Dr. Yunpu Ma

Curriculum Vitae

0176-95832326
cognitive.yunpu@gmail.com

Name: Dr. Yunpu Ma

Date of Birth: May 28, 1990

Scholar: Google Scholar Link

Work Experience

03.2021- **Siemens AG**,
Research scientist,
Responsible for sub-projects of QLindA and QCHALLenge,
In collaboration with IQM and Fraunhofer Institute, co-supervise PhD student Yize Sun with Prof. Volker Tresp.

08.2020- **Ludwig-Maximilians-Universität München**,
Postdoc of MCML,
Focus on temporal knowledge graph and multimodal temporal reasoning,
Co-supervise several PhD students with Prof. Volker Tresp and Prof. Thomas Seidl.

07.2019-12.2019 **X-Order AI Lab**,
Co-founder and leading research scientist,
Dynamic relational database modeling.

07.2016-07.2019 **Siemens AG**,
Research scientist,
Cognitive deep learning project at Siemens,
Supervised by Prof. Volker Tresp.

Education

07.2016- **PhD in Computer Science**,
Ludwig-Maximilians-Universität München,
Supervised by P Volker Tresp.
Title: Learning with Relational Knowledge in the Context of Cognition, Quantum Computing, and Causality.
Due for submission May 2020

04.2015-03.2016 **Research Intern in High Energy Physics and Gravity**,
Max-Planck-Institute for Physics,
Supervised by Prof. Johanna Erdmenger,
Research topic: numerical simulation of gauge/gravity duality.

10.2013-03.2016 **Master of Science in Theoretical Physics**,
Ludwig-Maximilians-Universität München,
Master's thesis: Gauge/Gravity Duality and Quantum Hall Effect, supervised by Professor Johanna Erdmenger,
Final grade: **1.13** (very good).

10.2010- **Bachelor of Science in Physics**,
09.2013 *Otto-von-Guericke-Universität Magdeburg*,
Final grade: **1.6** (good).

Basic Education

09.2005- **Tianjin Nankai Senior School**,
07.2008 *degree: National College Entrance Examination.*

Languages

Chinese: Native

English: Professional working proficiency

German: Working proficiency

Selected Invited Talks

1. AdS/CFT correspondence and condensed matter physics, Freie Universität Berlin, February 2016.
2. Learning with Knowledge Graphs, EECS Berkeley, organized by Prof. Bruno Olshausen, August 2018.
3. Quantum Circuit Model for Knowledge Graph Embedding, Siemens Berkeley, organized by Dr. Hemant Shukla, August 2018.
4. Quantum Machine Learning Algorithm for Knowledge Graphs, Sino-Germany Workshop, October 2019.
5. Learning with Temporal Knowledge Graphs, CIKM 2020
6. Differentiable Quantum Architecture Search for Quantum Reinforcement Learning, QCE 2023
7. Learning with Temporal Data, ELLIS-SSIML Workshop 2024

Selected Publications

1. Volker Tresp, Yunpu Ma, Stephan Baier, and Yinchong Yang. Embedding Learning for Declarative Memories. The Semantic Web: 14th International Conference, European Semantic Web Conference 2017, pages 202-216. Portorož, Slovenia, May 28 - June 1, 2017. Springer International Publishing. doi:10.1007/978-3-319-58068-5_13
2. Stephan Baier, Yunpu Ma, and Volker Tresp. Improving Visual Relationship Detection using Semantic Modeling of Scene Descriptions. The Semantic Web: 16th International Semantic Web Conference 2017, pages 53-68. Vienna, Austria, October 21 - 25, 2017. Springer International Publishing. doi:10.1007/978-3-319-68288-4_4 (**Student Best Paper Award**)
3. Stephan Baier, Yunpu Ma, and Volker Tresp. Improving Information Extraction from Images with Learned Semantic Models. In proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI), pages 5214-5218. Stockholm, Sweden, July 13 - 19, 2018. doi:10.24963/ijcai.2018/724 (**Sister Conferences Best Papers**)

4. Yunpu Ma, Marcel Hildebrandt, Volker Tresp, Stephan Baier. Holistic Representations for Memorization and Inference. In proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI), pages 403-413. Monterey, California, USA, August 6 - 10, 2018. Archived at `http://auai.org/uai2018/proceedings/papers/163.pdf`, without doi.
5. Yunpu Ma, Volker Tresp, and Erik Daxberger. Embedding Models for Episodic Knowledge Graphs. Journal of Web Semantics, Special Issue on Representation Learning, volume 59 (2019), pages 100490. Elsevier. doi:10.2139/ssrn.3319790
6. Yunpu Ma, Volker Tresp, Liming Zhao, and Yuyi Wang. Variational Quantum Circuit Model for Knowledge Graphs Embedding. Advanced Quantum Technologies, 2(7-8), 1800078. First published: February 12, 2019. Wiley. doi:10.1002/qute.201800078
7. Marcel Hildebrandt, Jorge Quintero Serna, Yunpu Ma, Martin Ringsquandl, Mitchell Joblin, Volker Tresp. Reasoning on Knowledge Graphs with Debate Dynamics. In proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence. New York, USA, February 7 - 12, 2020.
8. Zhen Han, Yunpu Ma, Yuyi Wang, Stephan Günnemann, and Volker Tresp. Temporal Knowledge Graph Reasoning via Graph Hawkes Process. Automated Knowledge Base Construction (AKBC) 2020.
9. Yunpu Ma and Volker Tresp. Quantum Machine Learning Algorithm for Knowledge Graphs. ACM Transactions on Quantum Computing 2021.
10. Yunpu Ma and Volker Tresp. Causal Inference under Networked Interference and Intervention Policy Enhancement. International Conference on Artificial Intelligence and Statistics 2020.
11. Zhiliang Wu, Yinchong Yang, Yunpu Ma, Yushan Liu, Rui Zhao, and Volker Tresp. etIPS: Learning Individualized Treatment Rules with estimated translated Inverse Propensity Score. International Conference on Healthcare Informatics (ICHI) 2020. (**Student Best Paper Award**)
12. Volker Tresp, Sahand Sharifzadeh, Dario Konopatzki, and Yunpu Ma. The Tensor Brain: A Unified Theory of Perception, Memory, and Semantic Decoding. Neural Computation 35.2 (2023): 156-227.
13. Zhen Han, Peng Chen, Yunpu Ma, and Volker Tresp. xERTE: Explainable reasoning on temporal knowledge graphs for forecasting future links. ICLR 2020.
14. Zhen Han, Peng Chen, Yunpu Ma, Volker Tresp. DyERNIE: Dynamic Evolution of Riemannian Manifold Embeddings for Temporal Knowledge Graph Completion. EMNLP 2020.
15. Feifei Xu, Xinpeng Wang, Yunpu Ma, Volker Tresp, Yuyi Wang, Shanlin Zhou, Haizhou Du. Controllable Multi-Character Psychology-Oriented Story Generation. CIKM 2020.
16. Yushan Liu, Yunpu Ma, Marcel Hildebrandt, Mitchell Joblin, and Volker Tresp. TLogic: Temporal Logical Rules for Explainable Link Forecasting on Temporal Knowledge Graphs. AAAI 2021.
17. Zifeng Ding, Yunpu Ma, Bailan He, and Volker Tresp. A Simple But Powerful Graph Encoder for Temporal Knowledge Graph Completion. Intelligent Systems Conference. Cham: Springer Nature Switzerland, 2023.
18. Zai Shi, Zhao Meng, Yiran Xing, Yunpu Ma, and Roger Wattenhofer. 3D-RETR: End-to-End Single and Multi-View 3D Reconstruction with Transformers. BMVC 2021.

19. Haohai Sun, Jialun Zhong, Yunpu Ma, Zhen Han, and Kun He. TimeTraveler: Reinforcement Learning for Temporal Knowledge Graph Forecasting. EMNLP 2021.
20. Zhen Han, Zifeng Ding, Yunpu Ma, Yujia Gu, and Volker Tresp. Learning Neural Ordinary Equations for Forecasting Future Links on Temporal Knowledge Graphs. EMNLP 2021.
21. Zhen Han, Gengyuan Zhang, Yunpu Ma, and Volker Tresp. Time-dependent Entity Embedding is not All You Need: A Re-evaluation of Temporal Knowledge Graph Completion Models under a Unified Framework. EMNLP 2021.
22. Yiran Xing, Zai Shi, Zhao Meng, Gerhard Lakemeyer, Yunpu Ma, and Roger Wattenhofer. KM-BART: Knowledge Enhanced Multimodal BART for Visual Commonsense Generation. ACL/IJCNLP 2021.
23. Haizhou Du, Yan Zhou, Yunpu Ma, and Shiwei Wang. Astrologer: Exploiting graph neural Hawkes process for event propagation prediction with spatio-temporal characteristics. Knowl. Based Syst. 228: 107247.
24. Feifei Xu, Shanlin Zhou, Yunpu Ma, Xinpeng Wang, Wenkai Zhang, and Zhisong Li. Open-Domain Dialogue Generation Grounded with Dynamic Multi-form Knowledge Fusion. DASFAA 2022. (**Student Best Paper Award**)
25. Zhuang Liu, Yunpu Ma, Yuanxin Ouyang, and Zhang Xiong. Contrastive Learning for Recommender System. arXiv:2101.01317.
26. Zhuang Liu, Yunpu Ma, Matthias Schubert, Yuanxin Ouyang, Zhang Xiong. Multi-Modal Contrastive Pre-training for Recommendation. ICMR 2022: 99-108
27. Zifeng Ding, Jingpei Wu, Bailan He, Yunpu Ma, Zhen Han, Volker Tresp. Few-Shot Inductive Learning on Temporal Knowledge Graphs using Concept-Aware Information. AKBC2022
28. Sandra Gilhuber, Max Berrendorf, Yunpu Ma and Thomas Seidl. Accelerating Diversity Sampling for Deep Active Learning By Low-Dimensional Representations. IAL2022
29. Sandra Gilhuber, Philipp Jahn, Yunpu Ma, and Thomas Seidl. Verips: Verified Pseudo-label Selection for Deep Active Learning. ICDM 2022
30. Christian M.M. Frey, Yunpu Ma, Matthias Schuber. SEA: Graph Shell Attention in Graph Neural Networks. ECMLPKDD 2022
31. Alessandro Giovagnoli, Yunpu Ma, and Volker Tresp. Qneat: Natural evolution of variational quantum circuit architecture. GECCO 2023.
32. Ruotong Liao, Xu Jia, Yunpu Ma, and Volker Tresp. GenTKG: Generative Forecasting on Temporal Knowledge Graph. TGL@NeurIPS 2023.
33. Shuo Chen, Jindong Gu, Zhen Han, Yunpu Ma, Philip Torr, and Volker Tresp. Benchmarking Robustness of Adaptation Methods on Pre-trained Vision-Language Models. NeurIPS 2023.
34. Zifeng Ding, Ruoxia Qi, Zongyue Li, Bailan He, Jingpei Wu, Yunpu Ma, Zhao Meng, Zhen Han, and Volker Tresp. ForecastTKGQuestions: A Benchmark for Temporal Question Answering and Forecasting over Temporal Knowledge Graphs. ISWC 2023.