

# ZIXUAN KE

Website ◊ Github ( $\approx$ 1k stars) ◊ Google Scholar ( $\approx$ 2.5k citations, 25 h-index) ◊ zke4@uic.edu

## BIOGRAPHY

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I am a research scientist at the Salesforce AI Research. I build **lifelong agentic systems**, for an **ever-changing world** characterized by **emerging** domains, events, tools, experiences, or agents. My research advances this through: (1) **Reasoning and Agents (RL)** (Preprint26a,26b, TMLR25, ICLR25, SEA@NeurIPS25, NeurIPS25, ICLR26) (2) **Post-training (RL, SFT, CPT)** (EMNLP25, ACL24, ICLR23, EMNLP22a, 22b) (3) **Continual Learning** (ICML23, NeurIPS20,21,22, Preprint22) (4) **NLP** (EMNLP23, NAACL21, EMNLP21) (5) **Argument Mining** (ACL18,19; IJCAI18,19).

## EDUCATION

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<b>Ph.D., University of Illinois at Chicago</b> Ph.D. in Computer Science. GPA 4.0/4.0. Advisor: Bing Liu LLM Post-training and Continual Learning	<i>Aug. 2019 - May 2024</i>
<b>M.Sc., The University of Texas at Dallas</b> M.Sc. in Computer Science. Advisor: Vincent Ng Argument Mining	<i>Aug. 2017 - Jun. 2019</i>
<b>B.Sc., South China Agricultural University</b> B.Sc. in Computer Science	<i>Aug. 2013 - Jun. 2017</i>

## INDUSTRY EXPERIENCE

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<b>Salesforce AI Research, Research Scientist</b> Agents, Reasoning and Post-training. Manager: Shafiq Joty Preprint26, ICLR26, TMLR25, SEA@NeurIPS25, NeurIPS25, EMNLP25, ICLR25	<i>May 2024 - present, Palo Alto, CA</i>
<b>Google DeepMind, Research Intern</b> Retrieval-augmented Generation. Mentors: Weize Kong, Cheng Li, Mingyang Zhang and Qiaozhu Mei ACL24: Bridging the Preference Gap between Retrievers and LLMs	<i>Summer 2023, Mountain View, CA</i>
<b>Meta AI, Research Intern</b> Continual Conversational Summarization. Mentors: Haoran Li, Wenhan Xiong and Asli Celikyilmaz EMNLP23: Sub-network Discovery and Soft-masking for Continual Learning of Mixed Tasks	<i>Summer 2022, Menlo Park, CA</i>
<b>Amazon Science, Applied Scientist Intern</b> Multi-domain Imbalanced Learning. Mentors: Mohammad Kachuee and Sungjin Lee Preprint: Domain-Aware Contrastive Knowledge Transfer for Multi-domain Imbalanced Data	<i>Summer 2021, Seattle, WA</i>
<b>Tencent AI Lab, Research Intern</b> Document Grounded Dialogue Generation. Mentors: Chen Li and Xiaoyang Wang	<i>Summer 2020, Sunnyvale, CA (Remote)</i>
<b>Alibaba Group, Research Intern</b> Semantic Matching for E-commerce Search Engine. Mentors: Hongbo Deng	<i>Summer 2019, Hangzhou, China</i>
<b>IBM, Research Intern</b> Dialogue Act Classification for E-Commerce Chatbot.	<i>Summer 2016, Shenzhen, China</i>

## SELECTED PUBLICATIONS

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Full list on Google Scholar

- [1]  **MAS-Orchestra: Understanding and Improving Multi-Agent Reasoning Through Holistic Orchestration and Controlled Benchmarks**  
**Zixuan Ke**, Yifei Ming, Austin Xu, ..., Semih Yavuz, Caiming Xiong, Shafiq Joty  
*Preprint*, 2026
- [2]  **Demystifying Domain-adaptive Post-training for Financial LLMs**  
**Zixuan Ke**, Yifei Ming, Xuan-Phi Nguyen, Caiming Xiong, Shafiq Joty  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2025. **Oral, Best Paper Nomination**
- [3]  **MAS-Zero: Designing Multi-Agent Systems with Zero Supervision**  
**Zixuan Ke**, Austin Xu, Yifei Ming, Xuan-Phi Nguyen, Caiming Xiong, Shafiq Joty  
*SEA@NeurIPS*, 2025. **Oral**
- [4]  **A Survey of Frontiers in LLM Reasoning: Inference Scaling, Learning to Reason, and Agentic Systems**  
**Zixuan Ke**, Fangkai Jiao, Yifei Ming, ..., Silvio Savarese, Caiming Xiong, Shafiq Joty  
*NeurIPS Tutorial*, 2025; *TMLR*, 2025. **Survey Certification Award**
- [5]  **Beyond Accuracy: Dissecting Mathematical Reasoning for LLMs Under Reinforcement Learning**  
Jiayu Wang, Yifei Ming, **Zixuan Ke**, Caiming Xiong, Shafiq Joty  
*Advances in Neural Information Processing Systems (NeurIPS)*, 2025
- [6]  **LiveResearchBench: A Live Benchmark for User-Centric Deep Research in the Wild**  
Jiayu Wang, Yifei Ming, ..., **Zixuan Ke**, Caiming Xiong, Shafiq Joty  
*International Conference on Learning Representations (ICLR)*, 2026
- [7]  **FaithEval: Can Your Language Model Stay Faithful to Context, Even If “The Moon is Made of Marshmallows”**  
Yifei Ming, ..., **Zixuan Ke**, ..., Caiming Xiong, Shafiq Joty  
*International Conference on Learning Representations (ICLR)*, 2025
- [8]  **Bridging the Preference Gap between Retrievers and LLMs**  
**Zixuan Ke**, Weize Kong, Cheng Li, Mingyang Zhang, Qiaozhu Mei, Michael Bendersky  
*Association for Computational Linguistic (ACL)*, 2024
- [9]  **Continual Pre-training of Language Models**  
**Zixuan Ke\***, Yijia Shao\*, Haowei Lin\* and Bing Liu  
*International Conference on Learning Representations (ICLR)*, 2023
- [10]  **Sub-network Discovery and Soft-masking for Continual Learning of Mixed Tasks**  
**Zixuan Ke**, Bing Liu, Wenhan Xiong, Asli Celikyilmaz, and Haoran Li  
*Findings of Empirical Methods in Natural Language Processing (EMNLP-Findings)*, 2023
- [11]  **Parameter-level Soft-masking for Continual Learning**  
Tatsuya Konishi, Mori Kurokawa, Chihiro Ono, **Zixuan Ke**, Gyuhak Kim, and Bing Liu  
*International Conference on Machine Learning (ICML)*, 2023
- [12]  **Adapting a Language Model While Preserving its General Knowledge**  
**Zixuan Ke**, Yijia Shao, Haowei Lin, Hu Xu, Lei Shu and Bing Liu  
*Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2022a
- [13]  **Continual Training of Language Models for Few-Shot Learning**  
**Zixuan Ke**, Haowei Lin, Yijia Shao, Hu Xu, Lei Shu and Bing Liu  
*Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2022b
- [14]  **A Multi-Head Model for Continual Learning via Out-of-Distribution Replay**  
Gyuhak Kim, **Zixuan Ke**, Bing Liu  
*Conference on Lifelong Learning Agents (CoLLAs)*, 2022

- [15] **Continual learning of natural language processing tasks: A survey**  
**Zixuan Ke** and Bing Liu  
*Preprint*, 2022
- [16] **Achieving Forgetting Prevention and Knowledge Transfer in Continual Learning**  
**Zixuan Ke**, Bing Liu, Nainzu Ma, Hu Xu and Lei Shu  
*Advances in Neural Information Processing Systems (NeurIPS)*, 2021
- [17] **CLASSIC: Continual and Contrastive Learning of Aspect Sentiment Classification Tasks**  
**Zixuan Ke**, Bing Liu, Hu Xu and Lei Shu  
*Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021
- [18] **Adapting BERT for Continual Learning of a Sequence of Aspect Sentiment Classification Tasks**  
**Zixuan Ke**, Hu Xu and Bing Liu  
*Conference of the North American Chapter of Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*, 2021
- [19] **Continual Learning of a Mixed Sequence of Similar and Dissimilar Tasks**  
**Zixuan Ke**, Bing Liu and Xingchang Huang  
*Advances in Neural Information Processing Systems (NeurIPS)*, 2020
- [20] **Automated Essay Scoring: A Survey of The State of the Art**  
**Zixuan Ke** and Vincent Ng  
*International Joint Conference on Artificial Intelligence (IJCAI)*, 2019
- [21] **Give Me More Feedback II: Annotating Thesis Strength and Related Attributes in Student Essays**  
**Zixuan Ke**, Hrishikesh Inamdar, Hui Lin and Vincent Ng  
*Association for Computational Linguistic (ACL)*, 2019
- [22] **Learning to Give Feedback: Modeling Attributes Affecting Argument Persuasiveness in Student Essays**  
**Zixuan Ke**, Winston Carlile, Nishant Gurrapadi and Vincent Ng  
*International Joint Conference on Artificial Intelligence (IJCAI)*, 2018

## PROFESSIONAL ACTIVITIES

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### Invited Talks & Classes:

- Toward Effective and Efficient Multi-Agent Systems  
 Live Talk at CAMEL, Jan 23, 2026
- Adaptation of Large Lanaguge Models  
 Tutorial at NAACL (Solo Speaker), May 3, 2025  
 Talk at Visa Research, Mar 4, 2025
- Adapting Large Language Models for the Dynamic World  
 Talk at Snowflake, Feb 1, 2024  
 Talk at Salesforce AI Reseasrch, Jan 11, 2024  
 Talk at Google DeepMind, Nov 9, 2023
- Continual Pre-training in Language Models , Talk at ContinualAI, Remote, April 27, 2023.
- Continual Learning in NLP. Tutorial at DEIM23, Remote, March 6, 2023
- Lifelong and Continual Learning. A Short PhD Course, Aalborg University, 2022.

### Services:

- Area Chair: ICML, ACL Rolling Review
- PC Member: ICLR, NeurIPS, ICML, ACL Rolling Review, TPAMI, TKDE and more