Yu Chen | Curriculum Vitae

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Education

Rensselaer Polytechnic Institute — **Troy, NY, USA**
Ph.D in Computer Science — Aug. 2015 - Aug. 2020
GPA: 3.89/4.0

University of Michigan-Dearborn — **Dearborn, MI, USA**
Exchange student in Computer & Information Science — Aug. 2014 - Dec. 2014

University of Electronic Science and Technology of China — **Chengdu, China**
B.Eng. in Telecommunications Engineering — Sep. 2011 - Jul. 2015
GPA: 3.98/4.0

Research & Work Experience

Research Scientist, Facebook — **Menlo Park, CA, USA**
Sep. 2020 - Present

Graduate Research Assistant, RPI — **Troy, NY, USA**
Advisor: Dr. Mohammed J. Zaki — May 2017 - Jul. 2020

AI Research Intern, IBM Research — **Yorktown Heights, NY, USA**
Manager: Dr. Lazaros Polymenakos — 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

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.

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.

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.

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

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. **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* (**ACM 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. 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 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: NAACL 2021, EACL 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)