

Nan Jiang

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Education **Purdue University**, IN, USA Aug 2018 – Present
Ph.D. in Computer Science. Advisor: Yexiang Xue.
Research Area: Automatic Reasoning for Machine Learning and Scientific Discovery.
Beihang University, Beijing, China Sep 2015 – Jan 2018
M.A.Eng. in Computer Science. Advisor: Wenge Rong.
National Scholarship
Zhejiang University of Technology, Zhejiang, China Sep 2011 – Jun 2015
B.Eng. in Computer Science.
Outstanding Graduate Student.

Publications **Journal Articles**

- 19 **Nan Jiang**, Jinzhao Li, Yexiang Xue. A Tighter Convergence Proof of Reverse Experience Replay. In *The Reinforcement Learning Journal*, 2024.
- 18 **Nan Jiang**, Maosen Zhang, Willem-Jan van Hoeve, Yexiang Xue. Constraint Reasoning Embedded in Structural Prediction. In *Journal of Machine Learning Research (JMLR)*, 2022. [JCR Q1] [Impact factor 6.0].
- 17 Libin Shi, Wenge Rong, Shijie Zhou, **Nan Jiang**, and Zhang Xiong. A dual channel class hierarchy based recurrent language modeling. In *Neurocomputing*, 2020. [JCR Q2] [Impact factor 5.5]
- 16 **Nan Jiang**, Wenge Rong, Yifan Nie, Yikang Shen, Zhang Xiong. Event Trigger Identification with Noise Contrastive Estimation. In *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)*, 2017. [JCR Q1] [Impact factor 3.6]

Peer-reviewed Conference Articles

- 15 **Nan Jiang**, Md Nasim, Yexiang Xue. Active Symbolic Discovery of Ordinary Differential Equations via Phase Portrait Sketching. In *Thirty-Ninth AAAI Conference on Artificial Intelligence (AAAI)*, 2025. [Acceptance rate 23.4%]
- 14 **Nan Jiang**, Md Nasim, Yexiang Xue. Vertical Symbolic Regression via Deep Policy Gradient. In *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence (IJCAI)*, 2024. [Oral] [Acceptance rate 14.5%]
- 13 **Nan Jiang**, Yexiang Xue. Racing Control Variable Genetic Programming for Symbolic Regression. In *Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI)*, 2024. [Acceptance rate 23.75%]
- 12 Jinzhao Li, **Nan Jiang** and Yexiang Xue. Solving Satisfiability Modulo Counting for Symbolic and Statistical AI Integration with Provable Guarantees. In *Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI)*, 2024. [Acceptance rate 23.75%]
- 11 **Nan Jiang**, Yexiang Xue. Symbolic Regression via Control Variable Genetic Programming. In *Machine Learning and Knowledge Discovery in Databases: Research Track - European Conference (ECML/PKDD)*, 2023. [Oral] [Acceptance rate 24%]

- 10 **Nan Jiang***, Yi Gu*, Yexiang Xue. Learning Markov Random Fields for Combinatorial Structures via Sampling through Lovász Local Lemma. In *Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI)*, 2023. [Acceptance rate 19.6%]
 - 9 **Nan Jiang**, Chen Luo, Vihan Lakshman, Yesh Dattatreya, Yexiang Xue. Massive Text Normalization via an Efficient Randomized Algorithm. In *The ACM Web Conference (WWW)*, 2022. [Acceptance rate 17.7%]
 - 8 Maxwell J Jacobson, Case Q Wright, **Nan Jiang**, Gustavo Rodriguez-Rivera, Yexiang Xue. Task detection in continual learning via familiarity autoencoders. In *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 2022.
 - 7 **Nan Jiang***, Fan Ding*, Jianzhu Ma, Jian Peng, Jinbo Xu, and Yexiang Xue. PALM: Probabilistic Area Loss Minimization for Protein Sequence Alignment. In *Proceedings of the Thirty-Seventh Conference on Uncertainty in Artificial Intelligence (UAI)*, 2021. [Oral] [Acceptance rate: 26.5%]
 - 6 Maosen Zhang, **Nan Jiang**, Lei Li, Yexiang Xue. Language Generation via Combinatorial Constraint Satisfaction: A Tree Search Enhanced Monte-Carlo Approach. In *Findings of the Association for Computational Linguistics: (EMNLP)*, 2020. [Acceptance Rate 37.9%]
 - 5 Zhen Xu, **Nan Jiang**, Bingquan Liu, Wenge Rong, Bowen Wu, Baoxun Wang, Zhuoran Wang, and Xiaolong Wang. LSDSCC: A Large Scale Domain-Specific Conversational Corpus for Response Generation with Diversity Oriented Evaluation Metrics. In *Proceedings of the 2018 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*, 2018. [Acceptance rate 29.4%]
 - 4 **Nan Jiang**, Wenge Rong, Min Gao, Yikang Shen Zhang Xiong. Exploration of Tree-based Hierarchical Softmax for Recurrent Language Models. In *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI)*, 2017. [oral] [Acceptance rate 26.0%]
 - 3 Yikang Shen, Wenge Rong, **Nan Jiang**, Baolin Peng, Jie Tang and Zhang Xiong. Word Embedding Based Correlation Model for Question/Answer Matching. In *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI)*, 2017. [Acceptance rate 24.6%]
 - 2 **Nan Jiang**, Wenge Rong, Baolin Peng, Yifan Nie, Zhang Xiong. An empirical analysis of different sparse penalties for autoencoder in unsupervised feature learning. In *Proceedings of the 2015 International Joint Conference on Neural Networks (IJCNN)*, 2015.
 - 1 **Nan Jiang**, Wenge Rong, Baolin Peng, Yifan Nie and Zhang Xiong. Modeling Joint Representation with Tri-Modal DBNs for Query and Question Matching. In *IEICE Transactions on Information and Systems*, 2015.
- Preprint**
- D2 **Nan Jiang**, Ziyi Wang, Yexiang Xue. Enhancing Deep Symbolic Regression via Reasoning Equivalent Expressions. Under review.
 - D1 Jinzhao Li, **Nan Jiang**, Yexiang Xue. An Exact Solver for Satisfiability Modulo Counting with Probabilistic Circuits. Under review.

Internship	Oak Ridge National Laboratory , TN, USA	July 2024 - Aug 2024
	<i>Visiting Student</i>	
	Open-source data projection algorithms to study the detected mass spectrum of new materials' chemical composition.	
	Amazon Search , CA, USA	May 2021 - Aug 2021, May 2020 - Aug 2020
	<i>Research Intern</i>	
	Propose a randomized model based on Locality-sensitive Hashing to clean text with typos (at TheWebConf 2022)	
	Microsoft Research Asia , Beijing, China	Dec 2016 - Sept 2017
	<i>Research Intern</i>	
	Propose a dialog generation dataset with multiple diverse answers, to promote the model to generate diverse answers (at NAACL 2018).	
	Netease Inc. , Beijing, China	Jun 2016 - Dec 2016
	<i>Research Intern</i>	
	Propose a variant of hierarchical softmax for language model reducing from $\mathcal{O}(V)$ to classic softmax $\mathcal{O}(\log V)$ time complexity (at IJCAI 2017).	
Teaching Assistant	Programming in C at CS Purdue.	2018 Fall, 2019 Fall
	Statistical Machine Learning at CS Purdue.	2019 Spring, 2020 Fall, 2021 Fall
	Artificial Intelligence at CS Purdue.	2020 Spring
	Introduction to Algorithm at CS Purdue.	2021 Spring, 2022 Spring
	Introduction to Artificial Intelligence at CS Purdue.	2022 Fall
	Artificial Intelligence Basics at CS Purdue.	2023 Spring
	Course development: Designed this <i>Artificial Intelligence Basics</i> course with my advisor to serve the great needs of (more than 200) undergraduate students interested in AI.	
Honors	AAAI student scholarship.	2024, 2025
	Kaggle - Quora Question Pairs. 8th out of 3295 teams	2017
	KDD Cup - Highway Tollgates Traffic Flow Prediction. 3rd out of 3547 teams	2017
	National Scholarship, Beihang University.	2017
	The Second Prize Scholarship, Beihang University.	2016
	Travel Grant of IEEE on IJCNN Conference, IEEE Society.	2015
	Excellent Graduation Student, Zhejiang University of Technology.	2015
	The First Prize Scholarship, Zhejiang University of Technology.	2012, 2013, 2014
	National Scholarship, Zhejiang University of Technology.	2012
Reviewer Services	Journals: JMLR, TKDE, Artificial Intelligence Journal.	
	Conferences: NeurIPS, ACL, AAAI, ECML, AISTATS, ICML, UAI, AAAI and IJCAI.	