

Jiayang Gu — Curriculum Vitae

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🌐 <https://github.com/jkdxg8837.com/>

EDUCATION

University of Electronic Science and Technology of China (UESTC)

M.E. in Computer Science and Technology

– GPA: 3.50/4.0

Chendu, CHN

2021.9- 2024.6

Zhejiang University of Technology (ZJUT)

B.E. in Computer Science and Technology

– GPA: 3.55/5.0 (Rank: 3/130)

Hangzhou, CHN

2017.9- 2021.6

RESEARCH EXPERIENCE

A Relevance Relation Extraction framework for cross-domain recommender system

2022 - 2023

– *Keywords:* Recommendation, Knowledge graph, relevance relation extraction

- **Background:** Prevailing embedding-based cross-domain recommendation (CDR) techniques tend to produce embeddings individually or transfer the overall feature distribution from one domain to another. Such approaches may prove less effective in the industrial scene, due to the pronounced semantic gap existing between domains, which arises from divergent purposes and descriptive styles.
- **Work:** We study this problem between the mini program and content channel in Alipay, while the former is utility-oriented, the latter is advertisement-oriented. To bridge two domains, we make good use of the side information of both entities to make the score trustworthy, then introduce a knowledge graph model designed to reduce the impact of embedding vibrating from contrastive learning and the bias from pre-trained language models. The code is released on GitHub.
- **Outcome:** This work contributes to research paper [1].

End-to-End Image Captioning with Grid Feature Fusion and Dual Cooperation

2021 - 2022

– *Keywords:* Image captioning, self-supervised visual feature fusion

- **Background:** Inspired by the excellent performance of the pre-trained vision model, we integrated the end-to-end training style into the image caption task.
- **Work:** We proposed an unsupervised method to fuse the grid visual feature into the semantic feature. Then, a dual cooperation module is used to fuse these features in different granularity
- **Outcome:** Our method achieved SOTA performance, and had a top 5(at that time) performance at Image COCO Caption online leaderboard.This work contributes to research paper [3].

PROJECT EXPERIENCE

Identification of Similar Products for the Diversity of Recommendation at Alipay

2023.8 - 2023.10

– *Keywords:* Multi-modal representation learning, Multi-modal pre-training

- **Background:** Alipay has attracted many local merchants to settle in. Their products have overlaps in major categories but occasionally differ in the subdivision attributes of SPUs. Due to the high similarity in images and differing text descriptions, these highly similar products are prone to generate high similarity with items that users are interested in. As a result, they tend to appear simultaneously on the homepage, thus compromising the diversity of homepage recommendations.
- **Work:** Our model was pretrained on an industrial dataset of 900k product images and descriptions. Subsequently, the trained model was used to conduct an initial screening of identical products, resulting in the selection of 50k image-text pairs for manual annotation. After annotation, we used the contrastive framework to learn the similarity score between two products.
- **Outcome:** In offline recall ranking tasks, our model has outperformed the online model by 4.8% in the Hit@1 metric and by 1.4% in the Hit@10 metric, achieving a recall rate of 95%. The model has been deployed online and has also resulted in a significant increase in the UVCTR metric.

A Demo System of Intelligent Unmanned Hotel

2019.11 - 2020.4

– **Keywords:** Face recognition, human pose estimation

- **Background:** In 2020, facial recognition reached its accuracy limit in academia. However, consumers still find its convenience is insufficient to alleviate concerns regarding its security. To address consumer concerns, our team developed a facial recognition-based smart hotel system for ArcSoft, aiming to provide convenience and security throughout the consumer's stay.
- **Work:** In this system, we deployed several intelligent devices and deep learning algorithms that are needed to run an unmanned hotel. We constructed the whole system in four parts: basic needs, extra customary needs, safety needs, and system backend.
- **Outcome:** As a vice team leader, I took the responsibilities of some customary needs and safety needs. For example, I invented a demo of the face-recognition vending machine that can be used in the hotel's lobby, a falling and drowning detection algorithm through monitor cameras located in the hotel's aisle and swimming pool.

PUBLICATIONS

- [1] RRE: A Relevance Relation Extraction framework for cross-domain recommender system at Alipay
Jiayang Gu, Xovee Xu, Yulu Tian, Jiadong Huang, Wenliang Zhong, Fan Zhou, Lianli Gao
Submitted to ICASSP, score 23/17/17(max score 24)
- [2] Incorporating granularity bias as the margin into contrastive loss for video captioning
Jiayang Gu, Fengming Yao
Inspired by popularity bias in the recommendation system, I studied another form of popularity in video captioning. It has an online version at [here](#).
- [2] End-to-End image captioning with grid feature fusion and dual cooperation
Jingkuan Song, Pengpeng Zeng, Jiayang Gu, Jinkuan Zhu, Lianli Gao
Published by International Journal of Software and Informatics(IJSI). It has an online version at [here](#).

SELECTED COURSES

- **Postgraduate:**
Machine Learning (94), Formal Method (92), Advanced Algorithm Design and Analysis(86)
- **Undergraduate:**
Digital Circuit and Digital Logic(97), Principles of Automatic Control(97), Microcomputer Interface Technology(97), Operating Systems(94), Principles of Database and Its Application(93)

AWARDS & HONORS

- **Outstanding graduates of Zhejiang University of Technology, 2021**
The top 8 % of graduates in the whole grade can take this award
- **Excellent Graduation Design, 2021**
The innovation and practical value are considered, the top 15% of students can obtain this award
- **China Students Service Outsourcing Innovation and Entrepreneurship Competition, 2019**
National awards
- **China Students Service Outsourcing Innovation and Entrepreneurship Competition, 2018**
National awards

SKILLS

Developer Tools	Python, Java, C++
Languages	Chinese, IELTS 7.0 (7.5 7.5 6.0 6.5)
Frameworks	Pytorch, ROS(Robotic Operation System), Ray, Matlab