Juntong NI

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Education

Shandong University **Sep. 2020 – present**

Bachelor of Artificial Intelligence, GPA: 91.96, Rank:3/52 *Qingdao, Shandong*

Relevant Coursework

- Advanced Math 96
- Linear Algebra 99
- Probability 98
- College Physics 99
- Deep learning 95
- Machine Learning 93
- Information Retrieval 100
- Practices on AI 95

Research Experience

iLearn Lab, Shandong University **December 2021 – present**

Research Assistant, supervised by Prof. Liqiang Nie *Qingdao, Shandong*

- In SDU, I actively researched multimedia computing, cross-modal information retrieval, and debiasing.
- The first work argues the problem of bias in text modalities in multi-modal sentiment analysis. I reproduced the results of baselines of the multi-modal sentiment analysis task and trained them on the OOD datasets we built to evaluate their generalization ability. In addition, I also did some case studies to evaluate the robust performance of our proposed model. This work was published on the top multimedia conference ACM MM.
- The second work is to study how the text in multi-modal emotion recognition assists the learning of audio and video. I participated in implementing experiments and writing some parts of papers, such as experiments. This work is now submitted to the top multimedia journal IEEE TMM 2022
- The third work is to study the problem of bias in all three modalities of text, audio, and video in multimodal sentiment analysis. I participated in most of the paper writing and experimental implementation work. This work is now submitted to the top conference in the field of information retrieval conference ACM SIGIR 2023.

University of Science and Technology of China **April 2022 – June 2022**

Research Assistant, supervised by Prof. Fuli Feng *Hefei, Anhui*

- In USTC, my research interests lie in deep learning-based methods for biology and medicine.
- We focus on the problem of predicting neoantigens. To investigate the technical context of neoantigens prediction, I started with pVACtools, a relatively cutting-edge integration tool. I figured out that what we want to develop is a tool that can predict the peptide-HLA binding value and select the appropriate neoantigens. The application scenario of the tool is picking the right neoantigens to fight cancer.
- Then, I used TransPHLA, a peptide-HLA binding prediction method, to conduct some experiments. I found that the distribution of HLAs in the datasets has the long tail problem, which induces me to develop transfer learning. After training, I fine-tuned the model on the HLAs with small numbers and employed negative sampling to increase the number of training samples.

Publications

General Debiasing for Multimodal Sentiment Analysis.

*Teng Sun, **Juntong Ni**, Wenjie Wang, Liqiang Jing, Yichen Zheng, Liqiang Nie. ACM SIGIR, 2023.*

Muti-modal Emotion Recognition via Hierarchical Knowledge Distillation.

*Teng Sun, Yinwei Wei, **Juntong Ni**, Zixin Liu, Xuemeng Song, Yaowei Wang, Liqiang Nie. IEEE TMM, 2022.*

Counterfactual Reasoning for Out-of-distribution Multimodal Sentiment Analysis.

*Teng Sun, Wenjie Wang, Liqiang Jing, Yiran Cui, Xuemeng Song, Liqiang Nie. (**participate**) ACM MM 2022.*

Projects

Short Text Clustering | *Python, Pytorch* **January 2023**

- Analyzing short texts infers discriminative and coherent latent topics, which is a significant and essential problem because many real-world applications require a semantic understanding of short messages.
- I wrote a survey of short text clustering. I reviewed all available short text topic modeling strategies in-depth. With examples of representative techniques, I offer four kinds of methods based on similarity, topic model, deep learning, and generative adversarial networks.
- I also proposed a method named improved supporting clustering with contrastive learning (ISCCL). The key to the improvement is that I add a cluster-level head to leverage cluster-level contrastive learning to promote better feature separation.
- Github Url: https://github.com/juntongni/ISCCL

Interactive Visualization of Worldwide ShipWreck | *JavaScript, HTML, CSS* **December 2022**

- Developed a visualization dashboard using JavaScript to achieve interaction between users and the dashboard.
- Implemented Leaflet to provide zoomable, movable map modules to facilitate shipwreck analysis.
- Github Url: https://juntongni.github.io/project/vis/

Technical Skills

Languages: Python, C++, C, LaTeX, HTML/CSS, JavaScript, SQL
Developer Tools: Linux, GitHub, VS Code, Xcode, Google Colab, Jupter
Deep Learning Tools: Pytorch, Tensorflow

Extracurricular

Dandelion Love Support Education Association **Spring 2021 – Summer 2021**
Member *Shandong University*

- In the 2021 summer social practice, in order to actively respond to the national strategic plan of "rural revitalization", we went to Zhenyuan, Guizhou to carry out a week-long high school summer camp teaching support with the theme of "researching the tourism industry and environmental rural revitalization of Guizhou Miao and Dong Autonomous Prefecture" Activity.
- During this trip, "teaching benefits each other", I not only taught the children knowledge, but the children also made me grow a lot, and gave me a deeper understanding of "rural revitalization".
- The team was rated as an excellent social practice team of Shandong University and an excellent social practice report of Shandong University. I was awarded an excellent individual for the social practice of Shandong University.

"Shandong University Cup" Badminton Men's Doubles Champion **Spring 2022**

Selected Prize

Zhiyang Scholarship (10 awardees per year in department) **Winter 2022**
Huawei Smartbase Scholarship (Only 35 awardees per year in SDU) **Fall 2022**
First Class Scholarship (Top 5% student) **Fall 2022**
COMAP Mathematical Contest in Modeling (Honorable Mention) **Spring 2022**
Asia and Pacific Mathematical Contest in Modeling (Second Prize) **Winter 2021**
National University Mathematics Competition (Third Prize) **Winter 2021**