

ZIXUAN KE

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

BIOGRAPHY

I am a final-year Ph.D. student at the University of Illinois, Chicago. My research studies how to make the knowledge in **foundation models**, particularly **large language models** (LLMs), 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)** - 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 *Aug. 2019 - Present*

Ph.D. in Computer Science. GPA 4.0/4.0. Advisor: Bing Liu
Large Language Model and Continual Learning

M.Sc., The University of Texas at Dallas *Aug. 2017 - Jun. 2019*

M.Sc. in Computer Science. Advisor: Vincent Ng
Argument Mining

B.Sc., South China Agricultural University *Aug. 2013 - Jun. 2017*

B.Sc. in Computer Science

INDUSTRY EXPERIENCE

Google Research, Research Intern *Summer 2023, Mountain View, CA*

Retrieval-augmented LLM. Mentors: Weize Kong, Cheng Li, Mingyang Zhang and Qiaozhu Mei

Meta AI, Research Intern *Summer 2022, Menlo Park, CA*

Continual Conversational Summarization. Mentors: Haoran Li, Wenhan Xiong and Asli Celikyilmaz
Preprint: Sub-network Discovery and Soft-masking for Continual Learning of Mixed Tasks

Amazon Alexa AI, Applied Scientist Intern *Summer 2021, Seattle, WA*

Multi-domain Imbalanced Learning. Mentors: Mohammad Kachuee and Sungjin Lee
Preprint: Domain-Aware Contrastive Knowledge Transfer for Multi-domain Imbalanced Data

Tencent AI Lab, Research Intern *Summer 2020, Remote*

Document Grounded Dialogue Generation. Mentors: Chen Li and Xiaoyang Wang

Alibaba Group, Research Intern *Summer 2019, Hangzhou, China*

Semantic Matching for E-commerce Search Engine. Mentors: Hongbo Deng

IBM, Research Intern *Summer 2016, Shenzhen, China*

Dialogue Act Classification for E-Commerce Chatbot.

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

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