

# Qisheng Liao

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## Education

08/2022-Present

**Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)**, United Arab Emirates

Supervised by [Tim Baldwin](#), and [Muhammad Abdul-Mageed](#),

- Master of Science in Natural Language Processing

09/2020-01/2022

**New York University (NYU)**, United States

- Master of Science in Computer Science
- Member of Music X Lab in NYU Shanghai supervised by [Gus Xia](#)

09/2016-03/2020

**University of California Santa Cruz (UCSC)**, United States

- Bachelor of Science in Computer Science (Highest Honor)

## Publication

**Qisheng Liao**, Gus Xia, Zhinuo Wang

Calliffusion: Chinese Calligraphy Generation and Style Transfer with Diffusion Modeling

*14th International Conference on Computational Creativity (ICCC)*, 2023

**Qisheng Liao**, Meiting Lai, and Preslav Nakov

MarsEclipse at SemEval-2023 Task 3: Multi-lingual and Multi-label Framing Detection with Contrastive Learning

*Proceedings of the 17th International Workshop on Semantic Evaluation (SemEval)*, 2023

## Teaching Experience

**MBZUAI, Teaching Assistant, Lab Session Instructor**

- Advanced Natural Language Processing. Spring 2023

**New York University Shanghai, Teaching Assistant, Recitation Session Instructor**

- Network Analytics. Fall 2021
- Data Science for Soc. and Info. Networks. Spring 2022

## Research Experience

### Language Identification

Unknown Language Identification.

- Finetuned pretrained model for language identification problem and the model also could identify unknown language in testing.

An Investigation into ChatGPT's Language Identification Ability

- Evaluated more than 500 languages with ChatGPT and investigated the abilities of ChatGPT for low resources languages.

Contrastive Learning for Unseen Language Identification & Arabic Dialect Identification.

- Finetuned RoBERTa model in flore-101 & NADI 2021 datasets with contrastive loss

## **Semantic Matching**

### Syntax Relations in Semantic Matching in Tasks

- Modified BERT structure and added information from syntax trees to the model.
  - A Graph Convolution Network, cross-attention and gates module are added into BERT.
  - Experimental results on 10 standard benchmarks demonstrate that our model performs better in semantic matching tasks.

## **Large Language Models**

### A Study of Sociopragmatic Understanding in LLMs

- we present an extensive multilingual benchmark specifically designed for sociopragmatic meaning understanding and tested on popular large language models.

## **Deep Learning and Diffusion Models for Chinese Calligraphy and Handwriting Texts**

### Calliffusion: Chinese Calligraphy Generation and Style Transfer with Diffusion Modeling

- Designed diffusion models for Chinese Calligraphy generation conditioned with characters, styles, and authors.
  - Based on Denoising Diffusion Probabilistic Models, we use natural language text to describe the calligraphy we want including, characters, scripts, and styles.
  - Any symbols from other languages or untrained characters can be adapted to Chinese Calligraphy with Low-Rank Adaptation by one-shot or few-shots.
  - The result of subjective survey showed that people cannot distinguish our generated characters with real samples.

### Chinese Calligraphy Scripts and Characters Recognition.

- Designed a multitask model to predict styles and characters jointly.
- Designed algorithms to recognize a whole artwork not a single character.
  - Both the script and character accuracy can be improved to 0.99
- Designed a supervised contrastive model for artwork generation based on existing data.
  - An artwork can be generated based on the contrastive loss between each character.

## **Propaganda Framing**

### Propaganda Framing for Data from European Union

- Try to do propaganda framing to 2M data from European Union

### SemEval 2023 Shared Task, Task3, Sub-Task 2: Framing Detection

- Designed a multilabel multitask contrastive learning model.
  - Based on SimCLR and SimCSE, we modified the loss function to make it fit for multilabel task setting.
  - Our system was ranked first on the official test set and on the leaderboard for five of the six languages.

## **Other Projects**

Chinese Classifier-Noun Agreement

Diffusion model for Text Simplification

Diffusion model for Text to Speech System

Contrastive Learning for Check-Worthiness Detection

Arabic Dialect Identification with Contrastive Federated Learning