# Jinning Li

PhD in Computer Science, University of Illinois at Urbana-Champaign

EDUCATION University of Illinois at Urbana-Champaign

Aug 2020 - Dec 2024

*Ph.D. Student in Computer Science*. Advisor: Prof. Tarek Abdelzaher.

University of Illinois at Urbana-Champaign

Aug 2020 - Dec 2022

M.S. in Computer Science.

Advisor: Prof. Tarek Abdelzaher.

Shanghai Jiao Tong University Sep 2015 - Jun 2019

B.S. in Computer Science (ACM Honors Class). Advisors: Prof. Yong Yu and Prof. Xiaofeng Gao.

RESEARCH INTERESTS

**Industry** 

Knowledge Graph, Natural Language Processing, and Generative AI for Social Networks,

Recommendation Systems, Computer Vision, Autonomous Driving

Amazon | Applied Scientist Intern Alexa Intelligent Decision Research May - Aug 2023

- Developed a structure-aware large language model adapter for efficient fine-tuning of LLAMA.
- Proposed the hierarchical relational attention and path of thought to fuse LLM with KG.
- Outperformed existing LLM adapters like LoRA by 14% on QA benchmark datasets.
- Distributed LLM training with deepspeed and accelerate libs. Paper submitted to AAAI .

Twitter | Applied Research Intern Cortex Research

May - Aug 2022

• Enhanced tweet LLM representation learning with a large-scale knowledge graph of non-textual units using torchbiggraph lib. Achieved 5% improvements on all the 7 downstream tasks from both internal benchmarks and public datasets. Published a paper.

- Deployed fused obstacles (cars, pedestrians, cyclists) classification system with ResNet and random forest. Real-time model inference with TensorRT. Reduced 8% hard brakes.
- Proposed and deployed a real-time obstacle trajectory prediction for driveways with RNN and random forest. Solved **24**% of driveway-related safty disengagements or hard brake issues.

YITU Technology | Research Intern Face Recognition Team

Feb - Jun 2019

• Improved face verification accuracy by **4.8**% in internal dataset with the proposed identification-preserving super-resolution algorithm based on autoencoders. Published a paper.

### Publications Reconciling Competing Sampling Strategies of Network Embedding

Yuchen Yan, Baoyu Jing, Lihui Liu, Ruijie Wang, **Jinning Li**, Tarek Abdelzaher, Hanghang Tong In *Conference on Neural Information Processing Systems* (**NIPS**) 2023

#### Influence Pathway Discovery on Social Media

Xinyi Liu, Ruijie Wang, Dachun Sun, **Jinning Li**, C. Youn, Y. Lyu, J. Zhan, D. Wu, X. Xu, M. Liu, X. Lei, Z. Xu, Y. Zhang, Z. Li, Q. Yang, T. Abdelzaher

In The 9th IEEE International Conference on Collaboration and Internet Computing (IEEE CIC) 2023

Unsupervised Belief Representation Learning with Variational Graph Auto-Encoders Dinning Li, Huajie Shao, Dachun Sun, R. Wang, Y. Yan, J. Li, S. Liu, H. Tong, T. Abdelzaher In International ACM SIGIR Conference (SIGIR) 2022

The Paradox of Information Access: On Modeling Polarization in the Age of Information Chao Xu, Jinyang Li, D. Sun, Jinning Li, T. Abdelzaher, J. Graham, M. Macy, C. Lebiere, B. Szymanski In *IEEE Transactions on Control of Network Systems* (TCNS) 2023

# Measuring the Effect of Influential Messages on Varying Personas 📙 Chenkai Sun, Jinning Li, Hou Pong Chan, ChengXiang Zhai and Heng Ji In Annual Meeting of the Association for Computational Linguistics (ACL) 2023 Noisy Positive-Unlabeled Learning with Self-Training for Knowledge Graph Reasoning 📙 Ruijie Wang, Baoyu Li, Yichen Lu, Dachun Sun, Jinning Li, Y. Yan, S. Liu, H. Tong and T. Abdelzaher In Annual Meeting of the Association for Computational Linguistics (ACL) 2023 Unsupervised Image Classification by Ideological Affil. from User-Content Interactions Xinyi Liu, Jinning Li, D. Sun, R. Wang, T. Abdelzaher, M. Brown, A. Barricelli, M. Kirchner and A. Basharat In PhoMemes Workshop at AAAI Conference on Web and Social Media (ICWSM) 2023 NTULM: Enriching Social Media Text Representations with Non-Textual Units Jinning Li\*, Shubhanshu Mishra\*, Ahmed El-Kishky, Sneha Mehta, Vivek Kulkarni In W-NUT Workshop at International Conference on Computational Linguistics (COLING) 2022 Learning to Sample and Aggregate: Few-shot Reasoning over Temporal Knowledge Graph 🚨 Ruijie Wang, Zheng Li, Dachun Sun, Shengzhong Liu, Jinning Li, Bing Yin, Tarek Abdelzaher In Conference on Neural Information Processing Systems (NIPS) 2022 Cost Function Learning in Memorized Social Nets with Cognitive Behavioral Asymmetry 🚨 Yanbing Mao, Jinning Li, Naira Hovakimyan, Tarek Abdelzaher, Christian Lebiere In IEEE Transactions on Computational Social Systems (TCSS) 2022 Dissecting Cross-Layer Dependency Inference on Multi-Layered Inter-Dependent Nets 📙 Yuchen Yan, Qinghai Zhou, Jinning Li, Tarek Abdelzaher, and Hanghang Tong In International Conference on Information and Knowledge Management (CIKM) 2022 ID Preserving Face Super-Resolution Generative Adversarial Networks 🚨 😱 Jinning Li, Yichen Zhou, Jie Ding, Cen Chen, Xulei Yang In IEEE Access 2020 Scribble-to-Painting Transformation with Multi-Task Generative Adversarial Networks 🚨 📢 Jinning Li, Yexiang Xue In International Joint Conference on Artificial Intelligence (IJCAI) 2019 Senti2Pop: Sentiment-Aware Topic Popularity Prediction on Social Media 🚨 Jinning Li, Yirui Gao, Xiaofeng Gao, Yan Shi, Guihai Chen In IEEE International Conference on Data Mining (ICDM) 2019 DancingLines: An Analytical Scheme to Depict Cross-Platform Event Popularity Tianxiang Gao, Weiming Bao, Jinning Li, X. Gao, B. Kong, Y. Tang, G. Chen, X. Li In International Conference on Database and Expert Systems Applications (DEXA) 2018 MANUSCRIPTS Unsupervised Interpretable Ideological Embedding with Variational Graph Autoencoders Jinning Li, Xinyi Liu, Ruijie Wang, Huajie Shao, Matthias Kirchner, Arslan Basharat, Dachun Sun, Yuchen Yan, Jinyang Li, Shengzhong Liu, Hanghang Tong, and Tarek Abdelzaher Submission to IEEE Transactions on Knowledge and Data Engineering (TKDE) Structure-Aware Adapter for Large Language Model Jinning Li, Pragaash Ponnusamy, Z. Sun, J. FitzGerald, J. Oh, C. Ma, W. Shen, C. Guo, T. Abdelzaher Submission to The 38th Annual AAAI Conference on Artificial Intelligence (AAAI) 2024

## Research Experience

University of Illinois at Urbana-Champaign Social Sensing, Knowledge Graph, NLP

**Ph.D. Student**. Advisor: Prof. Tarek Abdelzaher

Aug 2020 - Present

- Unsupervised explainable belief representation learning for users and contents on social networks, based on variational graph autoencoders .
- Led a team and developed the DARPA INCAS system to automatically collect data from social medias, analyze and predict the belief and response of social entities using the proposed InfoVGAE and hierarchical regression model tree algorithms.

Purdue University Computer Vision, GANs

Research Assistant. Advisor: Prof. Yexiang Xue

Sep - Dec 2018

• Oil painting arts generation with multi-task generative adversarial networks.

Cornell University Counterfactual Machine Learning, Recommendation Systems

Research Assistant. Advisor: Prof. Thorsten Joachims

Jul - Aug 2018

• Rank 1 in Criteo Advertisement Placement Competition with the proposed model.

Shanghai Jiao Tong University NLP and Data Mining for Social Networks

Research Assistant. Advisor: Prof. Xiaofeng Gao

Jul 2017 - Jun 2019

- Cross-platform social popularity quantification and alignment.
- Sentiment-aware topic popularity prediction on social media.

Honors	Zhiyuan International Research Scholarship (First Prize).	2019
AND	Han-Ying-Ju-Hua Scholarship.	2018
Awards	Academic Excellence Scholarship of SJTU (First Prize).	2017, 2018
	International Interdisciplinary Contest in Modeling (Meritorious Winner).	2017
	Zhiyuan Honorary Scholarship.	2016, 2017
	International Mathematical Contest in Modeling (Outstanding Winner).	2015
	Dongrun-Yau International High School Science Award.	2015

ACADEMIC Teaching Assistant at CS122: Programming
Services Teaching Assistant at CS307: Operating System
Program Committee at AAAI Conference

PROGRAMMING C, C++, Java, Python (TensorFlow, PyTorch, Huggingface)
PROFICIENCIES SQL, BigQuery, HTML, Javascript, MATLAB, ETFX,