Denghui Zhang

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Educations

Rutgers Business School, Rutgers University, New Jersey *Sep. 2018 - Jun. 2023 (Expected)*

- Ph.D. in Information Technology, at Rutgers Data Mining Group
- Advisor: Prof. Hui Xiong

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

- M.S. in Computer Science and Technology, at CAS Key Laboratory of Network Data Science and Technology
- Advisor: Prof. Jun Xu, and Prof. Yuanzhuo Wang
- Chinese Academy of Sciences Freshman Scholarships (Top 10%), CAS Excellent Student Awards (Top 15%)

University of Science and Technology Beijing, Beijing, China *Sep. 2011 - Jun. 2015*

- B.E. in Electronic Engineering, at School of Computer and Communication Engineering
- National Scholarship (**Top 2%**), National Motivational Scholarship (Top5%), USTB Excellent Student Awards (Top 5%)

Research Interest

General: Data Mining, Representation Learning, Natural Language Processing, Knowledge Graph
Applications: Talent Analysis, E-commerce, Spatio-temporal Modeling

Publications

IEEE TKDE ***Multi-Faceted Knowledge-Driven Pre-training for Product Representation Learning***
Denghui Zhang, Yanchi Liu, Zixuan Yuan, Yanjie Fu, Haifeng Chen, Hui Xiong
IEEE Transactions on Knowledge and Data Engineering, 2022. *(Major revision.)*

KDD'2022 ***Towards Learning Disentangled Representations for Time Series***
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. *(applied data science track)*

AAAI'21 ***Learning to Walk with Dual Agents for Knowledge Graph Reasoning***
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***
Denghui Zhang, Zixuan Yuan, Yanchi Liu, Hao Liu, Fuzhen Zhuang, Hui Xiong, Haifeng Chen
The 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2021. *(research track, oral)*

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

AAAI'21 ***Self-Supervised Prototype Representation Learning for Event-Based Corporate Profiling***
Zixuan Yuan, Hao Liu, Renjun Hu, **Denghui Zhang**, Hui Xiong
The 35th AAAI Conference on Artificial Intelligence, 2021. *(long paper, accepted)*

ICDM'20 ***T^2-Net: A Semi-supervised Deep Model for Turbulence Forecasting***
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.

SIGIR'20 ***Spatio-Temporal Dual Graph Attention Network for Query-POI Matching***
Zixuan Yuan, Hao Liu, Yanchi Liu, **Denghui Zhang**, Fei Yi, Nengju Zhu, Hui Xiong
The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR), 2020. *(long paper, accepted)*

CIKM'19 ***Job2Vec: Job Title Benchmarking with Collective Multi-View Representation Learning***
Denghui Zhang, Junming Liu, Hengshu Zhu, Yanchi Liu, Lichen Wang, Pengyang Wang, Hui Xiong
The 28th ACM International Conference on Information and Knowledge Management (CIKM), 2019.

AAAI'18 ***Path-Based Attention Neural Model for Fine-Grained Entity Typing***
Denghui Zhang, Manling Li, Pengshan Cai, Yantao Jia, Yuanzhuo Wang
The Thirty-Second AAAI Conference on Artificial Intelligence, 2018. *(poster, accepted)*

WI'17 ***Efficient Parallel Translating Embedding For Knowledge Graphs***
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***
Manling Li, **Denghui Zhang**, Yantao Jia, Yuanzhuo Wang, Xueqi Cheng
IEEE Transaction on Big Data Special Issue on Knowledge Graphs: Techniques and Applications, 2017.

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**

Experiences

Amazon Science, Product Graph Team, Applied Scientist Intern *May. 2021 - 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. 2020 - 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. 2019 - 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. 2018 - 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, Session: AI-driven Business Analytics: New Advances and Applications
PC Member	AAAI'22, KDD'22, IJCAI'22, WSDM'22, WWW'21, IJCAI'21, AAAI'21.
Conference Reviewer	ICIS 2022, PACIS 2022, ACL 2022, NAACL 2022
External Reviewer	KDD 2021, WSDM 2020, CIKM 2020, IJCAI 2020, CIKM 2019, TKDE 2019, KDD 2019.

Teaching Experiences

Lecturer

- 29:623:335:01, Data Warehousing & Data Mining, Spring 2022

Teaching Assistant

- 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