Peiyan, Zhang

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EDUCATION

The Hong Kong University of Science and Technology — Hong Kong, China
PhD candidate in Computer Science and Engineering — 2020 - Present
Supervisor: Prof. Sunghun KIM

Beijing Institute of Technology — Beijing, China
B.S. in Computer Science, GPA: 3.94/4.0, Rank in Department: 1/193 — July 2020

WORK EXPERIENCE

Beijing Academy of Artificial Intelligence, Beijing — 06/2023—Present
Research Intern, supervised by Zheng Liu
Subject: *Open Source Large Language Models (LLM): Aquila*

- We participate in the development of the Aquila, a large language model that technically inherits the architectural design advantages of GPT-3, LLaMA, etc.
- For Aquila, I focus on developing **retrieval-oriented pre-training algorithms** and end-to-end optimized information retrieval systems.

Microsoft Research Asia, Beijing — 03/2022—04/2023
Research Intern, supervised by **Chaozhuo Li**, **Xing Xie**.
Subject: *Trustworthy Recommendation (privacy concerns, interpretability, and robustness issues)*

- We develop a light-weight and effective makeup recommender system that has outperformed existing models in Zamface. Now It has been deployed by Zamface for daily online recommendation.
- A paper based on this project has been accepted by **WSDM 2023** and won the **Best Paper Award - Honorable Mention**.
- We have won the **Winners of Amazon KDD Cup 2023 Challenge** **(3rd Place)**.

Subject: *Graph-enhanced Recommendation (time series analysis, sequential-based data mining, graph-based data mining)*

- We propose to model the continuity of user preference along time in a fully continuous manner with Neural ODE. Interactions with items are regraded as samples of continuous preference.
- A paper based on this project has been accepted by **CIKM 2022**.

Subject: *Continual Learning for Recommender Systems*

- We focus on the gap between academic research and industrial applications for recommender systems, i.e., the continual learning issues when recommender systems are deployed in reality.
- We propose a well-formulated continual graph learning method to bridge this gap and theoretically justify the ability of our method.
- A paper based on this project has been accepted by **SIGIR 2023** (**Oral Presentation**)
- A survey paper based on this project will be submitted to TOIS.

Subject: *Representation Learning on Textual-attributed Graphs (TAGs)*

- We propose five self-supervised optimization objectives to maximize the mutual information of context information in different forms or granularities.
- We systematically examine the fundamental limitations of spectral contrastive loss from the perspective of the spectral domain. We prove that it learns the low-frequency components and propose a novel contrastive learning objective that makes the learned embeddings more discriminative.
- A paper based on this project will be submitted to TOIS.
- I have won the **Award of Excellence of Stars of Tomorrow Internship Program in Microsoft Research Asia** (Top 10%).
- Our research outcomes have contributed to a series of **product-driven projects in Microsoft**, i.e., **Bing Sponsored Search**, **Microsoft News**, etc.

SELECTED PUBLICATION

Continual Learning on Dynamic Graphs via Parameter Isolation
Peiyan Zhang*, Yuchen Yan*, Chaozhuo Li, Senzhang Wang, Xing Xie, Guojie Song, Sunghun Kim
SIGIR, 2023

Efficiently Leveraging Multi-level User Intent for Session-based Recommendation via Atten-Mixer Network
Peiyan Zhang*, Jiayan Guo*, Chaozhuo Li, Yueqi Xie, Jaeboum Kim, Yan Zhang, Xing Xie, Haohan Wang, Sunghun Kim
WSDM, 2023 Best Paper Honorable Mention (Top 2%)

A Survey on Incremental Update for Neural Recommender Systems
Peiyan Zhang, Sunghun Kim
Arxiv, 2023

Evolutionary Preference Learning via Graph Nested GRU ODE for Session-based Recommendation
Jiayan Guo*, **Peiyan Zhang***, Chaozhuo Li, Xing Xie, Yan Zhang, Sunghun Kim
CIKM, 2022

Word shape matters: Robust machine translation with visual embedding
Haohan Wang, **Peiyan Zhang**, Eric P Xing
Arxiv, 2020

HONORS AND AWARDS

Merit-based Scholarship

- Award of Excellence of Stars of Tomorrow Internship Program in Microsoft Research Asia (Top 10%) 04/2023
- Best Paper Award - Honorable Mention in WSDM 2023 03/2023
- HKUST RedBird PhD Scholarship 10/2020
- Graduate Excellence Award of Beijing (top 1%) 08/2020
- National Scholarship for 2018-2019 Academic Year (top 0.2%) 10/2019
- National Scholarship for 2017-2018 Academic Year (top 0.2%) 10/2018
- National Scholarship for 2016-2017 Academic Year (top 0.2%) 10/2017
- Excellent Student Leader (twice) (top 1.5%) 04/2019 ¦ 04/2018
- Outstanding Student Model (twice) (top 1.5%) 10/2019 ¦ 10/2018
- First-class Scholarship (for six semesters) (top 4%) 10/2019 ¦ 03/2019 ¦ 10/2018 ¦ 03/2018 ¦ 10/2017 ¦ 03/2017

Selected Competition Award

- Winners of Amazon KDD Cup 2023 Challenge (3rd Place) 07/2023
- First Prize of Dots and Boxes Project in the 13th China Computer Game Championship 10/2019
- Second Prize of FIRA 5 vs 5 Project in 2019 China Robot Competition 09/2019
- Honorable Mention in Mathematical Contest in Modeling/Interdisciplinary Contest in Modeling 2019 04/2019
- Third Place in the Simulation Game of the Medium Size Group in 2018 China Robot Competition 08/2018
- Second Prize of FIRA 11 vs 11 Project in 2018 China Robot Competition 08/2018