

# Trending Topics and Epidemic Development of the COVID-19 in China: Sentiment Analysis and Visualization

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## Introduction

In January 2020, COVID-19 broke out in China. During the Spring Festival, because of the high turnover of people and the infectivity of the virus, the number of COVID-19 confirmed cases is rising rapidly. Led by Weibo, Baidu and Toutiao, with the continuous development of the epidemic, the online public opinion is also changing. This paper selects the epidemic data of the NHC of the PRC from January 20 to April 21 in 2020, and the trending topics data of Weibo, Baidu and Toutiao from December 30 of 2019 to April 21 of 2020, to analyze the trending topics emotion with the epidemic change. This paper first groups the epidemic development, then turns the word vector of topics into sentence vector. And then uses TF-IDF algorithm to calculate the weight, artificially labels the results with emotion. Finally uses Python and Echarts to make visualization. According to the results of analysis and epidemic data, the paper can get the relationship between public opinions and the development of the epidemic, so as to better comprehend the psychology of public and find out more appropriate countermeasures.

## TF-IDF

Python was used for the TF-IDF algorithm on the processed word vectors to assess the importance of a keyword to the data in the trending topics corpus.

Word	Number of Topic	IDF	TF-IDF
COVID-19	1080	1.8449	0.01457
Confirmed	2164	1.1504	0.01820
Wuhan	1251	1.6980	0.01552
Movie Stars	2091	1.1846	0.01811

## Emotion Tagging

The topic data is divided into **primary topic** [1] (e.g. the number of confirmed cases), **secondary topic** (e.g. the home-cooking challenge) and **other topic** (e.g. the Kobe crash). Among them, secondary topic is further divided into **positive secondary topic** (e.g. the home-cooking challenge) and **negative secondary topic** (e.g. the price premium of vegetables in many places).

## Emotion Tagging (Results)

Topic	Time	Class	Emotion
Advertisement	123	Other	1
A confirmed patient was successfully treated in Wuhan	123	Main	1
All movies with-drawn from the schedule	123	Secondary	0

## Conclusion

Looking back on these 113 days of experience in fighting the epidemic, from Dr.Li Wenliang’s discovery, to the beginning of the return to school of junior and senior high school students across the country, the public opinion on the epidemic went from low to high and finally tended to a lower level, and people’s attitude towards the epidemic changed from **panic at the beginning to optimism and active cooperation** with the national quarantine policy, which made it possible for China to back on track in only four months.

## References

[1] Zhifan Cheng Sheng He Haixu Xi, Hongfen Jiang. Sentiment analysis and visualization methods of online public opinion under specific events. *Intelligence Theory and Practice*, pages 1–8, June 2020.

## Visualization

