

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.

Valerio La Gatta*, **Chiyu Wei***, Luca Luceri, Francesco Pierri, Emilio Ferrara. Retrieving False Claims on Twitter during the Russia-Ukraine Conflict. In *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

- Explore the capabilities of Large Language Models (LLMs) to simulate human behaviors, using prompts that include variables such as ideology, income, gender, age, race, etc.
- Fine-tune Llama 2 model using data from diverse human surveys, aligning model-generated responses with actual human behavior. Utilize regression models to build the weight with the variables that best predict response differences between LLM and humans.
- Our preliminary findings reveal the model's effectiveness in simulating large group trends, though predicting individual behaviors accurately continues to be a challenge.

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 video preprocessing using Pyannote-video and OpenFace 2 for accurate facial expression analysis. Analyze video transcripts on sentiment interpretation with Whisper and LIWC. Conduct statistical tests on video clips to identify 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 novel methodology, False-Supervised Learning, aimed at classifying Twitter users based on political leanings and distinguishing between extremist and moderate stances.
- Users are categorized as extremists or moderates based on ideological scores generated from URLs. BERT-based classifiers are then trained using various proportions of labeled data.
- The most precise model in differentiating between moderate and extremist is selected as the optimal approach, which establishes a clearer threshold for distinguishing between them.

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

- This paper is included in the Companion Proceedings of the ACM Web Conference 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 BERT-based automated pipeline capable of detecting and retrieving tweets that discussed the verified 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. 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.