

Denghui Zhang

Rutgers University, NJ, US

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EDUCATION

Rutgers Business School, Rutgers University, New Jersey, USA

Sep. 2018 - Jun. 2023

- Ph.D. in Information Systems, Rutgers Data Mining Lab
- Advisor: Prof. Hui Xiong, Fellow of IEEE and AAAS

Institute of Computing Technology, Chinese Academy of Sciences, China

Sep. 2015 - Jun. 2018

- M.S. in Computer Science, CAS Key Laboratory of Network Data Science and Technology

University of Science and Technology Beijing, China

Sep. 2011 - Jun. 2015

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

RESEARCH INTEREST

Artificial intelligence, data mining and natural language processing with applications in talent intelligence, e-commerce, M&A success analysis, Fintech, etc.

Methodologies: Representation learning, reinforcement learning, self-supervised learning, language models, graph neural network, pre-training & fine-tuning

PUBLICATIONS

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

Peer-reviewed Conference and Journal Publications (Accepted)

- [1] CIST'22 **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.
- [2] 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.
- [3] WDS'22 **AlphaVC: A Reinforcement Learning-based Venture Capital Investment Strategy**
Zixuan Yuan*, Denghui Zhang*, Hao Zhong, Shengming Zhang, Hui Xiong [IS] [BA]
INFORMS Workshop on Data Science 2022. (* denotes equal contribution.)
- [4] KDD'22 **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)

- [5] KDD'21 **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)

- [6] 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)

- [8] 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)

- [7] 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* [\[DM\]](#)

- [9] 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)

- [10] 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)

- [11] 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. (19.7% acceptance rate) [\[DM\]](#) [\[IS\]](#)[\[BA\]](#)

- [12] 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)

- [13] 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)

- [14] 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, 2017.

Working papers (Under review)

- [15] 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). Accepted by CIST 2022 and INFORMS Workshop on Data Science 2022.
- [16] MNSC **AlphaVC: A Reinforcement Learning-based Venture Capital Investment Strategy**
Zixuan Yuan*, Denghui Zhang*, Hao Zhong, Shengming Zhang, Hui Xiong [IS] [BA]
Management Science (In preparation). Accepted by INFORMS Workshop on Data Science 2022.
(* denotes equal contribution.)
- [19] ICDE'23 **Variation-aware E-commerce Product Linkage with Mix-supervised Pre-training**
Denghui Zhang, Zhengyang Wang, Pengyang Wang, Yanjie Fu, Zixuan Yuan, Hui Xiong
IEEE International Conference on Data Engineering, 2023. (Major Revision)
- [17] 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. (Major revision)
- [18] AAAI'23 **Interpretable Event-Driven Financial Forecasting with Online Knowledge Distillation**
Zixuan Yuan, Hao Liu, Renjun Hu, Denghui Zhang, Peter Hafez, Xiaodong Lin, Hui Xiong
The 37th AAAI Conference on Artificial Intelligence, 2023. (Under review)
- [20] AAAI'23 **Human-instructed Deep Hierarchical Generative Learning for Automated Urban Planning**
Dongjie Wang, Lingfei Wu, Denghui Zhang, Jingbo Zhou, Leilei Sun, Yanjie Fu
The 37th AAAI Conference on Artificial Intelligence, 2023. (Under review)
- [21] AAAI'23 **Self-Paced Unified Representation Learning for Hierarchical Multi-Label Classification**
Zixuan Yuan, Hao Liu, Haoyi Zhou, Denghui Zhang, Xiao Zhang, Hao Wang, Hui Xiong
The 37th AAAI Conference on Artificial Intelligence, 2023. (Under review)

Patents

- US Patent **Multi-Faceted Knowledge-Driven Pre-training for Product Representation Learning**
Yanchi Liu, Bo Zong, Haifeng Chen, Xuchao Zhang, Denghui Zhang (first student author)
- US Patent **Semi-supervised Deep Model for Turbulence Forecasting**
Yanchi Liu, Jingchao Ni, Bo Zong, Haifeng Chen, Zhengzhang Chen, Wei Cheng,
Denghui Zhang (first student author)
- US Patent **Multi-scale Multi-granularity Spatial-temporal Traffic Volume Prediction**
Yanchi Liu, Wei Cheng, Bo Zong, LuAn Tang, Haifeng Chen, Denghui Zhang (first student author)

HONORS & AWARDS

- **Dean's Dissertation Fellowship at Rutgers University**
- Student Scholarship from INFORMS Workshop on Data Science
- Freshman Scholarship at Chinese Academy of Sciences (Top 10%)
- Excellent Student Awards at Chinese Academy of Sciences (Top 15%)
- National Scholarship (Top 2%) (the most prestigious scholarship in China)
- National Motivational Scholarship (Top 5%)
- Excellent Student Awards at University of Science and Technology Beijing (Top 5%)

PROFESSIONAL EXPERIENCES ---

Product Graph Team, Amazon Science, 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 less label-intensive and can be easily fine-tuned to detect both duplicate (i.e., exact match) and variation 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.

TEACHING EXPERIENCES ---

Course Lecturer at Rutgers University

- 29:623:335:01, Data Warehousing & Data Mining (31 students), Spring 2022
- Hybrid teaching (in-person and zoom).
- Teaching Effectiveness Evaluation: **4.53/5** (Above school and department average).

Teaching Assistant at Rutgers University

- 29:623:345:01, Cyber Security, Fall 2021, Spring 2022
- 29:623:335:01, Data Warehousing & Data Mining, Spring 2021
- 33:136:485:02, Time Series Model, 2020 Fall

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

- International Conference on Information Systems (ICIS), 2022
- Pacific Asia Conference on Information Systems (PACIS), 2022
- The Workshop on Information Technologies and Systems (WITS), 2022
- AAAI Conference on Artificial Intelligence (AAAI), 2022, 2021.
- ACM Conference on Knowledge Discovery and Data Mining (SIGKDD), 2022, 2021.
- International Joint Conference on Artificial Intelligence (IJCAI), 2022, 2021.
- Association for Computational Linguistics (ACL) Rolling Review, 2022, 2021.
- ACM International Conference on Web Search and Data Mining (WSDM), 2022, 2021.
- International Conference on Information and Knowledge Management (CIKM), 2020

Journal Reviewer

- Transactions on Management Information Systems (TMIS), 2022
- Journal of Electronic Commerce Research and Applications (ECRA), 2022
- IEEE Transactions on Knowledge and Data Engineering (TKDE), 2019

SKILLS

Language Python, C/C++, Java, Scala, MySql, Shell
Tools Keras, PyTorch, Tensorflow, Spark MLlib, Sklearn, Pandas

REFERENCES

- Hui Xiong (advisor), Distinguished Professor
Rutgers Business School, Rutgers University
hxiong@rutgers.edu
- Guiling Wang, Distinguished Professor
New Jersey Institute of Technology
guiling.wang@njit.edu
- Thomas Lidbetter, Associate professor
Rutgers Business School, Rutgers University
tlidbetter@business.rutgers.edu