Zaiqiao Meng | 蒙在桥

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Research Interests

- **Natural Language Understanding and Reasoning**: combining natural language models with knowledge graphs and reasoning techniques to enhance various tasks such as document classification, named entity recognition, entity linking, question answering.
- **Biomedical Informatics**: combining natural language processing, knowledge graph, epidemiology, biomedical informatics and bioethics to address complex biomedical task.
- **Machine Learning on Relational Data:** building practical machine learning and representation learning models to handling complex, dynamic relational data.
- **Recommender Systems**: modelling various side information, such as user social, item textual and their dynamics in recommenders systems

Education

- **Sun Yat-sen University** — **Guangzhou, China**
  Ph.D. in Computer Science, *Adviser:Hong Shen* — *December 2018*
- **Guangdong University of Technology** — **Guangzhou, China**
  M.Eng. in Computer Science, — *July 2014*
- **Jiangxi University of Science and Technology** — **Ganzhou, China**
  B.Eng. in Computer Science, — *July 2010*

Work Experience

- **University of Cambridge** — **Cambridge, UK**
  Research Associate, *Adviser: Nigel Collier* — *July 2020 - Present*
  Work on the EPI-AI project, a ESRC project aiming at Automated Understanding and Alerting of Disease Outbreaks from Global News Media.
  - Work on infusing biomedical knowledges (e.g. UMLS) into pretrained language models (e.g. BioBERT).
  - Implement various NLP models for the EPI-AI project, including document classification, entity linking, NER and question answering.
  - Co-supervise master and Ph.D. students.
- **University of Glasgow** — **Glasgow, UK**
  Research Assistant, *Adviser: Iadh Ounis* — *March 2019 - July 2020*
  Work on the bigdatastack project, a project funded under the European Commission Horizon 2020 Work Programme.
  - Work on the research task of Grocery Recommender Systems, proposed new models that consider various involving side information and improve the recommendation effectiveness.
  - Initialise and led the Beta-Recsys project, an open source project for Building, Evaluating and Tuning Automated Recommender Systems.
  - Co-supervise master and Ph.D. students.

- **King Abdullah University of Science and Technology** **Thuwal, Saudi Arabia**
  Visiting PhD, *Adviser: Xiangliang Zhang* *March 2018 - August 2018*
  - Worke on the research task of (dynamic) attributed network embedding, proposed two effective embedding models that can benefit various applications such as link prediction and node classification.

Teaching Experience

- **Guest Lecturer**: Recommender Systems, University of Glasgow *2021*
- **Guest Lecturer, Lab Tutor**: Recommender Systems, University of Glasgow *2020*

Selected Talks

1. **University of Glasgow** **Virtual**
   Biomedical Knowledge-Enhanced Language Modelling *15-Feb-2021*
2. **SIGIR2020 - TOIS invited talk** **Virtual**
   Jointly Learning Representations of Nodes and Attributes for Attributed Networks *27-July-2020*
3. **University of Glasgow** **Glasgow, UK**
   Variational Bayesian Context-aware Representation for Grocery Recommendation *24-Oct-2019*

Publications

- **Google Scholar Citations: 237**
- **H-index: 8**
- **Core A* papers: 8**
- **Core A papers: 6**

* indicates equal contributions; † indicates corresponding author(s) Publication information updated on 10 June 2021

Conference Papers

1. Jinyuan Fang, Shangsong Liang, **Zaiqiao Meng** and Qiang Zhang. Gaussian Process with Graph Convolutional Kernel for Relational Learning. *SIGKDD* 2021. (Core A*, CCF A)
2. Siyuan Liao, Shangsong Liang, **Zaiqiao Meng** and Qiang Zhang. Learning Dynamic Embeddings for Temporal Knowledge Graphs. *WSDM* 2021. (Core A*, CCF B)
3. Fangyu Liu, Ehsan Shareghi, **Zaiqiao Meng**, Marco Basaldella and Nigel Collier. Self-alignment Pre-training for Biomedical Entity Representations. *NAACL* 2021. (Core A, CCF C)
4. Jinpeng Wang, Bin Chen, Qiang Zhang, **Zaiqiao Meng**, Shangsong Liang and Shutao Xia. Weakly Supervised Deep Hyperspherical Quantization for Image Retrieval. *AAAI* 2021. (Core A*, CCF A)
5. **Zaiqiao Meng**, Richard McCreadie, Craig Macdonald, Iadh Ounis, and others, BETA-Rec: Build, Evaluate and Tune Automated Recommender Systems. *ACM RecSys* 2020. (Core A)
6. **Zaiqiao Meng**, Richard McCreadie, Craig Macdonald, Iadh Ounis, Exploring Data Splitting Strategies for the Evaluation of Recommendation Models. *ACM RecSys* 2020. (Core A)
7. Siwei Liu, Iadh Ounis, Craig Macdonald, **Zaiqiao Meng**. A Heterogeneous Graph Neural Model for Cold-start Recommendation. *SIGIR* 2020. (Core A*, CCF A)
8. **Zaiqiao Meng**, Jinyuan Fang, Shangsong Liang, Teng Xiao. Semi-supervisedly Co-embedding Attributed Networks. *NeurIPS* 2019. (Core A*, CCF A)
9. **Zaiqiao Meng**, Shangsong Liang, Xiangliang Zhang. Co-Embedding Attributed Networks. *WSDM* 2019. (Core A*, CCF B)
10. Teng Xiao, Jiaxin Ren, **Zaiqiao Meng**, Huan Sun, Shangsong Liang. Dynamic Bayesian Metric Learning for Personalized Product Search. *CIKM* 2019. (Core A, CCF B)
11. Yupeng Luo, Shangsong Liang, **Zaiqiao Meng**. Constrained Co-embedding for User Profile in Community Question Answering. *CIKM* 2019. (Core A, CCF B)

12. Teng Xiao, Shangsong Liang, **Zaiqiao Meng**. Dynamic Collaborative Recurrent Learning. *CIKM* 2019. (Core A, CCF B)
13. Teng Xiao, Shangsong Liang, Wenzhou Shen, **Zaiqiao Meng**. Bayesian Deep Collaborative Matrix Factorization. *AAAI* 2019. (Core A*, CCF A)
14. Teng Xiao, Shangsong Liang, **Zaiqiao Meng**. Hierarchical Neural Variational Model for Personalized Sequential Recommendation. *WWW* 2019, Short paper. (Core A*, CCF A)
15. **Zaiqiao Meng**, Hong Shen. NMFDIV: A Nonnegative Matrix Factorization Approach for Search Result Diversification on Attributed Networks. *PDCAT*. 2017. (Core B)

Journal Articles

1. Shangsong Liang, Yupeng Luo, **Zaiqiao Meng**†. Profiling Users for Question Answering Communities via Flow-based Constrained Co-embedding Model. *ACM Transactions on Information Systems*, 2021. (CCF A, IF. 4.676)
2. Huimin Huang, **Zaiqiao Meng**†, Hong Shen. Competitive and complementary influence maximization in social network: A follower's perspective. *Knowledge-Based Systems*. 2021. (CCF B, IF. 5.921)
3. **Zaiqiao Meng**, Shangsong Liang, Xiangliang Zhang, Richard McCreadie, Iadh Ounis. Jointly Learning Representations of Nodes and Attributes for Attributed Networks. *ACM Transactions on Information Systems*. 2020. (CCF A, IF. 4.676)
4. Huimin Huang, Hong Shen, **Zaiqiao Meng**. Community-based influence maximization in attributed networks. *Applied Intelligence*. 2020. (CCF C, IF. 3.325)
5. **Zaiqiao Meng**, Hong Shen. Fast top-k similarity search in large dynamic attributed networks. *Information Processing & Management.* 2019. (CCF B, IF. 4.787)
6. Huimin Huang, **Zaiqiao Meng**†, Shangsong Liang. Recurrent neural variational model for follower-based influence maximization. *Information Sciences* 2020. (CCF B, IF. 5.910)
7. Huimin Huang, Hong Shen, **Zaiqiao Meng**, Item diversified recommendation based on influence diffusion. *Information Processing & Management*, 2019. (CCF B, IF. 4.787)
8. **Zaiqiao Meng**, Hong Shen. Scalable Aspects Learning for Intent-aware Diversified Search on Social Networks. *IEEE* Access. 2018. (IF. 3.745)
9. **Zaiqiao Meng**, Hong Shen, Huimin Huang, Wei Liu, Jing Wang, Arun Kumar Sangaiah. Search Result Diversification on Attributed Networks via Nonnegative Matrix Factorization. *Information Processing and Management*. 2018. (CCF B, IF. 4.787)
10. **Zaiqiao Meng**, Hong Shen. Dissimilarity-Constrained Node Attribute Coverage Diversification for Novelty-Enhanced Top-k Search in Large Attributed Networks. *Knowledge-Based Systems*. 2018. (CCF B, IF. 5.921)

Technique Reports

1. **Zaiqiao Meng**, Richard McCreadie, Craig Macdonald, Iadh Ounis. Variational Bayesian Context-aware Representation for Grocery Recommendation. CARS2.0 Workshop at RecSys. 2019.

Under Review

1. **Zaiqiao Meng**, Fangyu Liu, Thomas Clark, Ehsan Shareghi and Nigel Collier. Mixture-of-Partitions: Infusing Large Biomedical Knowledge Graphs into BERT. *Submitted to EMNLP2021*.
2. Yixuan Su, **Zaiqiao Meng**, Simon Baker and Nigel Collier. Few-Shot Table-to-Text Generation with Prototype Memory. *Submitted to EMNLP2021*.
3. **Zaiqiao Meng**, Richard McCreadie, Craig Macdonald, Iadh Ounis. Temporal Variational Bayesian Representation Learning for Grocery Recommendation. *Submitted to ACM Transactions on Information Systems*.
4. **Zaiqiao Meng***, Siwei Liu*, Craig Macdonald, Iadh Ounis. Graph Neural Pre-training for Recom-

mendation with Side Information. *Submitted to RecSys2021*.

5. Yaoxin Pan, Shangsong Liang, Jiaxin Ren, **Zaiqiao Meng**, Qiang Zhang. Personalized, Sequential, Attentive, Metric-Aware Product Search. *Submitted to ACM Transactions on Information Systems*.
6. Jinyuan Fang, Shangsong Liang, **Zaiqiao Meng**, Maarten de Rijke. Hyperspherical Variational Co-embedding for Attributed Networks. *Submitted to ACM Transactions on Information Systems*.
7. Shaowei Tang*, **Zaiqiao Meng***, Shangsong Liang. Dynamic Co-embedding Model for Temporal Attributed Networks. *Submitted to IEEE Transactions on Neural Networks and Learning Systems*.
8. Shaowei Tang, **Zaiqiao Meng**, Qiang Zhang, Shangsong Liang. Cross-Temporal Snapshot Alignment for Dynamic Networks. *Submitted to IEEE Transactions on Knowledge and Data Engineering*.
9. Jiaxin Ren, Teng Xiao, **Zaiqiao Meng**, Shangsong Liang. Dynamic Product Search in Metric Space. *Submitted to IEEE Transactions on Knowledge Discovery from Data*.
10. Zuo Ouyang, **Zaiqiao Meng**, Qiang Zhang, Shangsong Liang. A Normalizing Flow-based Co-embedding Model for Attributed Networks. *Submitted to IEEE Transactions on Knowledge Discovery from Data*.
11. **Zaiqiao Meng**, Richard McCreadie, Craig Macdonald, Iadh Ounis. Variational Bayesian Representation Learning for Grocery Recommendation. *Submitted to Information Retrieval Journal*.
12. Yu Wang, Xin Xin, **Zaiqiao Meng**, Xiangnan He, Joemon Jose, Fuli Feng. Probabilistic and Variational Recommendation Denoising. *Submitted to NeurIPS2021*.
13. Qiang Zhang, Jinyuan Fang, **Zaiqiao Meng**, Shangsong Liang, Emine Yilmaz. Variational Bayesian Online Meta-Learning. *Submitted to NeurIPS2021*.
14. Jinyuan Fang, Qiang Zhang, Shangsong Liang, **Zaiqiao Meng**. Structure-Aware Random Fourier Kernel for Graphs. *Submitted to NeurIPS2021*.
15. Qiang Zhang, Shangsong Liang, Hongbin Huang, **Zaiqiao Meng**, Emine Yilmaz. Learning to Detect Few-Shot-Few-Clue Misinformation. *Submitted to CIKM2021*.

Software

- **Beta-RecSys** — **Leader, Main contributor**
  Build, Evaluate and Tune Automated Recommender Systems — *Github Open Source Project*
  - Initialize the project and build the core framework.
  - Manage a team with 11 members on maintaining the project.
  - Implement more than 15 recommendation models and integrate more than 20 datasets .
  - Contain various features, including hyper-parameter tuning, unified PyTorch core engine and unified training, validation, tuning and testing pipeline.
- **SCAN** — **Leader, Main contributor**
  Semi-supervisedly Co-embedding Attributed Networks — *Network Embedding Model*
  - Semi-supervisedly learn low-dimensional representations of both attributes and nodes in the same semantic space.
  - Benefit many applications such as node classification, link prediction and attribute inference.
- **CAN** — **Leader, Main contributor**
  Co-embedding Attributed Networks — *Network Embedding Model*
  - Learn low-dimensional representations of both attributes and nodes in the same semantic space.
  - Benefit not only node-oriented network problems (e.g., node classification and link prediction), but also attribute inference problems (e.g., predicting the value of attributes of nodes).

Professional Activities

Conference Program Committee

- ICML — *2021*
- NeurIPS — *2020, 2021*

- ICLR *2021*
- SIGIR *2021*
- SIGKDD *2021*
- WWW *2021*
- AAAI *2020, 2021*
- IJCAI *2020*
- ECIR *2020, 2021*
- EMNLP *2021*
- RecSys *2020, 2021*

Invited Journal Reviewer

- ACM Transactions on Information Systems *2020,2021*
- IEEE Transactions on Neural Networks and Learning Systems *2020,2021*
- IEEE Transactions on Knowledge and Data Engineering *2020,2021*
- ACM Computing Surveys *2020*
- IEEE Transactions on Cybernetics *2020*
- Information Sciences *2019*
- IEEE Transactions on Fuzzy Systems *2019*
- IEEE Access *2019,2020*
- International Journal of Machine Learning and Cybernetics *2017*
- Concurrency and Computation: Practice and Experience *2017*

External Reviewer

- WSDM *2017,2019*
- CIKM *2017, 2018*
- SIGIR *2017, 2018*
- EMNLP *2019*
- IJCAI *2018*
- WWW *2018*
- ACM Transactions on the Web *2017*