

# ZIXUAN KE

Website ◊ Github (≈500 stars, 80 forks) ◊ Google Scholar (≈650 citations, 15 h-index) ◊ zke4@uic.edu

## BIOGRAPHY

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I am a final-year Ph.D. student at the University of Illinois, Chicago. I've published over 20 papers at prestigious conferences like ICLR, NeurIPS, ICML, ACL, NAACL, EMNLP, etc., earning about 650 citations. My research studies how to enhance the **foundation models**, particularly **large language models (LLMs)**, for an **ever-changing world**, and make their knowledge more **reusable** and **updatable**. This includes (but not limited to) (1) **Large Language Model (pre-training, post-training and frontiers, e.g., retrieval-augmented LLM, ranging from 1B to 540B)** - presented at ICLR23, EMNLP22a, EMNLP22b; (2) **Continual and Lifelong Learning (task, class, and domain-incremental)** - presented at ICML23, NeurIPS20,21,22; (3) **Natural Language Processing (classification, generation and extraction)** - presented at EMNLP23, NAACL21, EMNLP21; (4) **Argument Mining** - presented at 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 Large Language Model and Continual Learning	<i>Aug. 2019 - Present</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>Google Research, Research Intern</b> Retrieval-augmented LLM. Mentors: Weize Kong, Cheng Li, Mingyang Zhang and Qiaozhu Mei	<i>Summer 2023, Mountain View, CA</i>
<b>Meta AI, Research Intern</b> Continual Conversational Summarization. Mentors: Haoran Li, Wenhan Xiong and Asli Celikyilmaz Preprint: Sub-network Discovery and Soft-masking for Continual Learning of Mixed Tasks	<i>Summer 2022, Menlo Park, CA</i>
<b>Amazon Alexa AI, 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, 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>

## AWARDS AND PROFESSIONAL ACTIVITIES

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**Exceptional Research Premise** (the highest honor for CoE PhD students at UIC), 2023  
**Invited Talks:**

- Enhancing Large Language Models for a Dynamic World, Talk at Google Research, 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.

**PC Memeber (2021-):** ICLR, NeurIPS, ICML, ACL, EMNLP, NAACL, IJCAI, ARR, COLING

**Journal Reviewer:** TPAMI, TKDE, Neural Networks, Neurocomputing, Artificial Intelligence

## SELECTED PUBLICATIONS (FULL LIST IN GOOGLE SCHOLAR)

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### Continual Pre-training of Language Models

**Zixuan Ke**, Yijia Shao, Haowei Lin, Tatsuya Konishi, Gyuhak Kim, and Bing Liu

*International Conference on Learning Representations (ICLR)*, 2023

### 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

### 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

### 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

### 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

### 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

### 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

### Automated Essay Scoring: A Survey of The State of the Art

**Zixuan Ke** and Vincent Ng

*International Joint Conference on Artificial Intelligence (IJCAI)*, 2019

### 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