CHENCHEN YE

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EDUCATION

PhD student in Computer Science, University of California, Los Angeles (UCLA) Sep 2023 - Present
Advisor: Dr. Wei Wang, Leonard Kleinrock Professor, UCLA

Bachelor of Computer Science, National Unversity of Singapore (NUS) Aug 2018 - Jun 2022
1st Class Honors (Highest Distinction)
Advisor: Dr. Tat-Seng Chua, KITHCT Chair Professor, NUS

RESEARCH INTERESTS

My research interests include Machine Learning, Data Mining, Natural Language Processing, and Graph Neural Networks, with the current focus on **knowledge reasoning over large language models and knowledge graphs**. Specifically, I aim to develop models that can reason over **heterogeneous knowledge**, coordinate the structured and unstructured, and generate appropriate forecasts and interpretations.

PUBLICATIONS

(* denotes equal contribution.)

1. **Context-aware Event Forecasting via Graph Disentanglement**
   Yunshan Ma*, Chenchen Ye*, Zijian Wu, Xiang Wang, Yixin Cao, Tat-Seng Chua
   SIGKDD 2023 [paper, code&data, poster, slides]

2. **Reflecting on Experiences for Response Generation**
   Chenchen Ye, Lizi Liao, Suyu Liu, Tat-Seng Chua
   ACMMM 2022 [paper, poster, slides, video]

3. **Structured and Natural Responses Co-generation for Conversational Search**
   Chenchen Ye, Lizi Liao, Fuli Feng, Wei Ji, Tat-Seng Chua
   SIGIR 2022 (Oral) [paper, code, slides, video]

Preprints:

- **Structured, Complex and Time-complete Temporal Event Forecasting**
  Yunshan Ma*, Chenchen Ye*, Zijian Wu, Xiang Wang, Yixin Cao, Liang Pang, Tat-Seng Chua
  Preprint 2023 [arXiv]

EXPERIENCE

Graduate Student Researcher Sep 2023 - Present
Scalable Analytics Institute (ScAi), UCLA, Advisor: Wei Wang *Los Angeles, CA*

Project: Temporal Reasoning of LLMs for Events over Texts, Images, and Knowledge Graphs

- Proposed three QA tasks (MultiChoiceQA, OrderQA, ForecastQA) and constructed an LLM-based automated pipeline for benchmarking LLM's time-aware cross-document understanding capability on temporal events.
- Focusing on the turning points in temporal event development for examining LLM's temporal forecasting ability.
- Working on human-centric LLMs that can provide interpretable and trustable event forecasting results with multimodal reasoning and explanations (texts, images, structured KGs).

Project: Biomedical Hypothesis Extraction and Generation with LLMs

- Working on leveraging LLMs for knowledge discovery and hypothesis generation in biomedical literature mining by developing a new task formulation and benchmark dataset and proposing a novel retrieval-augmented cross-document hypothesis generation framework.

Research Assistant Aug 2022 - Aug 2023
NExT++ Research Center, NUS, Advisor: Tat-Seng Chua, Yunshan Ma *Singapore*

Project: Learning and Reasoning on Graphs for Knowledge-enhanced Information Retrieval

- Proposed a novel task of context-aware event forecasting over temporal knowledge graphs and textual contexts; constructed three large-scale benchmarks and designed a new framework using graph disentanglement for context-specific relational and temporal modeling and hypergraphs for cross-context collaborative modeling.
- Developed an innovative LLM-based automated pipeline for the construction of structured, complex, and time-complete temporal events from extensive news data, and designed a novel temporal knowledge graph-based model that leverages both local and global contextual information for this new event forecasting formulation.

Undergraduate Student Researcher May 2021 - Jun 2022
NExT++ Research Center, NUS, Advisor: Tat-Seng Chua, Lizi Liao *Singapore*

Project: Textual and Multimodal Conversational Search and Response Generation

- Incorporated supervised multitask learning and reinforcement finetuning in building a novel conversational search agent that co-generates structured search states for system optimization and natural language responses for users.
- Designed a neural case-based reasoning model for task-oriented multimodal dialogues and enhanced its performance with contrastive learning for multi-modality retrieval and copying mechanism for response generation.

AWARDS

Outstanding Undergraduate Researcher Prize, NUS Jun 2022
Best undergraduate researcher (individual) in the **university-wide selection** [certificate] [news]

Deans' List Awards, NUS AY2019-2020/ AY2021-2022
Top 5% of the cohort [certificate]

Distinction in the Multimedia Information Retrieval Focus Area, NUS Aug 2021
Meritorious academic performance in Information Retrieval [certificate]

Distinction in the Artificial Intelligence Focus Area, NUS Apr 2021
Meritorious academic performance in Artificial Intelligence [certificate]

Science & Technology Undergraduate Scholarship, NUS & Ministry of Education, Singapore 2018-2022
Outstanding Asian student, covers full tuition fees and living allowance

TEACHING

Teaching Assistant, NUS Semester 1 AY2019/20

- CS2030 Programming Methodology II, Lecturer: Dr. Henry Chia
- CS2040 Data Structure and Algorithm, Lecturer: Dr. Chong Ket Fah

SERVICES

Reviewer 2023: ACMMM, ACMMM MMIR

SKILLS

Programming Languages: Python, Java, C++, C, SQL, R, Matlab
Software & Other IT Skills: PyTorch, Git, Linux, Tableau