

Denghui Zhang

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Educations

Rutgers Business School, Rutgers University, New Jersey

Sep. 2018 - Jun. 2023

- Ph.D. in Information Systems Track, Rutgers Data Mining Lab
- Advisor: Prof. Hui Xiong

Institute of Computing Technology, Chinese Academy of Sciences, Beijing Sep. 2015 - Jun. 2018

- M.S. in Computer Science, CAS Key Laboratory of Network Data Science and Technology
- Advisor: Prof. Jun Xu, and Prof. Yuanzhuo Wang

University of Science and Technology Beijing, Beijing, China

Sep. 2011 - Jun. 2015

- B.E. in Electronic Engineering, School of Computer and Communication Engineering

Research Interest

Topics: Online Labor Market Analysis, M&A Success Analysis, Venture Capital Portfolio Optimization, E-commerce Analysis, Product Linkage, Knowledge Graphs, Spatio-temporal Modeling

Methodologies: Data Mining, Representation Learning, Natural Language Processing, Self-supervised Learning, Graph Neural Network, Pre-training&Fine-tuning

Publication

[DM]: Data Mining Methods, [IS]: Information Systems, [BA]: Business Applications

Peer-reviewed Conference and Journal Publications

CIST'2022 **Acqui-hiring or Acqui-quitting: Post-M&A Turnover Prediction via a Dual-fit GNN Model**

Denghui Zhang, Hao Zhong, Jingyuan Yang [IS] [BA]

INFORMS Conference On Information Systems And Technology (CIST), 2022.

IEEE TKDE **Multi-Faceted Knowledge-Driven Pre-training for Product Representation Learning**

Denghui Zhang, Yanchi Liu, Zixuan Yuan, Yanjie Fu, Haifeng Chen, Hui Xiong [DM] [IS]

IEEE Transactions on Knowledge and Data Engineering, 2022.

KDD'2022 **Towards Learning Disentangled Representations for Time Series** [DM]

Yuening Li, Zhengzhang Chen, Daochen Zha, Mengnan Du, Jingchao Ni, Denghui Zhang,

Haifeng Chen, Xia Hu. The 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2022. (14.99% acceptance rate)

IEEE TBD **RPT: Toward Transferable Model on Heterogeneous Researcher Data via Pre-Training**

Ziyue Qiao, Yanjie Fu, Pengyang Wang, Meng Xiao, Zhiyuan Ning, Denghui Zhang, Yi Du, Yuanchun Zhou. IEEE Transaction on Big Data [DM]

- AAAI'21 **Learning to Walk with Dual Agents for Knowledge Graph Reasoning** [DM]
Denghui Zhang, Zixuan Yuan, Hao Liu, Xiaodong Lin, Hui Xiong
The 36th AAAI Conference on Artificial Intelligence, 2021. (Long paper, 15% Acceptance rate)
- KDD'2021 **Domain-oriented Language Modeling with Adaptive Hybrid Masking and Optimal Transport Alignment** [DM]
Denghui Zhang, Zixuan Yuan, Yanchi Liu, Hao Liu, Fuzhen Z, Hui Xiong, Haifeng Chen
The 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2021. (Research track, 15.4% acceptance rate)
- AAAI'21 **Self-Supervised Prototype Representation Learning for Event-Based Corporate Profiling**
Zixuan Yuan, Hao Liu, Renjun Hu, **Denghui Zhang**, Hui Xiong. [DM] [BA]
The 35th AAAI Conference on Artificial Intelligence, 2021. (Long paper, 21% acceptance rate)
- ICDM'20 **T²-Net: A Semi-supervised Deep Model for Turbulence Forecasting** [DM] [BA]
Denghui Zhang, Yanchi Liu, Wei Cheng, Bo Zong, Jingchao Ni, Zhengzhang Chen, Haifeng Chen, Hui Xiong
The 20th IEEE International Conference on Data Mining, 2020. (19.7% acceptance rate)
- SIGIR'20 **Spatio-Temporal Dual Graph Attention Network for Query-POI Matching** [DM] [BA]
Zixuan Yuan, Hao Liu, Yanchi Liu, **Denghui Zhang**, Fei Yi, Nengju Zhu, Hui Xiong
The 43rd ACM SIGIR International Conference on Research and Development in Information Retrieval, 2020. (Long paper, 26% acceptance rate)
- CIKM'19 **Job2Vec: Job Title Benchmarking with Collective Multi-View Representation Learning**
Denghui Zhang, Junming Liu, Hengshu Zhu, Yanchi Liu, Lichen W, Pengyang W, Hui Xiong
The 28th ACM International Conference on Information and Knowledge Management, 2019. (Regular paper, 19.7% acceptance rate) [DM] [IS][BA]
- AAAI'18 **Path-Based Attention Neural Model for Fine-Grained Entity Typing** [DM]
Denghui Zhang, Manling Li, Pengshan Cai, Yantao Jia, Yuanzhuo Wang
The Thirty-Second AAAI Conference on Artificial Intelligence, 2018. (Abstract paper)
- WI'17 **Efficient Parallel Translating Embedding For Knowledge Graphs** [DM]
Denghui Zhang, Manling Li, Yantao Jia, Yuanzhuo Wang, Xueqi Cheng
The IEEE/WIC/ACM International Conference on Web Intelligence, 2017. (Long paper)
- IEEE TBD **Link Prediction in Knowledge Graphs: A Hierarchy-Constrained Approach** [DM]
Manling Li, **Denghui Zhang**, Yantao Jia, Yuanzhuo Wang, Xueqi Cheng
IEEE Transaction on Big Data Special Issue on Knowledge Graphs: Techniques and Applications, 2017.

Working papers

- ISR **Acqui-hiring or Acqui-quitting: Post-M&A Turnover Prediction via a Dual-fit GNN Model**
Denghui Zhang, Hao Zhong, Jingyuan Yang [IS] [BA]
Information Systems Research. (In preparation)

MNSC	AlphaVC: A Reinforcement Learning-based Venture Capital Investment Strategy Zixuan Yuan, Denghui Zhang , Hao Zhong, Shengming Zhang, Hui Xiong [IS] [BA] <i>Management Science</i> . (In preparation)
TKDE	Interpretable Event-Driven Financial Forecasting with Online Knowledge Distillation Zixuan Yuan, Hao Liu, Renjun Hu, Denghui Zhang , Peter Hafez, Xiaodong Lin, Hui Xiong IEEE Transactions on Knowledge and Data Engineering, 2022. (Under review)
TKDE	LEVER: Online Adaptive Sequence Learning Framework for High-Frequency Trading Zixuan Yuan, Junming Liu, Haoyi Zhou, Denghui Zhang , Hao Liu, Nengjun Zhu, Hui Xiong IEEE Transactions on Knowledge and Data Engineering, 2022. (Under review)
Preprint	E-BERT: A Phrase and Product Knowledge Enhanced Language Model for E-commerce Denghui Zhang , Yanchi Liu, Fuzhen Zhuang, Hui Xiong arXiv:2009.02835
Patents	
US Patent	Semi-supervised Deep Model for Turbulence Forecasting Yanchi Liu, Jingchao Ni, Bo Zong, Haifeng Chen, Zhengzhang Chen, Wei Cheng, Denghui Zhang
US Patent	Multi-scale Multi-granularity Spatial-temporal Traffic Volume Prediction Yanchi Liu, Wei Cheng, Bo Zong, LuAn Tang, Haifeng Chen, Denghui Zhang

Honors and Awards

- **Dissertation Fellowship at Rutgers University**
- Freshman Scholarship at Chinese Academy of Sciences (CAS) (Top 10%)
- Excellent Student Awards at CAS (Top 15%)
- National Scholarship at University of Science and Technology Beijing (**Top 2%**)
- National Motivational Scholarship at USTB (Top5%)
- Excellent Student Awards at USTB (Top 5%)

Experiences

Amazon Science, Product Graph Team, Applied Scientist Intern *May-August 2021*

- Mix-supervised Pre-training for Variation-aware Entity Linkage: Proposed a mix-supervised pre-training framework and delivered a pre-trained e-commerce domain language model, which is not label-intensive and can be easily fine-tuned to detect both duplicate (i.e., exact match) and variational entities.

Data Science Department, NEC Laboratories America, Research Intern *May-August 2020*

- Deep contextualized product semantic learning: Proposed to adapt language model pre-training to the scenario of product matching, product search, etc., enhancing language modeling of product domain with product knowledge.

Data Science Department, NEC Laboratories America, Research Intern

May-August 2019

- Spatiotemporal traffic volume prediction: Proposed Spatial-Temporal Multi-Scale Multi-Granularity Network (ST-MSGN) for site-level traffic volume prediction, by modeling the complex spatial and temporal dependencies and their interactions. Conduct experiments on real-world datasets (NYC-Bike and NYC-Taxi) to validate the effectiveness of the model.

Baidu Talent Intelligence Center, Research Intern

June-August 2018

- Resume distribution: Developed resume recommender system for Baidu HR department, using NLP techniques to obtain the resume-job similarities and distribute resumes according to similarity scores and the headcount of different departments.
- Job title benchmarking: Developed a data-driven approach to match job titles with similar expertise levels across various companies.

Professional Services

Session Chair

- INFORMS Annual Meeting (2022)
Session of “AI-driven Business Analytics: New Advances and Applications”
- The 28th ACM SIGKDD Conference (2022)
Session of “Graph Learning and Social Networks”

Program Committee Member

- AAAI Conference on Artificial Intelligence, 2022, 2021.
- ACM Conference on Knowledge Discovery and Data Mining (SIGKDD), 2022.
- International Joint Conference on Artificial Intelligence (IJCAI), 2022.
- Association for Computational Linguistics (ACL) Rolling Review, 2022
- ACM International Conference on Web Search and Data Mining (WSDM), 2022

Reviewer

- Transactions on Management Information Systems (TMIS), 2022
- International Conference on Information Systems (ICIS), 2022
- Pacific Asia Conference on Information Systems (PACIS), 2022
- Journal of Electronic Commerce Research and Applications (ECRA)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- International Conference on Information and Knowledge Management (CIKM), 2019, 2020
- ACM Conference on Knowledge Discovery and Data Mining (SIGKDD), 2021

Teaching Experiences

Course Lecturer at Rutgers University

- 29:623:335:01, Data Warehousing & Data Mining (31 students), Spring 2022

Teaching Assistant at Rutgers University

- 29:623:335:01, Data Warehousing & Data Mining, Spring 2021
- 33:136:485:02, Time Series Model, 2020 Fall
- Information Security IT/CS, Fall 2021, Spring 2022

Skills

Language Python, C/C++, Java, Scala, MySQL, Shell

Tools Keras, PyTorch, Tensorflow, Spark MLlib, Sklearn, Pandas