

# Yongkang Du

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## EDUCATION

<b>Pennsylvania State University,</b> <i>Ph.D. Informatics</i> <i>Advisor: Lu Lin</i>	<b>Aug 2024-Present</b>
<b>University of Southern California,</b> <i>M.S. Computer Science</i> <i>Advisor: Jieyu Zhao</i>	<b>Jan 2022-May 2023</b>
<b>North China University of Technology,</b> <i>B.Eng. Computer Science and Technology, GPA 89.67/100, rank 4/154</i>	<b>Sep 2017-May 2021</b>

## PUBLICATION

- **Self-Contradictory Reasoning Evaluation and Detection**  
*Liu, Z., Lee, I., Du, Y., Sanyal S., Zhao, J.*  
*EMNLP 2024 Findings*
- **Controllable Pareto Trade-off Between Fairness and Accuracy**  
*Du, Y., Zhao, J., Yang, Y., Zhou, T.*  
*SoCal NLP Symposium 2023*
- **FF-PRec: A Feature Fusion-Based Paper Recommendation Method on Academic Big Data of Heterogeneous Network**  
*Du, Y., Ding, W., and Liang, Y.*  
2021 4th International Conference on Computer Information Science and Artificial Intelligence.
- **Geographic and Temporal Deep Learning Method for Traffic Flow Prediction in Highway Network**  
*Zhang, T., Ding W., Xing M., Chen J., Du Y., Liang, Y.*  
International Conference on Collaborative Computing: Networking, Applications and Worksharing. Springer, Cham, 2021
- **FallbackWalk: A Random Walk Based Fallback for Heterogeneous Information Network**  
*Liu, Z., Liang, Y., Xie, X., Wang, Z. and Du, Y.*  
IEEE 6th International Conference on Cloud Computing and Big Data Analytics, pp. 272-280, 2021.

## RESEARCH EXPERIENCE

<b>Research Assistant, Penn State,</b> <i>Advisor: Lu Lin, Jieyu Zhao</i> <i>Topic: Evaluate and mitigate bias in LLM code generation</i> <ul style="list-style-type: none"><li>• Prompt engineering to explore the bias issue in code generation</li><li>• (Intend to submit to NAACL)</li></ul>	<b>May 2024-Present</b>
<b>Research Assistant, USC&amp;UMD,</b> <i>Advisor: Jieyu Zhao, Tianyi Zhou</i> <i>Topic: Multi-objective optimization, Fairness Accuracy Trade-off</i> <ul style="list-style-type: none"><li>• Purpose a novel gradient-based MOO algorithm with reference vector to get controllable trade-offs</li><li>• Utilize moving average of stochastic gradient for multiple-gradient descent algorithm, which gives a more precise common descent vector and lead to a better convergence</li><li>• Prune the high-dimensional noisy gradient with a mask generated based on parameter magnitude to reduce the negative impact of curse of dimensionality</li><li>• Compared with SOTA MOO methods, our method can best follow the reference vector and get the most controllable results on both training and test set</li></ul>	<b>May 2023-Feb 2024</b>
<b>Research Assistant, Information Science Institute, USC,</b> <i>Advisor: Mohammad Rostami</i> <i>Topic: Unsupervised Domain Adaptation for Event Camera</i> <ul style="list-style-type: none"><li>• Enhance the model's adaptation ability from image domain to event domain via adversarial training</li><li>• Apply Sliced Wasserstein Distance loss for generator to align the domain gap and generate better histogram representation for event data</li><li>• Utilize contrastive loss (InfoNCE) to pull the representations of samples of the same class across all domains closer while pushing representations of samples of different classes further</li><li>• Achieve 0.84 accuracy on N-Caltech dataset, which is 0.3 higher than the backbone model</li></ul>	<b>Apr 2022-Aug 2022</b>
<b>Research Intern, Institute of Computing Technology, Chinese Academy of Sciences,</b> <i>Advisor: Ying Liang</i>	<b>Oct 2020-Nov 2021</b>

Topic: Graph Representation Learning, Recommender System

- Purpose a new paper recommendation method in academic social network with deep learning algorithm
- Construct heterogeneous academic network that connects scholars, papers, and conferences
- Design a metapath-based graph representation learning algorithm to extract feature according to semantic information, which effectively alleviate the data sparsity problem
- Conduct experiments on the AMiner dataset, our method achieves 0.877 Hit Rate and 0.727 NDCG, which are 0.1-0.2 higher than the baseline methods

## **SERVICE & INVOLVEMENT**

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**Participant**, Southern California Natural Language Processing Symposium 2023

**Volunteer Reviewer**, CVPR 2023

**Reviewer**, EURASIP Journal on Wireless Communications and Networking

**Reviewer**, International Journal of Web Information Systems

**Reviewer**, Security and Communication Networks

**Reviewer**, EAI CollaborateCom 2024

**Teaching Assistant**, CSCI 544 Natural Language Processing, University of Southern California

## **HONERS & AWARDS**

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| • Outstanding Undergraduate Thesis, North China University of Technology,      | 2021      |
| • First-class Scholarship, North China University of Technology,               | 2018-2020 |
| • First Prize in English Speech Contest, North China University of Technology, | 2019      |
| • School of Information Technology Basketball League Championship,             | 2019      |
| • International Student Mentorship, North China University of Technology       | 2018-2019 |

## **SKILLS**

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- Programming: Python, C/C++, Git, PyTorch, Numpy, TensorFlow, Pandas
- Language: Mandarin
- Interests: Basketball, Volleyball, Free Diving