

Chen Ling

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PRINCIPAL INTERESTS

My research focuses on data mining and applying machine learning techniques to handle real-world problems. More concretely, my works can be divided into two streams. 1) *Data Mining on Graphs*: Deep Graph Generation, Graph Representation Learning, and Graph Inverse Problem; 2) Large Language Model: Customizing large language models into domain-specific applications; and 3) *Neural Machine Reasoning*: Analogical Reasoning, Case-based Reasoning, and Commonsense Reasoning.

ACADEMIC BACKGROUND

Ph.D. Computer Science

2020 - present

[Emory University](#), Atlanta, GA

- Ph.D. research in graph data mining under supervision of Professor [Liang Zhao](#).
- Conducted research in *graph data mining* and *neural machine reasoning* with demonstrated publication history in top-tier conferences, including ICML, KDD, ICLR, EMNLP, theWebConf, ICDM, SDM, and ECML-PKDD.

M.Sc. Computer Sciences

2018 - 2020

[University of Delaware](#), Newark, DE

- Conducted research in the area of social network analysis and time series analysis with demonstrated publication in top-tier conferences.

B.Sc. Computer Science

2014 - 2017

[University of Vermont](#), Burlington, VT

- Recipient of Global Gateway Academic Achievement Scholarship, 2015
- Recipient of International Student Accomplishment Scholarship, 2014

SPECIAL ACHIEVEMENTS

Awards and Invited Talks

- *Student Travel Award*. SDM 2024
- *Professional Development Funding*. \$2,500, Emory University
- *ICDM Student Travel/Attendance Award*. 2021, 2022.
- *National Science Foundation Student Travel Award*. 2022.
- *ICDM Best Paper Candidate*, for “Deep Generation of Heterogeneous Networks”, 21st IEEE International Conference on Data Mining, 2021.
- SIGNET Seminar at the University of Delaware, *NesTPP: Modeling Thread Dynamics in Online Discussion Forums*, Newark, DE, 2019.
- *Dean’s List of Computer Science Department*, for “students achieved top-10% GPA”, the University of Vermont, 2015, 2016.
- *Global Gateway Achievement Scholarship* for “Campus-wide Academic Achievement”, \$30,000 for three consecutive years, the University of Vermont, 2015.
- *International Student Accomplishment Scholarship* for “Academic Achievement”, \$10,000, the University of Vermont, 2014.

Academic Service

- **Organizer:** [LLM4Bio](#) at AAAI 2024

- **Reviewer:** KDD (2022, 2023, 2024), NeurIPS (2022, 2023), EMNLP (2023), NAACL (2024), WSDM (2024)
- **Program Committee:** DLG-KDD (2020, 2021, 2022), DLG-AAAI (2021, 2022, 2023), UDM-AAAI (2023), ECML-PKDD (2022)

SELECTED PUBLICATIONS

A full list is available at [my Google Scholar](#) page.

Conference Publications

16. **[KDD 2024] Chen Ling**, Tanmoy Chowdhury, Jie Ji, Sirui Li, Andreas Zuffe, Liang Zhao. Source Localization for Cross Network Information Diffusion. *The 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*. Barcelona, Spain, 2024.
15. **[ACL 2024]** Yifei Zhang, Bo Pan, **Chen Ling**, Yuntong Hu, Liang Zhao. ELAD: Explanation-Guided Large Language Models Active Distillation. *The 62nd Annual Meeting of the Association for Computational Linguistics*. Bangkok, Thailand, 2024.
14. **[NAACL 2024] Chen Ling**, Xujiang Zhao, Wei Cheng, Yanchi Liu, Yiyou Sun, Xuchao Zhang, Takao Osaki, Katsushi Matsuda, Liang Zhao, Haifeng Chen. Uncertainty Decomposition and Quantification for In-Context Learning of Large Language Models. *2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics*. Mexico City, 2024.
13. **[AISTATS 2024]** Nguyen Do, Tanmoy Chowdhury, **Chen Ling**, Liang Zhao, My T. Thai. MIM-Reasoner: Learning with Theoretical Guarantees for Multiplex Influence Maximization. *The 27th International Conference on Artificial Intelligence and Statistics*. Valencia, Spain, 2024.
12. **[SDM 2024]** Junruo Gao, **Chen Ling**, Carl Yang, Liang Zhao. Helper Recommendation with Seniority Control in Online Health Community. *2024 SIAM International Conference on Data Mining*. Houston, TX, 2023.
11. **[EMNLP 2023] Chen Ling**, Xuchao Zhang, Xujiang Zhao, Yanchi Liu, Wei Cheng, Takao Osaki, Haifeng Chen, Liang Zhao. Open-ended Commonsense Reasoning with Unrestricted Answer Candidates. *The 2023 Conference on Empirical Methods in Natural Language Processing*. Singapore, 2023.
10. **[ICML 2023] Chen Ling**, Junji Jiang, Junxiang Wang, My Thai, Lukas Xue, James Song, Meikang Qiu, Liang Zhao. Deep Graph Representation Learning and Optimization for Influence Maximization. *Fortieth International Conference on Machine Learning*. Hawaii, 2023.
9. **[ICLR 2023] Chen Ling***, Guangji Bai*, Liang Zhao. Temporal Domain Generalization with Drift-Aware Dynamic Neural Networks. *The Eleventh International Conference on Learning Representations*. Kigali, Rwanda, 2023. **[Oral Presentation:** Top-5% among all accepted papers.]
8. **[SDM 2023]** Guangji Bai, **Chen Ling**, Yuyang Gao, Liang Zhao. Saliency-Augmented Memory Completion for Continual Learning. *2023 SIAM International Conference on Data Mining*. Minneapolis, MN, 2023.
7. **[ICDM 2022] Chen Ling**, Tanmoy Chowdhury, Junji Jiang, Junxiang Wang, Xuchao Zhang, Haifeng Chen, and Liang Zhao. DeepGAR: Deep Graph Learning for Analogical Reasoning. *The 22nd IEEE International Conference on Data Mining*. Orlando, FL, 2022.

6. [ECML-PKDD 2022] **Chen Ling**, Henning Cao, and Liang Zhao. STGEN: Deep Continuous-time Spatiotemporal Graph Generation. *The 2022 European Conference on Machine Learning and Principles Discovery in Databases..* Grenoble, France, 2022.
5. [KDD 2022] **Chen Ling**, Junji Jiang, Junxiang Wang, and Liang Zhao. SL-VAE: Variational Autoencoder for Source Localization in Graph Information Diffusion. *The 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining.* Washington, D.C., 2022.
4. [ICDM 2021] **Chen Ling**, Carl Yang, and Liang Zhao. Deep Generation of Heterogeneous Networks. *The 21st IEEE International Conference on Data Mining.* Online, 2021. [Best Paper Candidate]
3. [WWW 2021] Liming Zhang, Liang Zhao, Shan Qin, Dieter Pfoser, and **Chen Ling**. TG-GAN: Continuous-time Temporal Graph Deep Generative Models with Time-Validity Constraints. *The 30th International World Wide Web Conference.* Online, 2021.
2. [ICME 2021] **Chen Ling**, Di Cui, Guangmo Tong, and Jianmin Zhu. On Forecasting Dynamics in Online Discussion Forums. *The 21st IEEE Multimedia and Expo.* Online, 2021.
1. [HT 2020] **Chen Ling**, Mozi Chen, and Guangmo Tong. NesTPP: Modeling Information Diffusion in Online Discussion Forum. *The 31st ACM Hypertext.* Online, 2020.

Conference Publications

2. (FBD) Junji Jiang, **Chen Ling**, Hongyi Li, Guangji Bai, Xujiang Zhao, Liang Zhao. Quantifying Uncertainty in Graph Neural Network Explanations. *Frontiers in Big Data*, 2024, Accepted.
1. (KAIS) **Chen Ling**, Carl Yang, Liang Zhao. Motif-guided Heterogeneous Graph Deep Generation. *Knowledge and Information Systems*, 65.7 (2023): 3099-3124.

EMPLOYMENT HISTORY *Research Associate* 2022, 2023
 NEC Labs America, Data Science & System Security Group, Princeton, NJ

- Participated as a remote research contractor for various publication-oriented long-term projects. Mentor: Xuchao Zhang, Xujiang Zhao, Haifeng Chen
- Proposed to design a prompt-based natural language reasoning framework for commonsense QA tasks.
- Designed a Graph Neural Network-based framework with a customized optimization method for analogical reasoning.

Research Assistant 2020 - Present
 Emory University, Atlanta, GA

- Leveraged deep generative models to generate complex structured data, including heterogeneous graph generation, temporal graph generation, and spatiotemporal graph generation.
- Leveraged deep graph representation learning to conduct network behavior analysis, including information diffusion source localization and influence maximization on social networks.
- Led several undergraduate computer science courses (Advanced Algorithm Analysis and Intro to Java Programming) as graduate TA and co-instructor.

Research Assistant

2018 - 2020

University of Delaware, Newark, DE

- Worked on several research projects in the area of social network rumor containment and information diffusion function modeling.
- Leveraged data-driven approaches to capture complex correlations between social cascades, and the results are published at ACM HT'20 entitled with *Nestpp: Modeling thread dynamics in online discussion forums*.
- Designed structure-preserving models with provable performance guarantees in social network dynamics prediction, and the results are published at IEEE ICME'21 entitled with *On Forecasting Dynamics In Online Discussion Forums*.

Research Intern

2018

iFLYTEK, Anhui, CHINA

- Worked as a Natural Language Processing (NLP) associate researcher at iFLYTEK's Research platform.
- Performed creation and optimization of machine & deep learning models for multi-label classification, label distribution prediction of MOOC test questions, and text similarity calculation. Increased classification accuracy of the multi-label classification from 66% to 89%.
- Organized weekly Paper Reading Club that includes more than 20 undergraduate and graduate students for sharing innovative research ideas and presenting state-of-the-art research papers.

Cognitive Solution Developer

2016

IBM, Burlington, VT

- Participated in a full-stack team to develop a cloud-based tone analyzer for image sentiment analysis using Watson Cognitive Cloud.
- Assisted senior software engineers in designing API interfaces in the development of the Watson Business Mobile App.
- Created and presented a computer vision project – Human Face Recognition using IBM Watson API in IBM's worldwide IBM Intern Conference.