

# JUNXIANG WANG

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## RESEARCH INTERESTS

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Data Mining and Machine Learning, Social Media Mining, Deep Learning on Graph, Nonconvex and Distributed Optimization.

## EDUCATION

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Ph.D. in Computer Science	<i>Nov 2022</i>
Emory University, Atlanta, GA	GPA:3.96
M.S. in Information Systems	<i>June 2020</i>
George Mason University, Fairfax, VA	GPA:3.98
B.S. in Computer Science and Technology	<i>June 2012</i>
East China Normal University, Shanghai, China	GPA:3.4

## ACADEMIC EXPERIENCE

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Jan 2023-Present	Researcher, NEC Laboratory America
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## PEER-REVIEWED PUBLICATIONS

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### Journal Publications

1. Junxiang Wang, Hongyi Li (first-coauthor), Zheng Chai, Yongchao Wang, Yue Cheng, and Liang Zhao. 2022. Towards Quantized Model Parallelism for Graph-Augmented MLPs Based on Gradient-Free ADMM Framework. *IEEE Transactions on Neural Networks and Learning Systems*, (impact factor: 14.255).
2. Junxiang Wang, Hongyi Li, Liang Zhao. 2022. Accelerated Gradient-free Neural Network Training by Multi-convex Alternating Optimization. *Neurocomputing* (Impact Factor: 5.719), vol.487, 130-143.
3. Junxiang Wang, Liang Zhao. 2021. Nonconvex Generalization of Alternating Direction Method of Multipliers for Nonlinear Equality Constrained Problems. *Results in Control and Optimization*. 2:100009.
4. Junxiang Wang, Liang Zhao, Yanfang Ye, and Yuji Zhang. 2018. Adverse event detection by integrating Twitter data and VAERS. *Journal of Biomedical Semantics* (Impact Factor: 1.845), 9, 19 (2018) DOI:10.1186/s13326-018-0184-y, 9(1):1-10.
5. Liang Zhao, Junxiang Wang, Feng Chen, Chang-Tien Lu, Naren Ramakrishnan. 2017. "Spatial Event Forecasting in Social Media with Geographically Hierarchical Regularization". *Proceedings of the IEEE* (Impact Factor: 9.237), vol. 105, no. 10, pp. 1953-1970, Oct 2017.
6. Junxiang Wang, Weiming Yu, Zhibin Chen, Hengda Li, Zhenran Jiang. Predicting Drug-Target Interactions of Nuclear Receptors Based on Molecular Descriptors Information. *Letters in Drug Design & Discovery* (Impact Factor: 1.099), vol. 10, no. 10, 989-994, 2013.

7. Weiming Yu, Yan Yan, Qing Liu, Junxiang Wang and Zhenran Jiang. Predicting drug–target interaction networks of human diseases based on multiple feature information. *Pharmacogenomics* (Impact Factor: 2.638), vol. 14,no. 14, 1701-1707, 20, 2013
8. Zhenran Jiang, Ran Tao, Lei Du, Weiming Yu and Junxiang Wang. Using Network-Based Approaches to Predict Ligands of Orphan Nuclear Receptors. *Current Bioinformatics* (Impact Factor: 4.850), vol.7, no.4, 411-414, 2012.
9. Ran Tao, Zhenran Jiang, Weiming Yu and Junxiang Wang. Predicting Coupling Specificity of GPCRs Based on the Optimization of the Coupling Regions. *Combinatorial chemistry & high throughput screening* (Impact Factor: 1.714) vol.15, no.9, 770-774, 2012.
10. Weiming Yu, Zhengyan Jiang, Junxiang Wang and Ran Tao. Using feature selection technique for drug-target interaction networks prediction. *Current medicinal chemistry* (Impact Factor: 4.74) vol.18, no.36, 5687-5693, 2011.

#### Conference Publications

1. Chen Ling, Tanmoy Chowdhury, Junji Jiang, Junxiang Wang, Xuchao Zhang, Haifeng Chen, and Liang Zhao. DeepAR: Deep Graph Representation Learning and Optimization for Analogical Reasoning. in *Proceedings of the IEEE International Conference on Data Mining (ICDM 2022)*, short paper (acceptance rate: 20%), Orlando, FL, USA, Nov 2022.
2. Chen Ling, Jungi Jiang, Junxiang Wang, Liang Zhao. 2022. SL-VAE: Variational Autoencoder for Source Localization in Graph Information Diffusion. *The 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2022)* (Acceptance Rate: 14.99%), accepted, 2022.
3. Junxiang Wang, Junji Jiang, Liang Zhao. 2022. An Invertible Graph Diffusion Model for Source Localization. *The 21st Web Conference (WWW 2022)*, (Acceptance Rate: 17.7%), accepted, in press.
4. Junxiang Wang and Liang Zhao. Convergence and Applications of Alternating Direction Method of Multipliers on the Multi-convex Problems. *The 26th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2022)* (Acceptance Rate: 19.3%), accepted, in press.
5. Junxiang Wang, Zheng Chai, Yue Cheng, and Liang Zhao. 2020. Toward Model Parallelism for Deep Neural Network based on Gradient-free ADMM Framework. In *Proceedings of the 20th International Conference on Data Mining (ICDM 2020)*, (Acceptance Rate: 9.8%), November 17-20, 2020, Virtual Event, Sorrento, Italy, pp. 591-600.
6. Junxiang Wang, Fuxun Yu, Xiang Chen, and Liang Zhao. ADMM for Efficient Deep Learning with Global Convergence. in *Proceedings of the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2019)*, research track (Acceptance Rate: 14.2%), pp. 111-119, Alaska, USA, Aug 2019.
7. Junxiang Wang, Yuyang Gao, Andreas Züfle, Jingyuan Yang, and Liang Zhao. Incomplete Label Uncertainty Estimation for Petition Victory Prediction with Dynamic Features. *International Conference on Data Mining (ICDM 2018)*, regular paper (Acceptance Rate: 8.86%), pp. 537-546, Singapore, Dec 2018.
8. Junxiang Wang, Liang Zhao, and Yanfang Ye. Semi-supervised Multi-Instance Learning for Flu Shot Adverse Event Detection. *IEEE International Conference on Big Data*

(BigData 2018), (Acceptance Rate: 18.9%), pp. 851-860, Seattle, USA, Dec 2018.

9. Junxiang Wang and Liang Zhao. Multi-instance Domain Adaptation for Vaccine Adverse Event Detection. 27th International World Wide Web Conference (WWW 2018), (Acceptance Rate: 14.8%), pp. 97-106, Lyon, FR, Apr 2018.
10. Liang Zhao, Junxiang Wang, and Xiaojie Guo. Distant-supervision of heterogeneous multitask learning for social event forecasting with multilingual indicators. Thirty-Second AAAI Conference on Artificial Intelligence (AAAI 2018), Oral presentation (Acceptance Rate: 11.0%), pp. 4498-4505, New Orleans, US, Feb 2018.

#### Workshop Publications

1. Hongyi Li, Junxiang Wang, Yongchao Wang, Yue Cheng and Liang Zhao. Community-based Layerwise Distributed Training of Graph Convolutional Networks. NeurIPS 2021 Workshop on Optimization for Machine Learning (OPT 2021).
2. Junxiang Wang, Hongyi Li, Yongchao Wang and Liang Zhao. Accelerated Gradient-free Neural Network Training by Multi-convex Alternating Optimization. ICML 2021 Workshop on Beyond First-Order Methods in ML systems.
3. Junxiang Wang, Zheng Chai, Yue Cheng, Liang Zhao. Tunable Subnetwork Splitting for Model-parallelism of Neural Network Training. ICML 2020 Workshop on Beyond First-Order Methods in ML systems.
4. Junxiang Wang and Liang Zhao. The Application of Multi-block ADMM on Isotonic Regression Problems. 11th Workshop on Optimization for Machine Learning (OPT 2019), co-located with NeurIPS 2019.

## PROFESSIONAL SERVICES

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#### Conference Technical Program Committee Services

- Optimization for Machine Learning by NeurIPS 2022 (OPT 2022).
- Empirical Methods in Natural Language Processing (EMNLP 2022).
- Conference on Neural Information Processing Systems (NeurIPS 2022).
- Asian Conference on Machine Learning (ACML 2022).
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2022).
- International Joint Conference on Neural Networks (IJCNN 2022).
- International Joint Conference on Artificial Intelligence (IJCAI 2022).
- International Workshop on Deep Learning on Graphs by SIGKDD (DLG-KDD 2022).
- International Conference on Computer Science and Application Engineering (CSAE 2019).
- Student volunteer: ACM International Conference on Knowledge Discovery and Data Mining Conference (KDD 2019).

#### Journal Reviewer

- Reviewer, Optimization Letters (OL): 2022.
- Reviewer, Transactions on Big Data (TBD): 2022.

- Reviewer, Transactions on Knowledge and Data Engineering (TKDE): 2022.
- Reviewer, Expert Systems with Applications (ESWA), 2022.
- Reviewer, Frontiers in Public Health, 2020.
- Reviewer, Knowledge Based Systems (KNOSYS): 2022.
- Reviewer, Applied Artificial Intelligence (UAAI): 2021.
- Reviewer, European Journal of Operational Research (EJOR): 2019.
- Reviewer, Numerical Algorithms (NUMA): 2021.
- Reviewer, Asian Conference on Machine Learning (ACML) Journal track: 2022.
- Reviewer, Big Data Research (BDR): 2022.
- Reviewer, Engineering Applications of Artificial Intelligence (EAAI): 2022.
- Reviewer, Intelligent Systems with Applications (ISWA): 2022.

## INVITED TALKS

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- Accelerated Gradient-free Neural Network Training by Multi-convex Alternating Optimization. Association of European Operational Research Societies Conference (EURO 2022), Espoo, Finland, July 2022.
- Towards Quantized Model Parallelism for Graph-Augmented MLPs Based on Gradient-Free ADMM Framework. INFORMS Optimization Society Conference (IOS 2022), Greenville, SC, United States, March 2022.
- Power of Alternating Direction Method of Multipliers(ADMM) in deep learning. Modeling and Optimization: Theory and Applications (MOPTA 2021), Bethlehem, PA, United States, August 2021.

## AWARDS

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- Student Travel Awards: KDD 2019, ICDM 2018, 2020.