

Zhiyu Chen

CONTACT INFORMATION

Applied Scientist, Amazon
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Seattle, WA, US, 98109

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RESEARCH INTERESTS

Information retrieval, natural language processing, data mining, machine learning

EDUCATION

Lehigh University, Bethlehem, PA, USA **09/2015-08/2022**

Ph.D., Department of Computer Science & Engineering

- Dissertation Title: Dataset Search and Augmentation
- Advisor: Brian D. Davison
- Overall GPA: 3.97/4.0

Ecole Supérieure d'Ingénieurs Léonard de Vinci, Paris, France **09/2014-01/2015**

Exchange Program

- Advisor: Gael Chareyron
- Overall GPA: 15.75/20

Nanjing University of Aeronautics and Astronautics, Nanjing, China **09/2011-06/2015**

B.S., Department of Computer Science & Technology

- Advisor: Dechang Pi
- Overall GPA: 4.2/5.0 (ranking: 1/94)

PUBLICATIONS

Model-based Unbiased Learning to Rank **2023**

D. Luo, L. Zou, Q. Ai, Z. Chen, D. Yin, B.D. Davison

Accepted by Proceedings of The 16th Annual ACM International Conference on Web Search and Data Mining, (WSDM 2023).

Reinforced Question Rewriting for Conversational Question Answering **2022**

Z. Chen, J. Zhao, A. Fang, B. Fetahu, O. Rokhlenko and S. Malmasi

In Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP 2022 Industry Track).

StruBERT: Structure-aware BERT for Table Search and Matching **2022**

M. Trabelsi, Z. Chen, S. Zhang, J. Heftin, and B.D. Davison

In Proceedings of the 31st Web Conference, Online, April, 2022 (WWW 2022).

MGNETS: Multi-Graph Neural Networks for Table Search **2021**

Z. Chen, M. Trabelsi, J. Heftin, D. Yin and B.D. Davison

In Proceedings of the 30th ACM International Conference on Information and Knowledge Management, Online, November, 2021 (CIKM 2021).

Neural Ranking Models for Document Retrieval **2021**

M. Trabelsi, Z. Chen, J. Heftin and B.D. Davison

Information Retrieval Journal, October, 2021

- WTR: A Test Collection for Web Table Retrieval** **2021**
Z. Chen, S. Zhang and B.D. Davison
 In Proceedings of the 44rd International ACM SIGIR Conference on Research and Development in Information Retrieval, Online, July, 2021 (SIGIR 2021).
- A Hybrid Deep Model for Learning to Rank Data Tables** **2020**
M. Trabelsi, Z. Chen, J. Hefflin and B.D. Davison
 In Proceedings of the 2020 IEEE International Conference on Big Data (BigData 2020), December, 2020
- Relational Graph Embeddings for Table Retrieval** **2020**
M. Trabelsi, Z. Chen*, J. Hefflin and B.D. Davison*
 In the Seventh International Workshop on High Performance Big Graph Data Management, Analysis, and Mining (BigGraphs 2020), held with IEEE BigData 2020
- Towards Knowledge Acquisition of Metadata on AI Progress** **2020**
Z. Chen, M. Trabelsi*, J. Hefflin and B.D. Davison*
 In Proceedings of the ISWC 2020 Demos and Industry Tracks: From Novel Ideas to Industrial Practice, co-located with the 19th International Semantic Web Conference (ISWC 2020), November, 2020
- Table Search Using a Deep Contextualized Language Model** **2020**
Z. Chen, M. Trabelsi, J. Hefflin, Y. Xu and B.D. Davison
 In Proceedings of the 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2020), Xi'An, China, July, 2020.
- Pretrained Generalized Autoregressive Model with Adaptive Probabilistic Label Cluster for Extreme Multi-label Text Classification** **2020**
H. Ye, Z. Chen, D. Wang and B. D. Davison
 In Proceedings of the 37th International Conference on Machine Learning (ICML 2020), July, 2020.
- Leveraging Schema Labels to Enhance Dataset Search** **2020**
Z. Chen, H. Jia, J. Hefflin, and B.D. Davison
 In Proceedings of the 42nd European Conference on Information Retrieval (ECIR 2020), Lisbon, Portugal, April, 2020.
- Recognizing Quantity Names for Tabular Data** **2018**
Y. Yi, Z. Chen, J. Hefflin and B.D. Davison
 In Joint Proceedings of the First International Workshop on Professional Search (ProfS2018); the Second Workshop on Knowledge Graphs and Semantics for Text Retrieval, Analysis, and Understanding (KG4IR); and the International Workshop on Data Search (DATA:SEARCH'18), pages 68-73. Co-located with SIGIR 2018, Ann Arbor, Michigan, USA, July.
- Generating Schema Labels through Dataset Content Analysis (Best paper award)** **2018**
Z. Chen, H. Jia, J. Hefflin, and B.D. Davison
 In Companion Proceedings of The Web Conference (WWW '18), Presented at the International Workshop on Profiling and Searching Data on the Web (Profiles & Data:Search'18, Co-located with The Web Conference, Lyon, France, April.

INDUSTRY EXPERIENCE	<p>Amazon, Seattle, WA, US <i>Applied Scientist Intern</i> 05/2021-09/2021 A research project about conversational question answering. The paper was published in EMNLP 2022 industry track.</p>
	<p>Zhuiyi Technology, Shenzhen, China <i>Machine Learning Intern</i> 05/2019-09/2019 Represented the company to join a natural language understanding competition: https://super.gluebenchmark.com/leaderboard. I was in charge of WiC and WSC among all 8 tasks on SuperGLUE. I also contributed ideas to other 2 team members who were working on the rest tasks. Our submission ranked 3rd at the time of submission, including the human baseline ranked 1st.</p>
	<p>Bloomberg, Princeton, New Jersey, USA <i>Data Science Intern</i> 06/2016-08/2016 Developed a tool to analyze and visualize the log of Bloomberg Data License.</p>
RESEARCH PROJECTS	<p>Domain-Agnostic Dataset Search Lehigh University, Bethlehem, PA, USA <i>Research Assistant</i> 06/2016-present The goal of this NSF-funded project is to develop a prototype dataset search engine incorporating new techniques for full-content indexing to enable searchers to find data across the web, regardless of domain. My contribution includes: crawled datasets from data portals; developed methods to augment dataset metadata (schema labels); developed new models to rank datasets; created a new benchmark for evaluation.</p>
	<p>The PRAISys Project, Lehigh University, Bethlehem, PA, USA <i>Research Assistant</i> 05/2018-08/2018 The PRAISys (Probabilistic Resilience Assessment of Interdependent Systems) platform performs post-event resilience analysis of communities by addressing stochastic interdependencies among infrastructure systems in a probabilistic way. I improved the platform by augmenting the simulator with sub-component analysis.</p>
	<p>Discovery of Adverse Drug Reactions from Online Forums, Lehigh University, Bethlehem, PA, USA <i>Research Assistant</i> 09/2015-06/2016 Proposed an algorithm that can automatically extract intra-sentence Drug-ADRs and inter-sentence Drug-ADRs from online medical forums.</p>
TALKS	<p>Deep Text Matching and Applications (slides) 2019 Z. Chen Presentation of Depth Study & Graduate Research Seminar Series (GRSS) at the Lehigh University, Bethlehem, USA, May 2019.</p>
	<p>Challenges and Progress in Dataset Search (slides) 2018 Z. Chen Presentation at the Eighth BCS-IRSG Symposium on Future Directions in Information Access (FDIA 2018), co-located with the 8th International Conference on the Theory of Information Retrieval, Tianjin, China, September 2018.</p>

PROFESSIONAL ACTIVITIES	PC Member	KDD 2023
	PC Member	SIGIR 2023
	PC Member	ACL 2023
	PC Member	TheWebConf 2023
	PC Member	WSDM 2023
	Reviewer	COLING 2022
	PC Member	SIGIR 2022
	PC Member	TheWebConf 2022
	PC Member	KDD 2022
	PC Member	WSDM 2022
	Reviewer	TKDE 2021
	External Reviewer	SIGIR 2021
	Reviewer	CIKM 2020
	External Reviewer	SIGIR 2020
	External Reviewer	SDM 2019
	Student Volunteer	SIGIR 2018
	External Reviewer	BigData 2017-2021
External Reviewer	WWW 2017	
TEACHING	Teaching Assistant Fundamentals of Programming (CSE 2), Lehigh University, 2016 Fall and Spring 2017	
HONORS AND AWARDS	2021, ACM SIGIR Student Travel Grant	
	2021, Rossin Professional Development Program Award at Lehigh University	
	2020, ISWC Student Grant	
	2020, ACM SIGIR Student Travel Grant	
	2018, Best Paper Award of International Workshop on Profiles & Data:Search'18	
	2018, ACM SIGIR Student Travel Grant	
	2015, RCEAS Dean's Fellowship	
	2014, Chinese Government Scholarship from China Scholarship Council	
	2013, First Prize, National Mathematical Contest in Modeling (Jiangsu Division)	
	2012, Honorable Mention for Social Practice	
	2012, Second Prize, 11 th Higher Mathematics Competition of Jiangsu Province	
2011-2014, Student Scholarship		
2011-2014, Merit Student		