

Yu Chen | Curriculum Vitae

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Education

Rensselaer Polytechnic Institute

Ph.D in Computer Science

GPA: 3.89/4.0

Troy, NY, USA

AUG. 2015 - AUG. 2020

University of Michigan-Dearborn

Exchange student in Computer & Information Science

Dearborn, MI, USA

AUG. 2014 - DEC. 2014

University of Electronic Science and Technology of China

B.Eng. in Telecommunications Engineering

GPA: 3.98/4.0

Chengdu, China

SEP. 2011 - JUL. 2015

Research & Work Experience

Research Scientist, Facebook AI

Menlo Park, CA, USA

SEP. 2020 - PRESENT

Graduate Research Assistant, RPI

Advisor: Dr. [Mohammed J. Zaki](#)

Troy, NY, USA

MAY 2017 - JUL. 2020

AI Research Intern, IBM Research

Manager: Dr. [Lazaros Polymenakos](#)

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), Data Mining, and Natural Language Processing, with a particular emphasis on the fast-growing field of Graph Neural Networks and their applications in various domains. His thesis topic was on designing and developing novel deep learning approaches for question answering and generation from structured and unstructured data. His work has been published in top-ranked conferences including but not limited to NeurIPS, ICML, ICLR, AAAI, IJCAI, NAACL, KDD, WSDM, ISWC, and AMIA. He was the recipient of the Best Student Paper Award of AAAI DLGMA'20. He is also a co-inventor of 4 filed US patents.

Projects

Graph4NLP Library

Troy, NY, USA

JUN 2020 - PRESENT

Designed and developed the [Graph4NLP](#) library for the easy use of Graph Neural Networks for NLP.

Personalized Search and Recommendation for Health Empowerment

Troy, NY, USA

Rensselaer Polytechnic Institute, Advisor: Dr. [Mohammed J. Zaki](#)

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

Rensselaer Polytechnic Institute

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**
Rensselaer Polytechnic Institute, Mentor: Dr. [Lingfei Wu](#) 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**
Rensselaer Polytechnic Institute, Mentor: Dr. [Lingfei Wu](#) 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**
Rensselaer Polytechnic Institute, Mentor: Dr. [Lingfei Wu](#) 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**
Rensselaer Polytechnic Institute, Advisor: Dr. [Mohammed J. Zaki](#) 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**
Rensselaer Polytechnic Institute, Advisor: Dr. [Mohammed J. Zaki](#) AUG. 2016 - FEB. 2017
 Designed and developed a novel autoencoder-based system for text analytics via competitive learning.

Honors & Awards

Karen and Lester Gerhardt Prize (Outstanding Doctoral Dissertation Award)
Rensselaer Polytechnic Institute MAY 2021

Robert McNaughton Prize (Outstanding Graduate Student Award)
Rensselaer Polytechnic Institute MAY 2021

Best Student Paper Award of AAAI DLGMA 2020
AAAI DLGMA 2020 FEB. 2020

Student Travel Award of SIGKDD 2017
ACM SIGKDD JUL. 2017

The First-Class People's Scholarship
The University of Electronic Science and Technology of China 2012 - 2013 & 2013 - 2014

National Scholarship
Ministry of Education of China, Top 1.6 % 2011 - 2012

Skills

Research: Machine Learning, Deep Learning, Natural Language Processing, Data Mining
Programming: PYTHON > C/C++ > MATLAB = PHP = JAVASCRIPT = R
Software: PyTorch, TensorFlow, Keras, Scikit-learn, Linux, MacOS, Database, Git

Publications

- Preprints**.....
1. Lingfei Wu*, **Yu Chen***, Kai Shen, Xiaojie Guo, Hanning Gao, Shucheng Li, Jian Pei and Bo Long, Graph Neural Networks for Natural Language Processing: A Survey.
 2. **Yu Chen**, Lingfei Wu and Mohammed J. Zaki, Toward Subgraph Guided Knowledge Graph Question Generation with Graph Neural Networks.
- Conference Publications**.....
1. 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).

2. **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.
3. **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.
4. 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.
5. **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.
6. **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).
7. **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.
8. **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](#)).
9. **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.
10. 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.
11. 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.
12. **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.
13. **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.
14. **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.
15. **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).

16. **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. 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.
2. 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.

Tutorials

1. 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.
2. 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.
3. 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.
4. 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.
5. 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. Method and System for Subgraph Guided Knowledge Graph Question Generation. Filed, Jul. 2020.
2. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Method and System for Iterative Deep Graph Learning for Graph Neural Networks. Filed, May 2020.
3. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Method and System for Natural Question Generation via Reinforcement Learning Based Graph-to-Sequence Model. Filed, Jan. 2020.
4. Lingfei Wu, **Yu Chen**, Mohammed J. Zaki. Method and System for Conversational Machine Reading Comprehension via Graph Neural Networks. Filed, Aug. 2019.

Professional Services

Technical Program Committee: DLG-AAAI 2022, EMNLP 2021, ACL 2021, NAACL 2021, EACL 2021, DLG-KDD 2021, DLG-AAAI 2021, IJCAI 2020, ACL 2020, EMNLP 2020, AAAI DLGMA 2020, DLG-KDD 2020

Journal Reviewer: 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)