

# JUNTONG NI

juntongni02@gmail.com ◇ juntongni.github.io

## Education

### Shandong University

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

Sep. 2020 – present

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>

<b>Restaurant+ Food Identification and Nutrition Analysis System   <i>Python, JavaScript</i></b>	<b>January 2023</b>
--	---------------------

- Employed YOLOv5 for food identification and got the price of the identified food based on external knowledge.
- Trained ResNet on the Nutrition5k dataset to predict the nutrients such as calories;
- Generated corresponding evaluation and diet suggestions by ChatGPT based on the prediction results.

<b>Interactive Visualization of Worldwide ShipWreck   <i>JavaScript, HTML, CSS</i></b>	<b>December 2022</b>
--	----------------------

- 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,  $\text{\LaTeX}$ , HTML/CSS, JavaScript, SQL

**Developer Tools:** Linux, GitHub, VS Code, Xcode, Google Colab, Jupyter

**Deep Learning Tools:** Pytorch, Tensorflow

## Extracurricular

---

<b>Dandelion Love Support Education Association</b>	<b>Spring 2021 – Summer 2021</b>
---	----------------------------------

*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.

<b>“Shandong University Cup” Badminton Men’s Doubles Champion</b>	<b>Spring 2022</b>
---	--------------------

## Selected Prize

---

<b>Zhiyang Scholarship (10 awardees per year in department)</b>	<b>Winter 2022</b>
---	--------------------

<b>Huawei Smartbase Scholarship (Only 35 awardees per year in SDU)</b>	<b>Fall 2022</b>
--	------------------

<b>First Class Scholarship (Top 5% student)</b>	<b>Fall 2022</b>
---	------------------

<b>COMAP Mathematical Contest in Modeling (Honorable Mention)</b>	<b>Spring 2022</b>
---	--------------------

<b>Asia and Pacific Mathematical Contest in Modeling (Second Prize)</b>	<b>Winter 2021</b>
---	--------------------

<b>National University Mathematics Competition (Third Prize)</b>	<b>Winter 2021</b>
--	--------------------