Gongyao Jiang

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EDUCATION

The Hong Kong University of Science and Technology (Guangzhou) — Jan 2024 - Present
Data Science and Analytics, PhD Candidate, supervised by Prof. Qiong Luo and Prof. Xiaojuan Ma. — Guangzhou / Hong Kong
Tianjin University — Sep 2021 - Jan 2024
Computer Technology, Master, supervised by Prof. Meishan Zhang. — Tianjin
Guangdong University of Technology — Sep 2017 - Jun 2021
Network Engineering, Bachelor — Guangzhou

PUBLICATIONS

Multi-Modal Science Content Understanding and Generation

- **(CIKM 2025**; 1st Author) Chart-CoCa: Self-Improving Chart Understanding of Vision LMs via Code-Driven Synthesis and Candidate-Conditioned Answering.
  - A self-improving VLM framework that establishes a data synthesizing loop through code and enhances reasoning via a candidate-conditioned inference mechanism (test-time scaling).
- **(NAACL 2025**; 1st Author) JRE-L: Journalist, Reader, and Editor LLMs in the Loop for Science Journalism for the General Audience.
  - A multi-agent collaborative framework that mimics the professional editorial workflow, integrating a simulated "Reader" feedback loop to iteratively align scientific reporting with public accessibility standards.

LLMs for Scientific Discovery and Reasoning

- (Under Review on KDD 2026, 1st Author) ChemisTRAG: Table-based Retrieval-Augmented Generation for Chemistry Question Answering.
  - Propose a table-based RAG framework to solve the representation aligment problem in knowledge retreival and utilization in chemistry QA.
- (Under Review on ACL 2026, 3rd Author) ChemThinkBench: Evaluating Fine-Grained Chemical Thinking Abilities of Large Language Models.
  - Construct a comprehensive framework to evaluate (Vision) LLMs' capabilities on chemistry reasoning problems.

Socially Aware AI & Human-AI Alignment

- **(IUI 2026**; 1st Author) ESR-Coach: Leveraging Large Language Models for Training People to Provide Emotionally Supportive Responses.
  - LLMs for training humans in emotional communication through a "simulation-demonstration-feedback" loop to help humans operationalize effective and flexible interpersonal strategies.
- **(ACL 2024**; 5-th Author) ToMBench: Benchmarking Theory of Mind in Large Language Models.
  - A systematic and multi-granular benchmark that evaluate LLMs' social intelligence and cognitive capability via comprehensive ToM tests.

Content Structure Prediction & Parsing

- **(CL 2024**; 1st-Student Author) LLM-Assisted Data Augmentation for Chinese Dialogue-Level Dependency Parsing.
  - A hierarchical data augmentation strategy that leverages LLMs to synthesize training samples with varying degrees of structural invariance.
- **(ACL 2023 Findings**; 1st Author) A Pilot Study on Dialogue-Level Dependency Parsing for Chinese.
  - A foundational corpus for dialogue-level dependency and a signal-driven transfer mechanism that maps syntax to discourse relations.

Social Media Content Categorization

- **(IP&M 2022**; 1st Author) Fake news detection via knowledgeable prompt learning.
  - A knowledge-enhanced prompt learning framework designed to bridge the objective gap between pre-training and fine-tuning, thereby aligning the text classification task with the models' intrinsic capabilities.
- **(ECAI 2020**; 2nd Author) Document and Word Representations Generated by GCN and BERT for Short Text Classification.
  - A hybrid architecture merging GCN-derived topology features with BERT embeddings, augmenting local semantic representations with global topic information to enhance short-text classification.

RESEARCH & INTERNSHIP EXPERIENCE

HCI Lab at HKUST — Sep 2025 - Jan 2026
Conducted research of LLMs for Humans and Science advised by Prof. Xiaojuan Ma; spearheaded the ESR-Coach system (IUI 2026) for interpersonal skill training and contributed to benchmarking Multimodal LLMs on chemistry reasoning tasks (submitted to ACL 2026).
CoAI Lab at Tsinghua University / Lingxin Intelligence — Jun 2023 - Nov 2023
Conducted research on Social & Emotional AI advised by Prof. Minlie Huang; co-developed training pipelines for emotion-aware LLMs and played a key role in constructing the ToMBench evaluation framework (ACL 2024).

SKILLS & EXPERTISE

- **Domains & Architectures**: NLP, (Multimodal) LLMs, Human-AI Interaction, Agentic Workflows, Retrieval Systems (RAG).
- **Techniques**: Instruction Tuning (SFT), Reinforcement Learning, PEFT, Data Synthesis, Prompt Engineering.
- **Tools**: PyTorch, DeepSpeed, verl, vLLM, LangChain, Elasticsearch.

HONORS & AWARDS

National Scholarship — 2023
Extraordinary Academic Scholarship — 2021
Outstanding Graduate — 2021

COMPETITIONS

Kaggle: Feedback Prize - Evaluating Student Writing — Mar 2022 - Apr 2022
Silver Medal (3%, 43/2058)
Mathematical Contest in Modeling, MCM 2020 — Feb 2020 - Mar 2020
Meritorious Winner (8%, 564/7199)