Denghui Zhang

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EDUCATION

Rutgers Business School, Rutgers University, New Jersey *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, Beijing *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, 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 **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.*

[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] 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]

[6] AAAI **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)

[7] KDD **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)

[8] AAAI **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)

[9] ICDM **T^2-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 **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 **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 **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: Techniques & Applications*, 2017.

Working papers

[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]
Accepted by INFORMS *Workshop on Data Science 2022.* In preparation for *Management Science*.

[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 **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*, 2022. (Under review)

[19] ICDE **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, 2022. (Major Revision)

[20] AAAI **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*, 2022. (Under review)

[21] AAAI **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*, 2022. (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**

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 & AWARDS

- **Dean's Dissertation Fellowship at Rutgers University**
- Student Scholarship from INFORMS Workshop on Data Science
- Freshman Scholarship at Chinese Academy of Sciences (CAS) (Top 10%)
- Excellent Student Awards at CAS (Top 15%)
- National Scholarship (Top 2%)
- National Motivational Scholarship at USTB (Top5%)
- Excellent Student Awards at USTB (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
- Teaching Effectiveness Evaluation: **4.53/5** (Above school and department average).

Teaching Assistant at Rutgers University

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

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

- The Workshop on Information Technologies and Systems, WITS 2022
- AAAI Conference on Artificial Intelligence, 2022, 2021.
- International Conference on Information Systems (ICIS), 2022
- Pacific Asia Conference on Information Systems (PACIS), 2022
- 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
- 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