Wanlong Fang (方万隆)

Research interest: multi-modal learning (e.g., temporal sentence grounding), computer vision (e.g., object detection) and natural language processing (e.g., text classification), software engineering (e.g., software testing)
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Education

Henan University (***Double first-class university in China***)
B.Eng. in Software Engineering (2019-2023) ***GPA**: 86.01/100 (1st in 392)*

Publications about Artificial Intelligence

[1] Fewer Steps, Better Performance: Efficient Cross-Modal Clip Trimming for Video Moment Retrieval Using Language, Accepted by AAAI Conference on Artificial Intelligence 2024 (**co-first author**)

[2] Annotations Are Not All You Need: A Cross-modal Knowledge Transfer Network for Unsupervised Temporal Sentence Grounding, Accepted by Findings of Empirical Methods in Natural Language Processing 2023 (**co-first author**)

[3] Any-shot Compressed-domain Temporal Sentence Grounding, Under Review in IEEE Transactions on Pattern Analysis and Machine Intelligence (**co-first author**)

[4] Multi-Query Temporal Sentence Grounding via Co-Tokenization Cross-Modal Multi-Stream Network, Under Review in Conference on Computer Vision and Pattern Recognition 2024 (**co-first author**)

[5] Towards Robust Temporal Activity Localization Learning with Noisy Labels, Under Review in International Conference on Computational Linguistics 2024 (co-author)

Selected Awards & Honors

- National encouragement scholarship (award ratio: **3%**) in 2020
- Merit student (award ratio: **7%**) in 2020
- Outstanding award for innovation and entrepreneurship among college students (award ratio: **3%**) in 2022
- Merit student (award ratio: **7%**) in 2023
- Henan University Scholarship (award ratio: **8%**) in 2023
- Merit undergraduate graduates (award ratio: **7%**) in 2023

Selected Projects about Artificial Intelligence

- **Intelligent real-time ordering system via an embeddable and privacy-preserving framework**
  The project aims to design an intelligent login module, which must be embedded in the WeChat applet and protect users' privacy. Especially, I integrate multiple technologies (WXML, WXSS, and Js) to design the module and utilize the native development framework of the WeChat applet to embed my designed system into WeChat. Besides, integrated cloud development technology is introduced for overall development. In the WeChat applet API, the login module is implemented based on the latest authorization mechanism to authenticate and authorize the user's identity. When the applet is launched, the wx.getUserInfo() function is called when, and this API will pop up a confirmation box to authorize the applet based on the user information. After obtaining the user authorization, wx.getUserInfo() will return the user's basic information, and the authorization mechanism does not return sensitive information such as the user's cell phone number and password to protect the user's privacy better.
- **Crawling comments from NetEase Cloud Music**
  I leverage Python crawler to crawl NetEase cloud comments, mainly using techniques such as the Requests library to make HTTP requests, the Beautiful Soup library to parse HTML pages, and regular expressions to extract data. By using these techniques, we can crawl the comment data of NetEase Cloud Music on a large scale. The crawler can obtain information such as time, number of likes, and users' comments, and store the data in the database for further data analysis and post-processing.
- **Data preprocessing and visualization of students' daily attendance in university library**

The task aims to collate and analyze the data of students' daily attendance in university library. Especially, I firstly remove duplicate data by the Pandas package. Then, the dropna() function is used to clear anomaly data. Finally, I adopt the fillna() function to complete incomplete data. To process temporal data, the datetime module is introduced to convert the timestamps into date and time formats and to classify the processed data. Pandas and Numpy are used for the data classification. Besides, I leverage the groupby() function in Pandas to classify student information (e.g., gender and school). Similarly, the np.where() function is used to cluster attendance data by specified criteria (e.g., study time).

- **Student management system based on C++**

This project is designed to provide basic management and querying functionality for information regarding students, their grades, and courses, which will be input and output by the stream operation. The input, inquiry, and modification of student information are facilitated using C++ loops, conditional statements, and functions. Besides, I sort the student grades by bubble sort algorithms. Management of student information is achieved through dynamic memory management and data structures, such as linked lists, allowing for the insertion, deletion, and querying of student data. Finally, this system makes use of file operations (including opening, writing, and reading functions) to store and retrieve student information.

- **Vue-based shopping application**

In this project, I divide the application into two main parts: a list page and a detail page. Especially, firstly, the back-office data is allocated into the list page by API. Then, I utilize the axios technology to request interface to display data. Besides, I obtain the target ID value by the $this.router.query.id function, and attach the ID value with the ID of data. After that, by the this.$http.get('api/getnew/'+this.id) function, the application can receive shopping information in the detail page. Finally, the whole details will be displayed in the detail page.

- **Axure-based prototype design for "Me" page in WeChat**

The project aims to design and implement a high-fidelity prototype of the "Me" page in WeChat using Axure. Firstly, I search the icons from Alibaba vector library, and then design the high-fidelity prototype in Axure canvas after further determining the layout and relative position of all the elements and their combination.

- **KNN-based classification on the Iris dataset**

In this project, I first clean and transform the images on the Iris dataset by multiple Python libraries. Then, the feature selection is introduced by the Scikit-learn package to extract the features that affect Iris species. After that, I further analyze these images by the KNN algorithm, which compares each test data with all samples in the dataset for similarity and finds the top K samples that are the closest to the test dataset. Finally, the appropriate K values are selected by cross-validation for performance optimization.

Skills

- **Data analysis:** Experienced in data manipulation, analysis, and visualization using pandas, NumPy, and Matplotlib, machine learning algorithms and data mining techniques.
- **Programming languages:** Python, Java, C++, MATLAB, SQL.
- **English:** GRE (V=165/170, Q=170/170, AW=3.5/6.0), TOEFL (105/120).
- **Programming software and tools:** Jupyter, Tableau, Git; Proficient in IntelliJ IDEA, PyCharm and Clion.

Advantages

- **Clear plan:** During my Ph.D. period**,** I want to study the research area of artificial intelligence, such as **computer vision** or **natural language processing**. Also, I will publish multiple top-tier papers as the first author. After graduation, I will look for a faculty job in a top university.
- **High self-motivation & stress resistance:** I like to participate in various competitions and achieve satisfactory performance. Besides, I can effectively relieve the stress by running, swimming and listening.
- **Strong independent thinking ability:** When facing a complex research task, I can decompose it into several small tasks. By consulting relevant information, I can solve these small tasks one by one independently.
- **Satisfactory self-study ability:** For a new field of research, I am able to search for related works on my own. Based on these works, I can design and implement my proposed model independently.
- **Solid foundation in mathematics:** I received **excellent grades** in advanced mathematics, linear algebra and probability and mathematical statistics. Satisfactory performance shows my solid foundation.
- **Good programming ability:** I am good at programming, and grasp multiple programming languages including Python, Java and C++.