



Xin CHEN

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RESEARCH INTEREST

Privacy-preserving and Trustworthy AI, LLMs to Real-world Scenarios(e.g., healthcare, finance), Synthetic Data Generation

EDUCATION

University of Southampton (QS Top100) - Business Analysis and Finance Master Sep 2022 - Feb 2024

Major courses: **Python & Forecasting(82)**, **Advanced Analytics(72)**, **Credit Risk & Data Analytics(67)**, Quantitative Research in Finance.

Dissertation Title: Augmented FinQA: In-context Learning in Finance based on the Integration of LLMs and Knowledge Base

Dean's List Award for Outstanding Academic Achievement

Beijing Normal University, Zhuhai - Information Management and Information System

Sep 2018 - Jul 2022

Bachelor GPA: 87/100 (TOP 10%)

Major courses: **Statistics (97)**, **Data Analysis and Application(96)**, **Business Data Mining(90)**, SQLServer Database, Model and Decision making, Management, Economics.

Dissertation Title: The Presentation and Evolution of Youth's National Identity based on Topic Modeling

Professional Scholarship for 3 years, **Social Work Scholarship**, **Outstanding Graduates**, and **Top Ten Graduate Nominee Award (13th)**

TECHNICAL SKILL

- **English Level:** CET-6(464), IELTS(Pre-Sessional course in 7.0(6.5))
- **Programming Languages:** Python, Java, C
- **Development Framework:** SpringBoot, React.js, Flask
- **DB Tools:** Neo4j, MySQL, Oracle
- **Libraries:** Scikit-Learn, PyTorch, Keras, TensorFlow, Jena, Echarts, HanLP, Pandas, NumPy, Matplotlib

PAPER PUBLISHED

Lijie Hu, Liang Liu, Shu Yang, **Xin Chen**, Hongru Xiao, Mengdi Li, Pan Zhou, Muhammad Asif Ali and Di Wang. (2024) 'A Hopfieldian View-based Interpretation for Chain-of-Thought Reasoning'. Available at: <http://arxiv.org/abs/2406.12255>. submitted to **EMNLP 2024 (CCF-B)**

Jing Yang, **Xin Chen** and Junchao Wu. Topic extraction over danmaku text with pre-training model, in *International Conference on Computer Application and Information Security (ICCAIS 2023)*, p. 1309015.

Xin Chen, Yixin Zhang, Junchao Wu, Lingyu Guo, Jiaxuan Chen, and Jing Yang. The Topic Evolution of DanmakuText Based on BTM --Taking the Context of COVID-19 as an Example. In *2022 IEEE 5th International Conference on Big Data and Artificial Intelligence (BDIAI 2022)*, pp. 176-183. IEEE. (Best Oral Presentation Award Paper)

Xin Chen, Yixin Zhang, Junchao Wu, Lingyu Guo, ZehuiYu, and Jing Yang. Construction and Analysis of Diachronic Danmaku Corpus --Taking Youth Subculture Danmaku as an Example. *Information Research*, 09 (2022), pp. 77-85. (In Chinese) (AMI)

Lingyu Guo, Junchao Wu, **Xin Chen**, Ying Jiang, and Zhizhu Geng. Research and Application of Digitalization of Long March Red Cultural Resources based on Knowledge Graph. *Electronic Technology & Software Engineering*, 04 (2022), 196-201. (In Chinese)

Junchao Wu, Ying Jiang, **Xin Chen**, LingyuGuo, XiaotongWei, and XiaoyanYang. "The Canton Canon" Digital Library Based on Knowledge Graph-Taking the Revolutionary Archives of Canton in the Republic of China as an Example." In *2021 IEEE 10th International Conference on Educational and Information Technology (ICEIT 2021)*, pp. 171-179. IEEE, 2021. (Best Oral Presentation Award Paper)

RESEARCH EXPERIENCE

KAUST - Large Language Model Concept and Representation Engineer - Research Assistant (Remote) Feb 2024 - Present

- Explores the underlying mechanisms of CoT reasoning in LLMs focusing on understanding why zero-shot and few-shot CoT techniques significantly enhance the reasoning performance of LLMs.

BNUZ - Analysis of the Presentation and Change of Youth's Sense of National Identity in the Context of COVID-19 - Project Leader Jun 2020 - Apr 2023

- Analyzed the storage mechanism of video and danmaku text on Bilibili to build a type-channel relationship network and design the efficient crawling algorithm of the diachronic danmaku corpus to collect about **45 million danmaku texts**.
- The **RoBERTa Model** trained from the Chinese Encyclopedia corpus was pre-trained using 40 million danmaku texts. This endeavor culminated in the specialized **Danmaku-RoBERTa Model** finely tuned for analyzing danmaku texts.
- **Biterm Topic Model** was built to extract the topic from the danmaku texts exploring the evolution of danmaku text topics by calculating the **Perplexity, Coherence and Rényi Entropy**.
- Combined with the sense of national identity to explore the **national identity evolution of danmaku text** under the background of COVID-19

BNUZ - Construction and Visualization of Knowledge Graph of Revolutionary Historical Events - Project Back-end Engineer Jun 2019 - Dec 2021

- Integrated **Mybatis, Mysql and Jena** to build the data interaction mode based on the Springboot framework.
- Designed and wrote **SPARQL** retrieval sentences to retrieve and extract knowledge from the graph database constructed by **Protégé** based on the spatial-temporal retrieval model proposed by the project.
- Used **full-text retrieval technology** to construct retrieval models for more than **2,000 historical documents**, realize all data structuring and improve retrieval speed and accuracy.
- Project URL: <http://8.135.49.164:7878> Software Copyright Registration No.: **2021SR1211614**

WORK EXPERIENCE

China Academy of Information and Communications Technology - Economic Data Researcher Sep 2023 - Feb 2024

- Developed an Industrial Value Forecasting Model based on the **AutoARIMA, DeepAR, and TFT models** with **Wind Datasets**. Optimized parameters through **grid search** to **minimize RMSE**.
- Built an Industrial Economic Monitoring and Warning Platform based on telecommunication big data based on the **NiceGUI front-end framework** combined with **ECharts**.

School of Management, Beijing Normal University, Zhuhai - Research Assistant Nov 2021 - Mar 2022

- Organized short-text topic model papers published by top journals or international conferences to build various short-text topic models including **LDA, BTM, PTM, DMM, and WATM** topic map extraction results in a summary report to the instructor.
- Organized the evaluated methods, like **Perplexity, Coherence and Rényi Entropy**, for **short-text topic models** evaluated on annotated data sets.
- Combine **Mybatis** and **Mysql** based on **Springboot** to build an analysis platform for public opinion.

HONOR & AWARD

The First "Jingshi Cup" Extracurricular Academic Science and Technology Competition on Zhuhai campus of Beijing Normal University — First Prize for Philosophy and Social Science Work Jul 2022

The 8th "Challenge Cup" College Students' Extracurricular Academic Science and Technology Works Competition in Beijing Normal University, Zhuhai — Third Prize for Philosophy and Social Science Work Jul 2020

China Undergraduate Mathematical Contest in Modeling — Third Prize for Guangdong Province Dec 2019

The 7th "Teddy Cup" Data Mining Challenge — First Prize for Guangdong Province and Second Prize for Nationality Jul 2019

ORGANIZATION

2018-2020 Student Union in School of Management - Director & Member Publicity Sep 2018 - Sep 2020

Department

- Responsible for executing the university's activities, designing and guiding team members to complete **46 works of poster**.
- Awarded the title of '**Excellent Member**' in **2018** and the '**Outstanding Contribution Award**' honor certificate in **2020**

FUND

Special Fund for Science and Technology Innovation Cultivation of Guangdong University Students (No. **pdjh2021b0612, PI**)

Innovation Project of Universities in Department of Education of Guangdong Province (No. **S202013177023, PI**)

Innovation Project of Universities in Department of Education of Guangdong Province (No. **S202013177021, Co-PI**)

Innovation Project of Universities in Department of Education of Guangdong Province (No. **S201913177034, Co-PI**)