

Yu (Hugo) Chen | Curriculum Vitae

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Education

Rensselaer Polytechnic Institute

Ph.D in Computer Science

Troy, NY, USA

AUG. 2015 - AUG. 2020

University of Electronic Science and Technology of China

B.Eng. in Telecommunications Engineering

Chengdu, China

SEP. 2011 - JUL. 2015

Research & Work Experience

Co-founder and Head of Machine Learning, Anytime AI

Armonk, New York, USA

NOV. 2023 - PRESENT

- Led a talented engineering and product team to develop an AI product that can revolutionize the legal industry and make positive impact on the lives of 1.3 million lawyers. Our AI analyzes documents, accelerates answers and automates workflows in specialized legal domains.

Senior Research Scientist, Meta AI

Menlo Park, CA, USA

SEP. 2020 - OCT. 2023

- Worked on applied AI research (i.e., Natural Language Processing, Multimodal Machine Learning, Sequence Modeling, Graph Learning, Generative AI) for recommendation and commerce applications.
- Led a team of ~10 scientists/engineers to build structured and efficient transformer-based user sequence modeling techniques for better personalized recommendation.
- Core developer of building a customized LLM for personalized comment generation for Family of App surfaces, with high potential on driving net new engagement.
- Principal Investigator of an External Research Collaboration project with a university on multimodal entity linking.
- (Co-)mentored one AI resident, three research interns and two SWE interns.

Graduate Research Assistant, RPI

Advisor: Dr. Mohammed J. Zaki

Worked on Natural Language Processing and Graph Machine Learning research.

Troy, NY, USA

MAY 2017 - JUL. 2020

AI Research Intern, IBM Research

Manager: Dr. Lazaros Polymenakos

Designed and implemented a knowledge-based and task-oriented conversational recommendation system.

Yorktown Heights, NY, USA

MAY 2018 - AUG. 2018

Graduate Teaching Assistant, RPI

Troy, NY, USA

AUG. 2015 - MAY 2017

Research Highlights

His research interests lie at the intersection of Machine Learning (Deep Learning) and Natural Language Processing, with a particular emphasis on the fast-growing field of Graph Neural Networks and Transformer-based Large Language Models. His work has been published at top-ranked conferences/journals including but not limited to NeurIPS, ICML, ICLR, AAI, IJCAI, ACL, EMNLP, NAACL, EAACL, KDD, WSDM, TheWebConf, ISWC, and TNNLS. He was the recipient of the Best Student Paper Award of AAI DLGMA'20. He was one of the book chapter contributors of the book "Graph Neural Networks: Foundations, Frontiers, and Applications". He delivered a series of DLG4NLP tutorials at NAACL'21, SIGIR'21, KDD'21, IJCAI'21, AAI'22 and TheWebConf'22. His work has been covered in popular technology and marketing publications including World Economic Forum, TechXplore, TechCrunch, Ad Age and Adweek. He is a co-inventor of 4 US patents.

Selected Projects

LLMs for Hate Speech Paraphrasing	Menlo Park, CA, USA
Novel application of LLMs to a novel task of Hate Speech Paraphrasing which translates hate speech into non-hate speech while preserving its meaning.	MAR. 2023 - OCT. 2023
On-the-fly Length Generalization for LLMs	Menlo Park, CA, USA
<i>Meta AI</i>	MAY 2023 - AUG 2023
Designed and developed a novel solution to extend existing LLMs to efficiently generalize to much longer sequences during inference time without the need of further training.	
Graph4NLP Library	Troy, NY, USA
As a founding member and core developer, designed and developed the Graph4NLP library (1.6K+ stars) for the easy use of Graph Neural Networks for NLP.	JUN 2020 - PRESENT
Personalized Search and Recommendation for Health Empowerment	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Advisor: Dr. Mohammed J. Zaki</i>	MAY 2017 - JUL. 2020
Designed and developed novel knowledge-based Q&A systems for personalized food search and recommendation.	
Automatic Code Summarization	Troy, NY, USA
<i>Rensselaer Polytechnic Institute</i>	FEB. 2020 - JUN. 2020
Designed and developed a novel retrieval-augmented GNN-based generation framework for code summarization.	
Natural Question Generation from Structured and Unstructured Data	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Mentor: Dr. Lingfei Wu</i>	MAR. 2019 - DEC. 2019
Designed and developed novel graph-to-sequence models for natural question generation.	
Graph Learning for Graph Neural Networks	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Mentor: Dr. Lingfei Wu</i>	JUN. 2019 - SEP. 2019
Designed and developed a novel iterative deep graph learning method for graph neural networks.	
Conversational Machine Reading Comprehension	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Mentor: Dr. Lingfei Wu</i>	DEC. 2018 - FEB. 2019
Designed and developed a system for conversational machine reading comprehension via recurrent graph neural networks.	
Knowledge Base Question Answering	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Advisor: Dr. Mohammed J. Zaki</i>	SEP. 2017 - MAY 2018
Designed and developed a novel bidirectional attentive memory network for question answering over knowledge graphs.	
Text Analytics via Topic modeling and Text Representation	Troy, NY, USA
<i>Rensselaer Polytechnic Institute, Advisor: Dr. Mohammed J. Zaki</i>	AUG. 2016 - FEB. 2017
Designed and developed a novel autoencoder-based system for text analytics via competitive learning.	

Honors & Awards

Epubit Bestseller Award 2022	JAN 2023
<i>Epubit by Post & Telecom Press</i>	
Chapter contributor of the Chinese GNN book .	
Karen and Lester Gerhardt Prize (Outstanding Doctoral Dissertation Award)	MAY 2021
<i>Rensselaer Polytechnic Institute</i>	
Robert McNaughton Prize (Outstanding Graduate Student Award)	MAY 2021
<i>Rensselaer Polytechnic Institute</i>	
Best Student Paper Award of AAAI DLGMA 2020	FEB. 2020
<i>AAAI DLGMA 2020</i>	
Student Travel Award of SIGKDD 2017	JUL. 2017
<i>ACM SIGKDD</i>	
The First-Class People's Scholarship	2012 - 2013 & 2013 - 2014
<i>The University of Electronic Science and Technology of China</i>	
National Scholarship	2011 - 2012
<i>Ministry of Education of China, Top 1.6 %</i>	

Selected Media Coverage

LM-Infinite ([knowledge_base_6655 \(2023-08\)](#), [SparksofAGI \(2023-08\)](#), [zenRRan \(2023-09\)](#)), CommerceMM ([Meta AI Blog \(2022-05\)](#)), DLG4NLP tutorials ([Quan_Zhuanzhi \(2021-07\)](#), [zhuanzhi \(2021-06\)](#), [GraphRec \(2021-06\)](#)), Graph4NLP library ([aitechtalk \(2021-06\)](#)), GSL4GNNs book chapter ([SpringerCS \(2022-01\)](#), [almosthuman2014 \(2022-01\)](#), [AIGraph \(2022-01\)](#), [epubit \(2022-11\)](#), [DataFunTalk \(2022-12\)](#)), Product recommendations ([Meta Blog \(2021-11\)](#), [Ad Age \(2021-11\)](#), [Adweek \(2021-11\)](#), [TechCrunch \(2021-11\)](#)), Personalized food recommendation system ([World Economic Forum \(2021-02\)](#), [TechXplore \(2021-01\)](#))

Skills

Research: Machine Learning, Deep Learning, Generative AI, Natural Language Processing, Graph Machine Learning

Programming: PYTHON > C/C++ > MATLAB = PHP = JAVASCRIPT = R

Software: PyTorch, TensorFlow, Keras, Scikit-learn, Linux, MacOS, Database, Git

Publications

Preprints.....

1. Chi Han, Qifan Wang, Wenhan Xiong, **Yu Chen**, Heng Ji and Sinong Wang. LM-Infinite: Simple On-the-Fly Length Generalization for Large Language Models.
2. Vibhor Agarwal, **Yu Chen** and Nishanth Sastry. HateRephrase: Zero- and Few-Shot Reduction of Hate Intensity in Online Posts using Large Language Models.
3. Vibhor Agarwal, **Yu Chen** and Nishanth Sastry. GASCOM: Graph-based Attentive Semantic Context Modeling for Online Conversation Understanding.
4. Arka Sadhu, Licheng Yu, Animesh Sinha, **Yu Chen**, Ram Nevatia and Ning Zhang. Unaligned Video-Text Pre-training using Iterative Alignment.
5. Xiaotian Han, Hanqing Zeng, **Yu Chen**, Shaoliang Nie, Jingzhou Liu, Kanika Narang, Zahra Shakeri, Karthik Abinav Sankararaman, Song Jiang, Madian Khabsa, Qifan Wang and Xia Hu. Graph Convolutions are Mixup.

Conference Publications.....

1. Xiaotian Han, Jianfeng Chi, **Yu Chen**, Qifan Wang, Han Zhao, Na Zou and Xia Hu. FFB: A Fair Fairness Benchmark for In-Processing Group Fairness Methods. In *Proceedings of the 12th International Conference on Learning Representations (ICLR 2024)*, Vienna, Austria, May 7-11, 2024.
2. Menglong Yao, Sijia Wang, **Yu Chen**, Qifan Wang, Minqian Liu, Zhiyang Xu, Licheng Yu and Lifu Huang. AMELI: Enhancing Multimodal Entity Linking with Fine-Grained Attributes. In *Proceedings of the 18th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2024)*, St. Julians, Malta, Mar. 17-22, 2024.
3. Harman Singh, Pengchuan Zhang, Qifan Wang, Mengjiao MJ Wang, Wenhan Xiong, Jingfei Du and **Yu Chen**. Coarse-to-Fine Contrastive Learning in Image-Text-Graph Space for Improved Vision-Language Compositionality. In *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP 2023)*, Singapore, Dec. 6-10, 2023.
4. Li Yang, Qifan Wang, Jingang Wang, Xiaojun Quan, Fuli Feng, **Yu Chen**, Madian Khabsa, Sinong Wang, Zenglin Xu and Dongfang Liu. MixPAVE: Mix-Prompt Tuning for Few-shot Product Attribute Value Extraction. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL 2023)*, Toronto, Canada, July 9-14, 2023.
5. Licheng Yu, Jun Chen, Animesh Sinha, Mengjiao MJ Wang, **Yu Chen**, Tamara L. Berg and Ning Zhang. CommerceMM: Large-Scale Commerce MultiModal Representation Learning with Omni Retrieval. In *Proceedings of the 28th International Conference on Knowledge Discovery and Data Mining (SIGKDD 2022)*, Washington DC, USA, Aug. 14-18, 2022.
6. Nian Liu, Xiao Wang, Lingfei Wu, **Yu Chen**, Xiaojie Guo and Chuan Shi. Compact Graph Structure Learning via Mutual Information Compression. In *Proceedings of The Web Conference 2022 (TheWebConf 2022)*, Apr. 25-29, 2022.
7. Shangqing Liu, **Yu Chen****, Xiaofei Xie**, Jing Kai Siow and Yang Liu (**Corresponding Author). Retrieval-Augmented Generation for Code Summarization via Hybrid GNN. In *Proceedings of the 9th International*

Conference on Learning Representations (ICLR 2021), May 4-8, 2021. Spotlight paper. Acceptance rate=3.8% (114 out of 2997).

8. **Yu Chen**, Ananya Subburathinam, Ching-Hua Chen and Mohammed J. Zaki. Personalized Food Recommendation as Constrained Question Answering over a Large-scale Food Knowledge Graph. In *Proceedings of the 14th International Conference on Web Search and Data Mining (WSDM 2021)*, Mar. 8-12, 2021.
9. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Iterative Deep Graph Learning for Graph Neural Networks: Better and Robust Node Embeddings. In *Proceedings of the 34th Conference on Neural Information Processing Systems (NeurIPS 2020)*, Dec. 6-12, 2020.
10. Nidhi Rastogi, Oshani Seneviratne, **Yu Chen**, Jon Harris, Diya Li, Ananya Subburathinam, Ruisi Jian, Megan Goulet, Yuheng Zhou, Osama Minhas, Jared Okun, Aaron Hill, Ching-Hua Chen and Dan Gruen. Applying Learning and Semantics for Personalized Food Recommendations. In *Proceedings of the 19th International Semantic Web Conference (ISWC 2020)*, Nov. 2-6, 2020.
11. **Yu Chen**, Ching-Hua Chen and Mohammed J. Zaki. Combining User Preferences and Health Needs in Personalized Food Recommendation. In *Proceedings of the 2020 American Medical Informatics Association Virtual Annual Symposium (AMIA 2020)*, Nov. 14-18, 2020.
12. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. GraphFlow: Exploiting Conversation Flow with Graph Neural Networks for Conversational Machine Comprehension. In *Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020)*, Yokohama, Japan, 2020. Acceptance rate=12.6% (592 out of 4717).
13. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Reinforcement Learning Based Graph-to-Sequence Model for Natural Question Generation. In *Proceedings of the 8th International Conference on Learning Representations (ICLR 2020)*, Apr. 26-30, 2020.
14. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Deep Iterative and Adaptive Learning for Graph Neural Networks. In *AAAI 2020 Workshop on Deep Learning on Graphs: Methodologies and Applications (AAAI DLGMA 2020)*, New York, NY, USA, Feb. 7-12, 2020. ([Best Student Paper Award](#)).
15. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Natural Question Generation with Reinforcement Learning Based Graph-to-Sequence Model. In *NeurIPS 2019 workshop on Graph Representation Learning (NeurIPS GRL 2019)*, Vancouver, BC, Canada, Dec. 8-14, 2019.
16. Steven Haussmann, **Yu Chen**, Oshani Seneviratne, Nidhi Rastogi, James Codella, Ching-Hua Chen, Deborah McGuinness, Mohammed J. Zaki. FoodKG Enabled Q&A Application. In *Proceedings of the 18th International Semantic Web Conference (ISWC 2019)*, Auckland, New Zealand, Oct. 26-30, 2019.
17. Steven Haussmann, Oshani Seneviratne, **Yu Chen**, Yarden Ne'eman, James Codella, Ching-Hua Chen, Deborah L. McGuinness and Mohammed J. Zaki. FoodKG: A Semantics-Driven Knowledge Graph for Food Recommendation. In *Proceedings of the 18th International Semantic Web Conference (ISWC 2019)*, Auckland, New Zealand, Oct. 26-30, 2019.
18. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. GraphFlow: Exploiting Conversation Flow with Graph Neural Networks for Conversational Machine Comprehension. In *ICML 2019 Workshop on Learning and Reasoning with Graph-Structured Representations (ICML LRG 2019)*, Long Beach, CA, USA, Jun. 9-15, 2019.
19. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Bidirectional Attentive Memory Networks for Question Answering over Knowledge Bases. In *Proceedings of the 2019 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2019)*, Minneapolis, MN, USA, Jun. 2-7, 2019. Long Oral Paper.
20. **Yu Chen**, Rhaad M. Rabbani, Aparna Gupta and Mohammed J. Zaki. Comparative Text Analytics via Topic Modeling in Banking. In *Proceedings of the 2017 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2017)*, Hawaii, USA, Nov. 27-Dec. 1, 2017.
21. **Yu Chen** and Mohammed J. Zaki. KATE: K-competitive Autoencoder for Text. In *Proceedings of the 23rd International Conference on Knowledge Discovery and Data Mining (SIGKDD 2017)*, Halifax, NS, Canada, Aug. 13-17, 2017. Full Oral Paper. Acceptance rate=8.6% (64 out of 748).
22. **Yu Chen**, Hao Chen and Jie Shen. Fast Voxel-based Surface Propagation Method for Outlier Removal. In *Proceedings of the 13th International CAD Conference (CAD 2016)*, Vancouver, BC, Canada, Jun. 27-29, 2016.

Journal Publications.....

1. Jing Hu, Lingfei Wu, **Yu Chen**, Po Hu and Mohammed J. Zaki. GraphFlow+: Exploiting Conversation Flow in Conversational Machine Comprehension with Graph Neural Networks. In *Machine Intelligence Research*, May

2023.

2. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki. Toward Subgraph-Guided Knowledge Graph Question Generation With Graph Neural Networks. In *IEEE Transactions on Neural Networks and Learning Systems*, Apr. 2023.
3. Lingfei Wu*, **Yu Chen***, Kai Shen, Xiaojie Guo, Hanning Gao, Shucheng Li, Jian Pei and Bo Long (*Equal contributions). Graph Neural Networks for Natural Language Processing: A Survey. In *Foundations and Trends in Machine Learning*, Jun. 2022.
4. Yuwei Guo, Berit Goodge, Lifu Zhang, Jie Jiang, **Yu Chen**, Lena F. Kourkoutis and Jian Shi. Unit-cell-thick Domain in Free-standing Quasi-two-dimensional Ferroelectric Material. In *Phys. Rev. Materials* 5 (4), Apr. 2021.
5. Hao Chen, **Yu Chen**, Xu Zhang, Baiyuan Li, Xiaoqiang Liu, Xuefei Shi and Jie Shen. A Fast Voxel-based Method for Outlier Removal in Laser Measurement. In *International Journal of Precision Engineering and Manufacturing (IJPEM)*, 2019.

Book Chapters.....

1. **Yu Chen** and Lingfei Wu. Graph Neural Networks: Graph Structure Learning. In *Graph Neural Networks: Foundations, Frontiers, and Applications*, pp. 297-321. Springer, Singapore, 2022.

Tutorials

1. Bang Liu, **Yu Chen**, Xiaojie Guo and Lingfei Wu. Beyond Human Creativity: A Tutorial on Advancements in AI Generated Content. In *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI 2024)*, Feb. 20-27, 2024.
2. Lingfei Wu, **Yu Chen**, Heng Ji, Yunyao Li and Bang Liu. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the ACM Web Conference 2022 (TheWebConf 2022)*, Apr. 25-29, 2022.
3. Lingfei Wu, **Yu Chen**, Heng Ji, Yunyao Li and Bang Liu. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI 2022)*, Feb. 22-Mar. 1, 2022.
4. Lingfei Wu, **Yu Chen**, Heng Ji, Yunyao Li and Bang Liu. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI 2021)*, Aug. 21-26, 2021.
5. Lingfei Wu, **Yu Chen**, Heng Ji, Yunyao Li and Bang Liu. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the 27th International Conference on Knowledge Discovery and Data Mining (SIGKDD 2021)*, Aug. 14-18, 2021.
6. Lingfei Wu, **Yu Chen**, Heng Ji and Bang Liu. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2021)*, Jul. 11-15, 2021.
7. Lingfei Wu, **Yu Chen**, Heng Ji and Yunyao Li. Deep Learning on Graphs for Natural Language Processing. In *Proceedings of the 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2021)*, Jun. 6-11, 2021.

Patents

1. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Subgraph Guided Knowledge Graph Question Generation. Publication, Jan. 2022. US20220027707A1.
2. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Iterative Deep Graph Learning for Graph Neural Networks. Publication, Dec. 2021. US20210374499A1.
3. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Natural Question Generation via Reinforcement Learning Based Graph-to-sequence Model. Publication, Jul. 2021. US20210209139A1.
4. Lingfei Wu, Mohammed J. Zaki, **Yu Chen**. Conversation History Within Conversational Machine Reading Comprehension. Publication, Feb. 2021. US20210056445A1.

Professional Services

Technical Program Committee: ICLR 2024, NeurIPS 2023, ACL (2020 ~ 2023), EMNLP (2020 ~ 2023), LoG (2022 ~ 2023), EACL 2021, CIKM 2022, IJCAI 2020, DLG4NLP@NAACL 2022, DLG4NLP@ICLR 2022, DLG-AAAI (2021 ~ 2022), DLG-KDD (2020 ~ 2021), AAAI DLGMA 2020

Journal Reviewer: IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Knowledge and Data Engineering (TKDE), Data Mining and Knowledge Discovery (DAMI), International Journal of Intelligence Systems (IJIS), ACM Transactions on Knowledge Discovery from Data (TKDD), IEEE/ACM Transactions on Audio, Speech and Language Processing (TASL), Journal of Computer Science and Technology (JCST), Artificial Intelligence Review (AIRE), Computer Speech and Language (YCSLA)