.

**Running** I am used to running every day in summer, because aerobic exercise is more beneficial to health.

**Delicious Foods** My wish is to visit as many restaurants in the world as possible to taste different kinds of delicious food.

## Languages

**English** Professional proficiency

**Chinese** Native proficiency