

# Yu Wang

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## RESEARCH INTERESTS

**Equipping LLM with Human-like Memory: Lifelong Learning for LLMs** (Eliminating Continual Pretraining); **Long Context Language Modeling** (as a downstream task); **Multi-Modal Understanding and Generation: Multimodal Memory-Based Understanding** (Enabling LLM to hear and see); **Diffusion Models** (For image/video generation).

## EDUCATION

**University of California, San Diego**

*Sept. 2022 ~ present*

**PhD:** Computer Science Engineering

**Advisor:** Julian McAuley

**University of Science and Technology of China**

*Sept. 2018 ~ July 2022*

**BS:** School of the Gifted Young (Skipped the third year in high school)

**Overall GPA:** 3.95/4.3 (91.42/100)    **Ranking:** 2/28

**Advisor:** Xiangnan He

## WORK EXPERIENCE

**Amazon;** Mentor: Yifan Gao;

*June. 2023 ~ Dec. 2023*

**Topic: Emulating Human Memory: Towards Life-long Learning LLM**

**Details:** Equipped Large Language Models (LLMs) with an expansive memory pool in the form of latent space, which is uniquely designed to be updated solely through the forward pass. We have pretrained and validated memory-equipped models based on Llama-7B and Openllama-3B models.

## PREPRINT (UNDER REVIEW)

**LVChat: Facilitating Long Video Comprehension.** [PDF](#)

Yu Wang\*, Zeyuan Zhang\*, Julian McAuley, Zexue He.

**Generating, Reconstructing, and Representing Discrete and Continuous Data: Generalized Diffusion with Learnable Encoding-Decoding.** [PDF](#)

Guangyi Liu, **Yu Wang\***, Zeyu Feng\*, Qiyu Wu, Liping Tang, Yuan Gao, Zhen Li, Shuguang Cui, Julian McAuley, Eric P. Xing, Zichao Yang, Zhiting Hu.

**MemoryLLM: Towards Self-Updatable Large Language Models.** [PDF](#)

Yu Wang, Xiusi Chen, Jingbo Shang, Julian McAuley.

## PUBLICATIONS<sup>1</sup>

**A Fashion Item Recommendation Model in Hyperbolic Space.**

Ryotaro Shimizu, **Yu Wang**, Masanari Kimura, Yuki Hirakawa, Takashi Wada, Yuki Saito, Julian McAuley. Accepted to CVPR 2024 (Workshop).

**Deciphering Compatibility Relationships with Textual Descriptions via Extraction and Explanation.** [PDF](#)

**Yu Wang**, Zexue He, Zhankui He, Hao Xu, Julian McAuley.

Accepted to AAAI 2024.

**Robust and Interpretable Medical Image Classifiers via Concept Bottleneck Models.** [PDF](#)

An Yan, **Yu Wang**, Petros Karypis, Zexue He, Chengyu Dong, Zihan Wang, Yiwu Zhong, Jingbo Shang, Amilcare Gentili, Chun-Nan Hsu, Julian McAuley.

**MedEval: A Multi-Level, Multi-Task, and Multi-Domain Medical Benchmark for Language Model Evaluation.** [PDF](#)

Zexue He, **Yu Wang**, An Yan, Yao Liu, Eric Y Chang, Amilcare Gentili, Julian McAuley, Chun-Nan Hsu. Accepted to EMNLP 2023.

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<sup>1</sup>The mark “\*” on the names means equal contribution.

**Learning Concise and Descriptive Attributes for Visual Recognition.** [PDF](#)

An Yan\*, **Yu Wang\***, Yiwu Zhong, Chengyu Dong, Zexue He, Yujie Lu, William Yang Wang, Jingbo Shang, Julian McAuley.

Accepted to ICCV 2023.

**Probabilistic and Variational Label Denoising.**

**Yu Wang**, Xin Xin, Zaiqiao Meng, Xiangnan He, Joemon Jose, Fuli Feng.

**Controlling Bias Exposure for Fair Interpretable Predictions** [PDF](#)

Zexue He, **Yu Wang**, Julian McAuley, Bodhisattwa Prasad Majumder.

Accepted to EMNLP 2022 (findings).

**AutoOD: Automatic Outlier Detection.** [PDF](#)

Lei Cao, Yizhou Yan, **Yu Wang**, Samuel Madden, Elke A. Rundensteiner.

Accepted to SIGMOD 2023.

**Improving Out-of-Distribution Robustness via Selective Augmentation.** [PDF](#)

Huaxiu Yao\*, **Yu Wang\***, Sai Li, Weixin Liang, Linjun Zhang, James Zou, Chelsea Finn.

Accepted to ICML 2022.

**Learning Robust Recommenders through Cross-Model Agreement.** [PDF](#)

**Yu Wang**, Xin Xin, Zaiqiao Meng, Xiangnan He, Joemon Jose, Fuli Feng.

Accepted to WWW 2022.

**Meta-learning with an Adaptive Task Scheduler.** [PDF](#)

Huaxiu Yao\*, **Yu Wang\***, Peilin Zhao, Mehrdad Mahdavi, Defu Lian, Ying Wei, Chelsea Finn

Accepted to NeurIPS 2021.

**AWARDS AND HONORS**

- Rose Fund New Lotus Scholarship (For outstanding research achievements). USTC, 2021.
- Baosteel Scholarship (One out of 402 students in School of the Gifted Young). USTC, 2021.
- Rose Fund Public Affairs Scholarship (For active leadership). USTC, 2021.
- Cyrus Tang Foundation Moral Education Scholarship. USTC, 2020.
- Huawei Scholarship (Top 3% of class). USTC, 2020.
- Excellent Student Scholarship – Gold (Top 3% of class). USTC, 2019.
- Provincial first prize in College Mathematics Competition(At most Top 7%). Anhui Province, 2019.