

# FANQI WAN

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## EDUCATION

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### SUN YAT-SEN UNIVERSITY, SCHOOL OF COMPUTER SCIENCE AND TECHNOLOGY

Master student in Computer Science and Technology, supervised by Prof. Xiaojun Quan. 09/2022 - Present

- Research Interests: Dialog Systems; Instruction-Tuning; Model Fusion.

### XI'AN JIAOTONG UNIVERSITY, SCHOOL OF ELECTRONIC INFORMATION

Bachelor of Electronic Information Engineering, supervised by Prof. Hongqiang Lv. 09/2018 - 06/2022

- Overall Percentage: 93/100
- Rank: 10/180

## PUBLICATIONS

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My main research interests focused on deep learning for natural language generation. Previously, my work primarily focused on **dialogue systems**. After the emergence of large language models (LLMs), my research direction shifted towards **instruction-tuning** (e.g., developing LLMs for specific domains, mitigating hallucinations of LLMs) and **model fusion** (e.g., combining the capabilities of multiple structurally diverse LLMs).

### MODEL FUSION

1. FuseChat: Knowledge Fusion of Chat Models, *Tech Report*, **1st AU**.

We propose FuseChat, an extended framework of FuseLLM to integrate the collective knowledge and individual strengths of multiple structure- and scale-varied chat LLMs into a more powerful chat LLM. FuseChat-7B achieves 8.22 on MT-Bench, which is the *current SOTA 7B LLM*.

2. Knowledge Fusion of Large Language Models, *ICLR 2024*, **1st AU**.

We propose FuseLLM to create a unified model that combines the distinctive strengths of multiple structurally diverse LLMs. FuseLLM-7B *surpasses Llama-2-7B on 12 benchmarks*, including commonsense, reasoning, question-answering, and code generation.

### INSTRUCTION-TUNING

1. Knowledge Verification to Nip Hallucination in the Bud, *ACL 2024 Under Review*, **1st AU**.

We introduce Knowledge Consistent Alignment to verify and minimize the knowledge inconsistency between external knowledge in the alignment data and the intrinsic knowledge embedded in foundation LLMs, thus mitigating hallucinations before alignment.

2. Explore-Instruct: Enhancing Domain-Specific Instruction Coverage through Active Exploration, *EMNLP 2023*, **1st AU**.

We propose a novel approach to enhance the domain-specific instruction coverage by utilizing LLMs to explore the domain space from both breadth and depth automatically. Explore-Instruct *outperforms Self-Instruct in three specific domains*.

## DIALOGUE SYSTEMS

1. Retrieval-Generation Alignment for End-to-End Task-Oriented Dialogue System, *EMNLP 2023*, **4th AU**.  
We introduce maximal marginal likelihood for retriever training to address the retrieval-generation misalignment in end-to-end task-oriented dialogue systems.
2. Multi-Grained Knowledge Retrieval for End-to-End Task-Oriented Dialog, *ACL 2023*, **1st AU**.  
We propose a multi-grained knowledge retriever and introduce a novel distillation objective for retriever training. MAKER achieves *SOTA performance on MultiWOZ 2.1 and CamRest* with both condensed KB and full KB.

## MISC.

1. PsyCoT: Psychological Questionnaire as Powerful Chain-of-Thought for Personality Detection, *EMNLP 2023 Findings*, **3rd AU**.  
We propose a novel method for zero-shot personality detection in a multi-turn dialogue manner.
2. Clustering-Aware Negative Sampling for Unsupervised Sentence Representation, *ACL 2023 Findings*, **2nd AU**.  
We propose a novel method that incorporates cluster information into contrastive learning for unsupervised sentence representation learning.

## PROFESSIONAL EXPERIENCE

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### RESEARCH INTERN AT NATURAL LANGUAGE PROCESSING CENTER, TENCENT AI LAB

Instruction-tuning and model fusion of LLMs, supervised by Dr. Xinting Huang and Dr. Wei Bi. 03/2023 - Present

### COMMERCIAL PROJECTS ON E-COMMERCE PLATFORMS, VIPSHOP

Emotional analysis of comments on e-commerce platforms, supervised by Dr. Rui Wang. 04/2022 - 01/2023

## ACADEMIC COMPETITIONS

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### 2023 XINGZHI CUP

**2nd Prize** on Deep Learning Model Interpretability Task. 08/2022 - 02/2023

### 2022 IFLYTEK AI DEVELOPER COMPETITION

**2nd Prize** on Text Classification and Question Answering Based on Paper Abstracts Task. 07/2022 - 10/2022

### 2022 ALI LINGJIE E-COMMERCE SEARCH ALGORITHM COMPETITION

**3rd Prize** on E-commerce Search (Recall & Rerank) Task. 03/2022 - 06/2022

## SELECTED AWARDS

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### OUTSTANDING AWARD

Received outstanding award for Tencent AI Lab Rhino-Bird Focused Research Program. 09/2022 - 09/2023

### EXCELLENT GRADUATE STUDENTS

Received excellent graduate students award at Xi'an Jiaotong University. 09/2018 - 06/2022

### NATIONAL SCHOLARSHIP

Received national scholarship at Xi'an Jiaotong University. 09/2018 - 06/2019