

# Xiusi Chen

POSTDOCTORAL RESEARCH FELLOW · UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

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## Research Interests

- **Large Language Models (LLMs):** Especially low-resource LLM reasoning (*Gotta*, *MinPrompt*, *TPD*) and alignment (*IterAlign*, *RM-R1*).
- **Dynamics Modeling and Decision Making:** Especially planning tasks in the sports, science and finance domain (*ReLiable*, *PlayBest*, *DecisionFlow*).
- **AI + X Applications:** Especially in LLM agent tool use, retrieval and recommendation (*CP-LSH*, *BLaIR*, *ToolRL*, *OTC-PO*).

## Current Position

University of Illinois at Urbana-Champaign

POSTDOCTORAL RESEARCH FELLOW

- **Faculty Advisor:** Heng Ji

Urbana, IL, United States

Sept. 2024 - May. 2026 (expected)

## Education

University of California, Los Angeles

PH.D. IN COMPUTER SCIENCE

- **Thesis Committee:** Wei Wang (Chair, Advisor), Yizhou Sun, Kai-Wei Chang, Jeffrey Brantingham

Los Angeles, CA, United States

Sept. 2018 - Aug. 2024

Peking University

B.S. & M.S. IN COMPUTER SCIENCE

- **Thesis Committee:** Jun Gao, Bin Cui, and Ming Zhang

Beijing, China

Sept. 2011 - July 2018

## Selected Publications

Full Publications at Google Scholar: <https://scholar.google.com/citations?user=JqGAil4AAAAJ>

(\*: Equal contribution)

### RM-R1: Reward Modeling as Reasoning

Xiusi Chen\*, Gaotang Li\*, Ziqi Wang\*, Bowen Jin, Cheng Qian, Yu Wang, Hongru Wang, Yu Zhang, Denghui Zhang, Tong Zhang, Hanghang Tong, Heng Ji

ICLR 2026 150+ stars

### Beyond Log Likelihood: Probability-Based Objectives for Supervised Fine-Tuning across the Model Capability Continuum

Gaotang Li\*, Ruizhong Qiu\*, Xiusi Chen\*, Heng Ji, Hanghang Tong

arXiv preprint arXiv: 2510.00526

### DecisionFlow: Advancing Large Language Model as Principled Decision Maker

Xiusi Chen\*, Shanyong Wang\*, Cheng Qian\*, Hongru Wang\*, Peixuan Han, Heng Ji

EMNLP 2025 Findings

### MinPrompt: Graph-based Minimal Prompt Data Augmentation for Few-shot Question Answering

Xiusi Chen, Jyun-Yu Jiang, Wei-Cheng Chang, Cho-Jui Hsieh, Hsiang-Fu Yu, Wei Wang

ACL 2024

### ITERALIGN: Iterative Constitutional Alignment of Large Language Models

Xiusi Chen, Hongzhi Wen, Sreyashi Nag, Chen Luo, Qingyu Yin, Ruirui Li, Zheng Li, Wei Wang

NAACL 2024

### Professional Basketball Player Behavior Synthesis via Planning with Diffusion

Xiusi Chen, Wei-Yao Wang, Ziniu Hu, David Reynoso, Kun Jin, Mingyan Liu, P. Jeffrey Brantingham, Wei Wang

CIKM 2024

## **A Comprehensive Survey of Scientific Large Language Models and Their Applications in Scientific Discovery**

Yu Zhang\*, [Xiusi Chen](#)\*, Bowen Jin\*, Sheng Wang, Shuiwang Ji, Wei Wang, Jiawei Han

EMNLP 2024 [550+ stars](#)

## **TinyLLM: Learning a Small Student from Multiple Large Language Models**

Yijun Tian\*, Yikun Han\*, [Xiusi Chen](#)\*, Wei Wang, Nitech V. Chawla

WSDM 2025

## **GOTTA: Generative Few-shot Question Answering by Prompt-based Cloze Data Augmentation**

[Xiusi Chen](#), Yu Zhang, Jinliang Deng, Jyun-Yu Jiang, Wei Wang

SDM 2023 [Long Paper, Best Poster Award \(Honorable Mention\)](#)

## **RELIABLE: Offline Reinforcement Learning for Tactical Strategies in Professional Basketball Games**

[Xiusi Chen](#), Jyun-Yu Jiang, Kun Jin, Yichao Zhou, Mingyan Liu, Jefferey Brantingham, Wei Wang

CIKM 2022

## **Scalable Graph Representation Learning via Locality-Sensitive Hashing**

[Xiusi Chen](#), Jyun-Yu Jiang, Wei Wang

CIKM 2022

## **Large Scale Knowledge Washing**

Yu Wang, Ruihan Wu, Zexue He, [Xiusi Chen](#), Julian McAuley

ICLR 2025

## **Self-Updatable Large Language Models with Parameter Integration**

Yu Wang, Xinshuang Liu, [Xiusi Chen](#), Sean O'Brien, Junda Wu, Julian McAuley

ICLR 2025

## **Strategist: Learning Strategic Skills by LLMs via Bi-Level Tree Search**

Jonathan Light, Min Cai, Weiqin Chen, Guanzhi Wang, [Xiusi Chen](#), Wei Cheng, Yisong Yue, Ziniu Hu

ICLR 2025

## **MemoryLLM: Toward Self-Updating Large Language Models**

Yu Wang, Yifan Gao, [Xiusi Chen](#), Haoming Jiang, Shiyang Li, Jingfeng Yang, Qingyu Yin, Zheng Li, Xian Li, Bing Yin, Jingbo Shang, Julian McAuley

ICML 2024

## **Language Models as Semantic Indexers**

Bowen Jin, Hansi Zeng, Guoyin Wang, [Xiusi Chen](#), Tianxin Wei, Ruirui Li, Zhengyang Wang, Zheng Li, Yang Li, Hanqing Lu, Suhang Wang, Jiawei Han, Xianfeng Tang

ICML 2024

## **Weakly Supervised Multi-Label Classification of Full-Text Scientific Papers**

Yu Zhang, Bowen Jin, [Xiusi Chen](#), Yanzhen Shen, Yunyi Zhang, Yu Meng, Jiawei Han

KDD 2023

## **EscapeBench: Pushing Language Models to Think Outside the Box**

Cheng Qian, Peixuan Han, Qinyu Luo, Bingxiang He, [Xiusi Chen](#), Yuji Zhang, Hongyi Du, Jiarui Yao, Xiaocheng Yang, Denghui Zhang, Yunzhu Li, Heng Ji

ACL, 2025

## **SMART: Self-Aware Agent for Tool Overuse Mitigation**

Cheng Qian, Emre Can Acikgoz, Hongru Wang, [Xiusi Chen](#), Avirup Sil, Dilek Hakkani-Tür, Gokhan Tur, Heng Ji

ACL Findings, 2025

## **ToolRL: Reward is All Tool Learning Needs**

Cheng Qian, Emre Can Acikgoz, Qi He, Hongru Wang, [Xiusi Chen](#), Dilek Hakkani-Tür, Gokhan Tur, Heng Ji

NeurIPS, 2025

# Honors & Awards

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## ACADEMIC AWARDS

- 2023 **Best Poster Award (Honorable Mention)**, SIAM International Conference on Data Mining (SDM)
- 2023 **SIAM Student Travel Award**, SIAM
- 2022 **Student Travel Grant**, ACM SIGIR
- 2021 **Student Travel Grant**, ACM SIGIR
- 2016 **Leo KoGuan Fellowship (Top 2%)**, Peking University
- 2016 **Merit Student (Top 5%)**, Peking University
- 2015–2017 **Graduate Student Academic Fellowship (3-time Recipient)**, Peking University

## ATHLETIC RECOGNITION

- 2014 **3rd Place, Beijing Division**, 17th Chinese University Basketball Association (CUBA) Championships
- 2010 **6th Place, 100M Breaststroke**, High School Students Swimming Contest of Hunan Province

# Tutorials & Talks

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<b>Seminar Talk</b>	Northeastern University
TOWARDS AGENTIC REASONING AND ALIGNMENT OF LARGE LANGUAGE MODELS	Nov. 2025
<b>Guest Lecture, CS 6320: Natural Language Processing</b>	University of Texas at Dallas
TOWARDS AGENTIC REASONING AND ALIGNMENT OF LARGE LANGUAGE MODELS	Oct. 2025
<b>Invited Talk</b>	ByteDance Seed Research
POST-TRAINING DATA AND ALGORITHMS FOR LLM AGENTS	Sept. 2025
<b>Conference Tutorial</b>	NAACL 2025
LLMS AND COPYRIGHT RISKS: BENCHMARKS AND MITIGATION APPROACHES	May. 2025
<b>Invited Talk</b>	UIUC-NLP Seminar
DATA-CENTRIC KNOWLEDGE-ENHANCED REASONING AND ALIGNMENT OF LARGE LANGUAGE MODELS	Nov. 2024
<b>Invited Talk</b>	UCSD CSE Seminar
DATA-CENTRIC KNOWLEDGE-ENHANCED REASONING AND ALIGNMENT OF LARGE LANGUAGE MODELS	Jul. 2024

# Academic Service

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<b>Workshop Organizer</b>
• Structured Knowledge for Large Language Models (Sknow-LLM) Workshop at KDD 2025.
<b>Area Chair</b>
• ACL Rolling Review.
<b>Conference Program Committee</b>
• KDD (2020–2024), WSDM (2022–2024), WWW (2024), SSL@WWW (2021), ICML (2023–2025), NeurIPS (2022–2025), ICLR (2022–2026), AAAI (2021–2024), IJCAI-ECAI (2022–2024).
<b>Journal Reviewer</b>
• IEEE Transactions on Big Data (TBD), IEEE Transactions on Knowledge and Data Engineering (TKDE).
<b>Student Volunteer</b>
• KDD (2020, 2023).

# Industrial Experiences

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<b>Amazon AI</b>	June 2023 – Dec. 2023
APPLIED SCIENTIST INTERN — QUERY UNDERSTANDING TEAM	
<b>Amazon AI</b>	June 2022 – Sept. 2022
APPLIED SCIENTIST INTERN — PECOS TEAM	
<b>NEC Laboratories America — Data Science &amp; System Security</b>	June 2019 – Sept. 2019
RESEARCH INTERN	

Teaching Experience

<b>CS 245: Big Data Analysis</b>	University of California, Los Angeles
TEACHING ASSOCIATE	Fall 2020
<b>CS 143: Database Systems</b>	University of California, Los Angeles
TEACHING ASSISTANT	Spring 2020
<b>CS 31: Introduction to Computer Science</b>	University of California, Los Angeles
TEACHING ASSISTANT	Fall 2019, Winter 2020
<b>Introduction to Database Systems (Honor Track)</b>	Peking University
TEACHING ASSISTANT	Spring 2016
<b>Database Systems Principles and Technologies</b>	Peking University
TEACHING ASSISTANT	Fall 2016

Mentoring Experience

UIUC

- 2025 **Hongru Wang**, LLM Tool Use, Chinese University of Hong Kong
- 2024-Now **Cheng Qian**, LLM Tool Use, UIUC PhD Student
- 2024-Now **Gaotang Li**, LLM Alignment, UMich undergrad → UIUC PhD Student
- 2024-2025 **Shanyong Wang**, LLM for Decision Making, ShanghaiTech undergrad
- 2024-2025 **Xuehang Guo**, LLM Agent Memory, University of Pittsburgh → William & Mary PhD

UCLA

- 2023 **David Reynoso**, Diffusion Model for Decision Making, UCLA undergrad → UCLA MS