MIS590: Paper Critique Assignment Handout

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September 4, 2024

Overview

For this assignment, you are to read and critically evaluate a paper from the provided reading list. This assignment is designed to help you:

1. Gain experience in critically analyzing scientific materials.
2. Develop skills in writing academic papers in English.
3. Become familiar with using LaTeX for document preparation.

Instructions

1. Choose one paper from the reading list provided in the course materials.
2. Read the selected paper carefully, ensuring you understand the key concepts, arguments, methodology, and conclusions.
3. Write a two-page paper critique that includes:
   - **Summary of The Findings in The Paper:** Demonstrate your understanding of the key concepts and arguments presented in the paper.
   - **Critical Analysis:** Provide a detailed and insightful critical analysis, evaluating the strengths and weaknesses of the paper.
   - **Potential Research Direction:** Suggest one or two follow-up research ideas that are not mentioned in the paper.
4. Use the provided LaTeX template to write your critique.
5. The critique should be written in standard English.

Submission

- The report should follow the current ACM two-column conference format, with the document class set as follows: `documentclass[sigconf,natbib=true,anonymous=true]{acmart}`
- Submit your critique as a PDF file generated from the LaTeX code.
- Deadline: **2024/12/14**

Evaluation

The total points for this assignment are 100. Your critique will be evaluated based on the following rubric:

Criteria	Points	Description
Understanding of Key Concepts	23-25	Demonstrates a thorough and insightful understanding of the key concepts and arguments presented in the paper.
	18-22	Shows a clear understanding of the key concepts and arguments with minor inaccuracies or omissions.
	13-17	Demonstrates a basic understanding of the key concepts but lacks depth and includes several inaccuracies.
	7-12	Shows limited understanding of the key concepts and arguments with significant inaccuracies.
	0-6	Fails to demonstrate understanding of the key concepts and arguments presented in the paper.
Critical Analysis	23-25	Provides a detailed and insightful critical analysis, effectively evaluating the strengths and weaknesses of the paper.
	18-22	Offers a solid critical analysis with some evaluation of strengths and weaknesses.
	13-17	Provides a basic critical analysis but lacks depth and balance in evaluating strengths and weaknesses.
	7-12	Shows limited critical analysis with minimal evaluation of strengths and weaknesses.
	0-6	Fails to provide a critical analysis or evaluation of the paper.
Organization and Clarity	23-25	The reflection is well-organized and clearly written, with logical flow and coherence throughout.
	18-22	The reflection is organized and clear, with minor issues in flow or coherence.
	13-17	The reflection is somewhat organized but has issues with clarity and coherence.
	7-12	The reflection lacks organization and clarity, making it difficult to follow.
	0-6	The reflection is poorly organized and unclear, making it difficult to understand.
Writing Mechanics	23-25	Writing is free of errors in grammar, punctuation, and spelling.
	18-22	Writing contains minor errors in grammar, punctuation, or spelling that do not interfere with understanding.
	13-17	Writing contains several errors in grammar, punctuation, or spelling that occasionally interfere with understanding.
	7-12	Writing contains numerous errors in grammar, punctuation, or spelling that frequently interfere with understanding.
	0-6	Writing contains pervasive errors in grammar, punctuation, or spelling that significantly interfere with understanding.

AI Guidelines

Please refer to the Guidelines for the Use of Generative Artificial Intelligence (AI) Tools provided by the Office of Academic Affairs. **Any violation of these guidelines will result in zero points for this assignment.**

Paper List

Vector Space Models

1. Haojie Li, Wei Wei, Guanfeng Liu, Jinhuan Liu, Feng Jiang, and Junwei Du. 2024. Intent Distribution based Bipartite Graph Representation Learning. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1649–1658. https://doi.org/10.1145/3626772.3657739

2. Peng, L., Zhang, Y., Wang, Z., Srinivasa, J., Liu, G., Wang, Z., & Shang, J. (2024). Answer is All You Need: Instruction-following Text Embedding via Answering the Question. Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.27

Attention Models

1. Yuxiang Wang, Xiaoxuan Gou, Xiaoliang Xu, Yuxia Geng, Xiangyu Ke, Tianxing Wu, Zhiyuan Yu, Runhuai Chen, and Xiangying Wu. 2024. Scalable Community Search over Large-scale Graphs based on Graph Transformer. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1680–1690. https://doi.org/10.1145/3626772.3657771

2. Ping Guo, Yubing Ren, Yue Hu, Yanan Cao, Yunpeng Li, and Heyan Huang. 2024. Steering Large Language Models for Cross-lingual Information Retrieval. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 585–596. https://doi.org/10.1145/3626772.3657819

3. Schlatt, F., Fröbe, M., Hagen, M. (2024). Investigating the Effects of Sparse Attention on Cross-Encoders. In: Goharian, N., et al. Advances in Information Retrieval. ECIR 2024. Lecture Notes in Computer Science, vol 14608. Springer, Cham. https://doi.org/10.1007/978-3-031-56027-9_11

Learning to Rank

1. Weijie Zhao, Shulong Tan, and Ping Li. 2024. GUITAR: Gradient Pruning toward Fast Neural Ranking. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 163–173. https://doi.org/10.1145/3626772.3657728

2. Sruthi Gorantla, Eshaan Bhansali, Amit Deshpande, and Anand Louis. 2024. Optimizing Learning-to-Rank Models for Ex-Post Fair Relevance. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1525–1534. https://doi.org/10.1145/3626772.3657751

3. Dan Luo, Lixin Zou, Qingyao Ai, Zhiyu Chen, Chenliang Li, Dawei Yin, and Brian D. Davison. 2024. Unbiased Learning-to-Rank Needs Unconfounded Propensity Estimation. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1535–1545. https://doi.org/10.1145/3626772.3657772

4. Ekaterina Khramtsova, Shengyao Zhuang, Mahsa Baktashmotlagh, and Guido Zuccon. 2024. Leveraging LLMs for Unsupervised Dense Retriever Ranking. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1307–1317. https://doi.org/10.1145/3626772.3657798

Search Engines

1. Paul Thomas, Seth Spielman, Nick Craswell, and Bhaskar Mitra. 2024. Large Language Models can Accurately Predict Searcher Preferences. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1930–1940. https://doi.org/10.1145/3626772.3657707

2. Alireza Salemi and Hamed Zamani. 2024. Towards a Search Engine for Machines: Unified Ranking for Multiple Retrieval-Augmented Large Language Models. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 741–751. https://doi.org/10.1145/3626772.3657733

3. Yan Fang, Jingtao Zhan, Qingyao Ai, Jiaxin Mao, Weihang Su, Jia Chen, and Yiqun Liu. 2024. Scaling Laws For Dense Retrieval. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1339–1349. https://doi.org/10.1145/3626772.3657743

4. Kaihang Pan, Juncheng Li, Wenjie Wang, Hao Fei, Hongye Song, Wei Ji, Jun Lin, Xiaozhong Liu, Tat-Seng Chua, and Siliang Tang. 2024. I3: Intent-Introspective Retrieval Conditioned on Instructions. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1839–1849. https://doi.org/10.1145/3626772.3657745

Knowledge Bases and Knowledge Graphs

1. Zhiyu Fang, Shuai-Long Lei, Xiaobin Zhu, Chun Yang, Shi-Xue Zhang, Xu-Cheng Yin, and Jingyan Qin. 2024. Transformer-based Reasoning for Learning Evolutionary Chain of Events on Temporal Knowledge Graph. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 70–79. https://doi.org/10.1145/3626772.3657706

2. Ruijie Wang, Yutong Zhang, Jinyang Li, Shengzhong Liu, Dachun Sun, Tianchen Wang, Tianshi Wang, Yizhuo Chen, Denizhan Kara, and Tarek Abdelzaher. 2024. MetaHKG: Meta Hyperbolic Learning for Few-shot Temporal Reasoning. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 59–69. https://doi.org/10.1145/3626772.3657711

3. Gu Tang, Xiaoying Gan, Jinghe Wang, Bin Lu, Lyuwen Wu, Luoyi Fu, and Chenghu Zhou. 2024. EditKG: Editing Knowledge Graph for Recommendation. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 112–122. https://doi.org/10.1145/3626772.3657723

4. Yu Zhao, Ying Zhang, Baohang Zhou, Xinying Qian, Kehui Song, and Xiangrui Cai. 2024. Contrast then Memorize: Semantic Neighbor Retrieval-Enhanced Inductive Multimodal Knowledge Graph Completion. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 102–111. https://doi.org/10.1145/3626772.3657838

Recommender Systems

1. Zhu Sun, Hongyang Liu, Xinghua Qu, Kaidong Feng, Yan Wang, and Yew Soon Ong. 2024. Large Language Models for Intent-Driven Session Recommendations. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 324–334. https://doi.org/10.1145/3626772.3657688

2. Jiayi Liao, Sihang Li, Zhengyi Yang, Jiancan Wu, Yancheng Yuan, Xiang Wang, and Xiangnan He. 2024. LLaRA: Large Language-Recommendation Assistant. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1785–1795. https://doi.org/10.1145/3626772.3657690

3. Jiaju Chen, Wang Wenjie, Chongming Gao, Peng Wu, Jianxiong Wei, and Qingsong Hua. 2024. Treatment Effect Estimation for User Interest Exploration on Recommender Systems. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1861–1871. https://doi.org/10.1145/3626772.3657736

4. Xiaokun Zhang, Bo Xu, Zhaochun Ren, Xiaochen Wang, Hongfei Lin, and Fenglong Ma. 2024. Disentangling ID and Modality Effects for Session-based Recommendation. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1883–1892. https://doi.org/10.1145/3626772.3657748

5. Jin Huang, Harrie Oosterhuis, Masoud Mansoury, Herke van Hoof, and Maarten de Rijke. 2024. Going Beyond Popularity and Positivity Bias: Correcting for Multifactorial Bias in Recommender Systems. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 416–426. https://doi.org/10.1145/3626772.3657749

Large Language Models

1. Jiabin Tang, Yuhao Yang, Wei Wei, Lei Shi, Lixin Su, Suqi Cheng, Dawei Yin, and Chao Huang. 2024. GraphGPT: Graph Instruction Tuning for Large Language Models. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 491–500. https://doi.org/10.1145/3626772.3657775

2. Yankun Ren, Zhongde Chen, Xinxing Yang, Longfei Li, Cong Jiang, Lei Cheng, Bo Zhang, Linjian Mo, and Jun Zhou. 2024. Enhancing Sequential Recommenders with Augmented Knowledge from Aligned Large Language Models. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 345–354. https://doi.org/10.1145/3626772.3657782

3. Hengran Zhang, Ruqing Zhang, Jiafeng Guo, Maarten de Rijke, Yixing Fan, and Xueqi Cheng. 2024. Are Large Language Models Good at Utility Judgments? In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1941–1951. https://doi.org/10.1145/3626772.3657784

4. Ruiwen Zhou, Yingxuan Yang, Muning Wen, Ying Wen, Wenhao Wang, Chunling Xi, Guoqiang Xu, Yong Yu, and Weinan Zhang. 2024. TRAD: Enhancing LLM Agents with Step-Wise Thought Retrieval and Aligned Decision. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 3–13. https://doi.org/10.1145/3626772.3657788

5. Dalal, D., Valentino, M., Freitas, A., & Buitelaar, P. (2024). Inference to the Best Explanation in Large Language Models. Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.14

6. Kumar, A., Morabito, R., Umbet, S., Kabbara, J., & Emami, A. (2024). Confidence Under the Hood: An Investigation into the Confidence-Probability Alignment in Large Language Models. Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.20

7. Xu, S., Pang, L., Yu, M., Meng, F., Shen, H., Cheng, X., & Zhou, J. (2024). Unsupervised Information Refinement Training of Large Language Models for Retrieval-Augmented Generation. Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.9

Human in IR

1. Catherine Chen and Carsten Eickhoff. 2024. Evaluating Search System Explainability with Psychometrics and Crowdsourcing. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1051–1061. https://doi.org/10.1145/3626772.3657796

2. Lin, I., Sharma, A., Rytting, C., Miner, A., Suh, J., & Althoff, T. (2024). IMBUE: Improving Interpersonal Effectiveness through Simulation and Just-in-time Feedback with Human-Language Model Interaction. In L.-W. Ku, A. Martins, & V. Srikumar (Eds.), Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers) (pp. 810–840). Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.47

3. Weber-Genzel, L., Peng, S., De Marneffe, M.-C., & Plank, B. (2024). VariErr NLI: Separating Annotation Error from Human Label Variation. In L.-W. Ku, A. Martins, & V. Srikumar (Eds.), Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers) (pp. 2256–2269). Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.123

Other Topic

1. Mousa Arraf and Kira Radinsky. 2024. CIQA: A Coding Inspired Question Answering Model. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1973–1983. https://doi.org/10.1145/3626772.3657830

2. Huimin Zeng, Zhankui He, Zhenrui Yue, Julian McAuley, and Dong Wang. 2024. Fair Sequential Recommendation without User Demographics. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 395–404. https://doi.org/10.1145/3626772.3657703

3. Chen Xu, Xiaopeng Ye, Wenjie Wang, Liang Pang, Jun Xu, and Tat-Seng Chua. 2024. A Taxation Perspective for Fair Re-ranking. In Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '24). Association for Computing Machinery, New York, NY, USA, 1494–1503. https://doi.org/10.1145/3626772.3657766

4. Felkner, V., Thompson, J., & May, J. (2024). GPT is Not an Annotator: The Necessity of Human Annotation in Fairness Benchmark Construction. In Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers) (pp. 14104–14115). Association for Computational Linguistics. https://aclanthology.org/2024.acl-long.760