Chiyu Wei

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EDUCATION

University of Southern California — Los Angeles, California
Master of Science, Computer Science — Expected: December 2023

Wuhan University of Technology — Wuhan, China
Bachelor of Engineering, Communications Engineering — July 2021

PUBLICATIONS

* denotes equal contribution.

La Gatta, V.*, **Wei, C.***, Luceri, L., Pierri, F., Ferrara, E. (2023). "Retrieving False Claims on Twitter during the Russia-Ukraine Conflict." *WWW'23 Companion: Companion Proceedings of the ACM Web Conference 2023. doi: 10.1145/3543873.3587571*

RESEARCH

Are Large Language Models Good at Simulating Human Samples? A Topic Study
Graduate Researcher, USC Information Sciences Institute — Los Angeles, California
Advised by Dr. Emilio Ferrara — August 2023 - Present

- Initiate an in-depth exploration of the capabilities of Large Language Models (LLMs) to emulate human behaviors across various attributes such as ideology, politics, income, gender, age, and race, with a focus on identifying the most suitable topics for simulation.
- Employ a rigorous methodology involving controlled experiments to gauge the efficacy of LLMs in mimicking humans. Through fine-tuning, enhance the cross-question performance of LLMs.

Multimodal Partisan Sentiment Framing in Inflation News Coverage
Graduate Researcher, USC Viterbi School of Engineering — Los Angeles, California
Advised by Dr. Mohammad Soleymani — May 2023 - Present

- Conduct a comprehensive study on inflation-related video content by leveraging both facial and text analysis. The aim is to unveil inherent network narratives and biases, highlighting the contrasting stances of major media outlets on the topic.
- Lead the implementation of video preprocessing techniques, specifically using Pyannote-video and OpenFace2. These tools enable accurate deciphering of facial expressions and their correlation with underlying media biases.
- Find that the sentiment derived from Action Units consistently aligns with results from text analysis, indicating biases in FOX News and MSNBC, while CNN maintains relative balance.

Classification of Political Extremists and Moderate Users on Twitter
Graduate Researcher, USC Information Sciences Institute — Los Angeles, California
Advised by Dr. Emilio Ferrara — March 2023 - Present

- Introduced a pioneering methodology, False-Supervised Learning, aimed at classifying Twitter users based on political leanings and distinguishing between extremist and moderate stances.

- Users are categorized as extremist or moderate using derived ideological scores. Transformer-based models are subsequently trained on various proportion splits of this labeled data.
- The most precise model in differentiating between moderate and extremist ideologies is selected as the optimal approach. This refined model provides a more apparent ideological threshold.

Retrieving False Claims on Twitter during the Russia-Ukraine Conflict
Graduate Researcher, USC Information Sciences Institute Los Angeles, California
Advised by Dr. Emilio Ferrara June 2022 - March 2023

- Collected and manually annotated 83 false claims circulated on Twitter during the initial weeks of the Russia-Ukraine Conflict. This task involved handling and categorizing 5,872 original tweets into four distinct classes: related, not related, support, and refute.
- Designed and implemented a transformer-based automated pipeline capable of detecting and retrieving tweets that discussed the identified false claims. This model achieved an F1-score of 80.57%. Further, the tweet retrieval model obtained a Top-3 accuracy of 96.35%.
- Successfully demonstrated the practicality and effectiveness of the developed approach in retrieving false claims. The model showed consistent performance in real-world conditions.

PROJECTS

Self-Introduction Generator Using NLP Techniques
Team project August 2022 - December 2022

- Leveraged a BERT-based question-answering model to extract essential introductory information and integrated the data into a template, which achieved a BERTScore of 0.817.

Multimodal Features Extraction and Sentiments Classification
Solo project January 2022 - May 2022

- Applied BERT, OpenFace, and OpenSmile to extract text, visual, and audio features of 2,199 video clips. Designed LSTM sentiments classifiers and late fusion strategy for each modality.

Kaggle competition: H&M Personalized Fashion Recommendations
Team project January 2022 - May 2022

- Developed product recommendation models by harnessing two years' worth of real-world transaction data coupled with item images, all aimed at predicting the top 12 products for each customer. Our approach secured a position within the 9% of all competitors.

SKILLS

- **Programming Languages:** Python, Java, C++, C, and Matlab.
- **Machine Learning Libraries:** Extensive experience with PyTorch, Keras, scikit-learn, Sentence-Transformers, matplotlib, and seaborn.
- **Operating Systems:** Experience in working with Linux-based systems.
- **Networking and Computing:** Experience with SSH and High-Performance Computing.