

ZIXUAN KE

Website ◊ Github (≈500 stars, 80 forks) ◊ Google Scholar (≈700 citations, 15 h-index) ◊ zke4@uic.edu

BIOGRAPHY

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

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

INDUSTRY EXPERIENCE

Google Research, Research Intern Retrieval-augmented LLM. Mentors: Weize Kong, Cheng Li, Mingyang Zhang and Qiaozhu Mei	<i>Summer 2023, Mountain View, CA</i>
Meta AI, Research Intern 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>
Amazon Alexa AI, Applied Scientist Intern 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>
Tencent AI Lab, Research Intern Document Grounded Dialogue Generation. Mentors: Chen Li and Xiaoyang Wang	<i>Summer 2020, Remote</i>
Alibaba Group, Research Intern Semantic Matching for E-commerce Search Engine. Mentors: Hongbo Deng	<i>Summer 2019, Hangzhou, China</i>
IBM, Research Intern Dialogue Act Classification for E-Commerce Chatbot.	<i>Summer 2016, Shenzhen, China</i>

AWARDS AND PROFESSIONAL ACTIVITIES

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)

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