

CONTACT INFORMATION	<p>Web: <a href="https://dongkuanx27.github.io/">dongkuanx27.github.io/</a></p> <p>E-mail: <a href="mailto:dxu27@ncsu.edu">dxu27@ncsu.edu</a></p> <p>Mobile: 814-699-0860</p>	<p>Google Scholar: <a href="#">[Link]</a></p> <p>Twitter: <a href="https://twitter.com/DongkuanXu">https://twitter.com/DongkuanXu</a></p> <p>Updated: Oct 4th, 2023</p>
RESEARCH INTERESTS	<p>Hi! My research is fundamentally grounded in exploring and advancing <b>Landed Generative AI</b>, with particular emphasis on studying the autonomy of intelligent agents (<i>task planning, external tool use</i>), decision/reasoning reliability (<i>alignment, uncertainty, adaptability</i>), and resource efficiency (<i>parameter, data, computation</i>) in Generative AI Systems (ChatGPT, GPT-X, Diffusion Models). I'm leading the <b>NCSU Generative Intelligent Computing Lab</b>. <u>My long-term research goal is to liberate AI productivity and democratize its application to serve a broader range of populations and real-world applications, equally, sustainably, and responsibly.</u></p> <ul style="list-style-type: none"> <li>• Task Automation &amp; Tool Use of Large Language Model-driven Agents</li> <li>• Reliable &amp; Scalable Reasoning in Large Language Models</li> <li>• Data Optimization &amp; Augmentation for Generative AI Landing</li> <li>• Algorithm-Hardware Co-design for Generative AI Landing</li> <li>• Applications: NLP, CV, Agriculture, Networking, Education, Health</li> </ul>	
WORKING	<p><b>Assistant Professor, North Carolina State University</b>, NC, USA.</p> <ul style="list-style-type: none"> <li>• Department of Computer Science</li> <li>• <b>ICCCN Best Paper Award</b>, 2023</li> </ul>	Aug 2022-Present
EDUCATION	<p><b>PhD, Penn State University</b>, PA, USA.</p> <ul style="list-style-type: none"> <li>• College of IST Award for Excellent Teaching <a href="#">[Top 2]</a></li> </ul> <p><b>MS, University of Chinese Academy of Sciences</b>, Beijing, China</p> <ul style="list-style-type: none"> <li>• Chinese Academy of Sciences President's Fellowship <a href="#">[Top 1]</a></li> </ul> <p><b>BE, Renmin University of China</b>, Beijing, China</p>	<p>2022</p> <p>2017</p> <p>2014</p>
PUBLICATION SUMMARY	<p><b>Published: 46</b> papers, <b>24</b> first/advising-authored papers, <b>13</b> preprints, and <b>10</b> filed patents.</p> <p><b>Impact: 2689</b> citations, h-index: <b>12</b>, i10-index: <b>17</b> (as of Oct 4th, 2023).</p>	
PEER-REVIEWED CONFERENCE AND JOURNAL PAPERS	<p>[1] <a href="#">Binfeng Xu</a>, <a href="#">Xukun Liu</a>, <a href="#">Hua Shen</a>, <a href="#">Zeyu Han</a>, <a href="#">Yuhan Li</a>, <a href="#">Murong Yue</a>, <a href="#">Zhiyuan Peng</a>, <a href="#">Yuchen Liu</a>, <a href="#">Ziyu Yao</a>, and <b>Dongkuan Xu</b>. Gentopia: A Collaborative Platform for Tool-Augmented LLMs [C]. The 2023 Conference on Empirical Methods in Natural Language Processing. (<b>EMNLP 2023, System Demo Track</b>)</p> <p>[2] <a href="#">Jiaqi Wang</a>, <a href="#">Xingyi Yang</a>, <a href="#">Suhan Cui</a>, <a href="#">Liwei Che</a>, <a href="#">Lingjuan Lyu</a>, <b>Dongkuan Xu</b>, and <a href="#">Fenglong Ma</a>. Towards Personalized Federated Learning via Heterogeneous Model Re-assembly [C]. The 37th Conference on Neural Information Processing Systems (<b>NeurIPS 2023</b>)</p> <p>[3] <a href="#">Dongyao Zhu</a>, <a href="#">Bowen Lei</a>, <a href="#">Jie Zhang</a>, <a href="#">Yanbo Fang</a>, <a href="#">Yiqun Xie</a>, <a href="#">Ruqi Zhang</a>, and <b>Dongkuan Xu</b>. Rethinking Data Distillation: Do Not Overlook Calibration [C]. International Conference on Computer Vision (<b>ICCV 2023</b>)</p> <p>[4] <a href="#">Shuya Li</a>, <a href="#">Hao Mei</a>, <a href="#">Jianwei Li</a>, <a href="#">Hua Wei</a>, and <b>Dongkuan Xu</b>. Toward Efficient Traffic Signal Control: Smaller Network Can Do More [C]. The 62nd IEEE Conference on Decision and Control (<b>CDC 2023</b>)</p> <p>[5] <a href="#">Lei Zhang</a>, <a href="#">Jie Zhang</a>, <a href="#">Bowen Lei</a>, <a href="#">Subhabrata Mukherjee</a>, <a href="#">Xiang Pan</a>, <a href="#">Bo Zhao</a>, <a href="#">Caiwen Ding</a>, <a href="#">Yao Li</a>, and <b>Dongkuan Xu</b>. Accelerating Dataset Distillation via Model</p>	

Augmentation [C]. The 34th IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2023, Highlight Paper**)  
 Acceptance rate:  $235/9155=2.5\%$

- [6] Shengkun Tang, Yaqing Wang, Zhenglun Kong, Tianchi Zhang, Yao Li, Caiwen Ding, Yanzhi Wang, Yi Liang, and **Dongkuan Xu**. You Need Multiple Exiting: Dynamic Early Exiting for Accelerating Unified Vision Language Model [C]. The 34th IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2023**)
- [7] Bowen Lei, Ruqi Zhang, **Dongkuan Xu**, and Bani K Mallick. Calibrating the Rigged Lottery: Making All Tickets Reliable [C]. The 11th International Conference on Learning Representations (**ICLR 2023**)
- [8] Qin Zhang, Shangsi Chen, **Dongkuan Xu**, Qingqing Cao, Xiaojun Chen, Trevor Cohn, and Meng Fang. A Survey for Efficient Open Domain Question Answering [C]. The 61th Annual Meeting of the Association for Computational Linguistics (**ACL 2023**)
- [9] Longfeng Wu, Bowen Lei, **Dongkuan Xu**, and Dawei Zhou. Towards Reliable Rare Category Analysis on Graphs via Individual Calibration [C]. The 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2023**)
- [10] Chengyuan Liu, Divyang Doshi, Muskaan Bhargava, Ruixuan Shang, Jialin Cui, **Dongkuan Xu**, and Edward Gehring. Labels Are Not Necessary: Assessing Peer-Review Helpfulness Using Domain Adaptation Based on Self-Training [C]. The 18th Workshop on Innovative Use of NLP for Building Educational Applications (**BEA 2023**)
- [11] Zihan Dong, **Dongkuan Xu**. Exploring the Augmented Large Language Model with Mathematical tools in Personalized and Efficient Education [C]. The 6th International Conference on Artificial Intelligence and Big Data (**ICAIBD 2023**)
- [12] Yuchen Liu, Mingzhe Chen, **Dongkuan Xu**, Zhaohui Yang, and Shangqing Zhao. E-App: An Environment-Aware Access Point Planning Framework for mmWave Wireless LANs [C]. The 32nd International Conference on Computer Communications and Networks (**ICCCN 2023**)
- [13] Yue Xiang, Dongyao Zhu, Bowen Lei, **Dongkuan Xu**, and Ruqi Zhang. Efficient Informed Proposals for Discrete Distributions via Newton’s Series Approximation [C]. The 26th International Conference on Artificial Intelligence and Statistics (**AISTATS 2023**)
- [14] Shaoyi Huang, Haowen Fang, Kaleel Mahmood, Bowen Lei, Nuo Xu, Bin Lei, Yue Sun, **Dongkuan Xu**, Wujie Wen, and Caiwen Ding. Neurogenesis Dynamics-inspired Spiking Neural Network Training Acceleration [C]. The 60th Design Automation Conference (**DAC 2023**)
- [15] Shaoyi Huang, Bowen Lei, **Dongkuan Xu**, Hongwu Peng, Yue Sun, Mimi Xie, and Caiwen Ding. Dynamic Sparse Training via Balancing the Exploration-Exploitation Trade-off [C]. The 60th Design Automation Conference (**DAC 2023**)
- [16] Jianwei Li, Tianchi Zhang, Enxu Yan, and **Dongkuan Xu**. FP8-BERT: Post-Training Quantization for Transformer [C]. The 1st Workshop on DL-Hardware Co-Design for AI Acceleration (**DCAA 2023**)
- [17] Yiqun Xie, Zhili Li, Han Bao, Xiaowei Jia, **Dongkuan Xu**, Xun Zhou, and Sergii Skakun. Auto-CAM: Label-Free Earth Observation Imagery Composition and Masking Using Spatio-Temporal Dynamics [C]. The 37th AAAI International Conference on Artificial Intelligence (**AAAI 2023**)

- [18] Dongsheng Luo, Wei Cheng, Yingheng Wang, **Dongkuan Xu**, Jingchao Ni, Wenchao Yu, Xuchao Zhang, Yanchi Liu, Yuncong Chen, Haifeng Chen, and Xiang Zhang. Time Series Contrastive Learning with Information-Aware Augmentations [C]. The 37th AAAI International Conference on Artificial Intelligence (**AAAI 2023**)
- [19] Yingjie Tian, Weizhi Gao, Qin Zhang, Pu Sun, and **Dongkuan Xu**. Improving long-tailed classification by disentangled variance transfer [J]. **Internet of Things (2023)**: 100687.
- [20] **Dongkuan Xu**, Subhabrata Mukherjee, Xiaodong Liu, Debadeepta Dey, Wenhui Wang, Xiang Zhang, Ahmed H. Awadallah, and Jianfeng Gao. Few-shot Task-agnostic Neural Architecture Search for Distilling Large Language Models [C]. The 36th Conference on Neural Information Processing Systems (**NeurIPS 2022**)
- [21] Ian En-Hsu Yen, Zhibin Xiao, and **Dongkuan Xu**. S4: a High-sparsity, High-performance AI Accelerator [C]. Sparsity in Neural Networks 2022 Workshop (**SNN 2022**)
- [22] Shaoyi Huang, Ning Liu, Yueying Liang, Hongwu Peng, Hongjia Li, **Dongkuan Xu**, Mimi Xie, and Caiwen Ding. An Automatic and Efficient BERT Pruning for Edge AI Systems [C]. The 23rd IEEE International Society for Quality Electronic Design (**ISQED 2022**)
- [23] Shaoyi Huang\*, **Dongkuan Xu\***, Ian En-Hsu Yen, Sung-En Chang, Bingbing Li, Shiyang Chen, Mimi Xie, Hang Liu, and Caiwen Ding. Sparse Progressive Distillation: Resolving Overfitting under Pretrain-and-Finetune Paradigm [C]. The 60th Annual Meeting of the Association for Computational Linguistics (**ACL 2022**)  
Acceptance rate: 714/3350=21.3%
- [24] **Dongkuan Xu**, Wei Cheng, Dongsheng Luo, Haifeng Chen, and Xiang Zhang. InfoGCL: Information-Aware Graph Contrastive Learning [C]. The 35th Conference on Neural Information Processing Systems (**NeurIPS 2021**)  
Acceptance rate: 2372/9122=26.0%
- [25] **Dongkuan Xu**, Ian En-Hsu Yen, Jinxi Zhao, and Zhibin Xiao. Rethinking Network Pruning - under the Pre-train and Fine-tune Paradigm [C]. 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL-HLT 2021**)  
Acceptance rate: 477/1797=26.5%
- [26] Xin Dong, Yaxin Zhu, Zuohui Fu, **Dongkuan Xu**, and Gerard de Melo. Data Augmentation with Adversarial Training for Cross-Lingual NLI [C]. The 59th Annual Meeting of the Association for Computational Linguistics (**ACL 2021**)  
Acceptance rate: 714/3350=21.3%
- [27] **Dongkuan Xu**, Wei Cheng, Jingchao Ni, Dongsheng Luo, Masanao Natsumeda, Dongjin Song, Bo Zong, Haifeng Chen, and Xiang Zhang. Deep Multi-Instance Contrastive Learning with Dual Attention for Anomaly Precursor Detection [C]. The 21th SIAM International Conference on Data Mining (**SDM 2021**)  
Acceptance rate: 85/400=21.3%
- [28] **Dongkuan Xu**, Wei Cheng, Xin Dong, Bo Zong, Wenchao Yu, Jingchao Ni, Dongjin Song, Xuchao Zhang, Haifeng Cheng, and Xiang Zhang. Multi-Task Recurrent Modular Networks [C]. The 35th AAAI International Conference on Artificial Intelligence (**AAAI 2021**)  
Acceptance rate: 1692/7911=21.4%

- [29] **Dongkuan Xu**, Junjie Liang, Wei Cheng, Hua Wei, Haifeng Cheng, and Xiang Zhang. Transformer Style Relational Reasoning with Dynamic Memory Updating for Temporal Network Modeling [C]. The 35th AAAI International Conference on Artificial Intelligence (**AAAI 2021**)  
Acceptance rate:  $1692/7911=21.4\%$
- [30] Hua Wei, **Dongkuan Xu**, Junjie Liang, and Zhenhui Li. How Do We Move: Modeling Human Movement with System Dynamics [C]. The 35th AAAI International Conference on Artificial Intelligence (**AAAI 2021**)  
Acceptance rate:  $1692/7911=21.4\%$
- [31] Junjie Liang, Yanting Wu, **Dongkuan Xu**, and Vasant Honavar. Longitudinal Deep Kernel Gaussian Process Regression [C]. The 35th AAAI International Conference on Artificial Intelligence (**AAAI 2021**)  
Acceptance rate:  $1692/7911=21.4\%$
- [32] Dongsheng Luo, Wei Cheng, **Dongkuan Xu**, Wenchao Yu, Bo Zong, Haifeng Chen, and Xiang Zhang. Parameterized Explainer for Graph Neural Network [C]. The 34th Conference on Neural Information Processing Systems (**NeurIPS 2020**)  
Acceptance rate:  $1900/9454=20.1\%$
- [33] Xin Dong, Yaxin Zhu, Yupeng Zhang, Zuohui Fu, **Dongkuan Xu**, Sen Yang, and Gerard de Melo. Leveraging Adversarial Training in Self-Learning for Cross-Lingual Text Classification [C]. The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2020**)  
Acceptance rate:  $300/1062=28.2\%$
- [34] **Dongkuan Xu**, Wei Cheng, Bo Zong, Dongjin Song, Jingchao Ni, Wenchao Yu, Yanchi Liu, Haifeng Chen, and Xiang Zhang. Tensorized LSTM with Adaptive Shared Memory for Learning Trends in Multivariate Time Series [C]. The 34th AAAI International Conference on Artificial Intelligence (**AAAI 2020**)  
Acceptance rate:  $1591/7737=20.6\%$
- [35] Junjie Liang, **Dongkuan Xu**, Yiwei Sun, and Vasant Honavar. Longitudinal Multi-Level Factorization Machines [C]. The 34th AAAI International Conference on Artificial Intelligence (**AAAI 2020**)  
Acceptance rate:  $1591/7737=20.6\%$
- [36] **Dongkuan Xu**, Wei Cheng, Dongsheng Luo, Xiao Liu, and Xiang Zhang. Spatio-Temporal Attentive RNN for Node Classification in Temporal Attributed Graphs [C]. The 28th International Joint Conference on Artificial Intelligence (**IJCAI 2019**)  
Acceptance rate:  $850/4752=17.9\%$
- [37] **Dongkuan Xu**, Wei Cheng, Dongsheng Luo, Yameng Gu, Xiao Liu, Jingchao Ni, Bo Zong, Haifeng Chen, and Xiang Zhang. Adaptive Neural Network for Node Classification in Dynamic Networks [C]. The 19th IEEE International Conference on Data Mining (**ICDM 2019**)  
Acceptance rate:  $183/930=19.7\%$
- [38] **Dongkuan Xu**, Wei Cheng, Bo Zong, Jingchao Ni, Dongjin Song, Wenchao Yu, Yuncong Chen, Haifeng Chen, and Xiang Zhang. Deep Co-Clustering [C]. The 19th SIAM International Conference on Data Mining (**SDM 2019**)  
Acceptance rate:  $90/397=22.7\%$
- [39] Jingchao Ni, Shiyu Chang, Xiao Liu, Wei Cheng, Haifeng Chen, **Dongkuan Xu**, and Xiang Zhang. Co-Regularized Deep Multi-Network Embedding [C]. The 27th International Conference on World Wide Web (**WWW 2018**)  
Acceptance rate:  $170/1175=14.5\%$

- [40] Yingjie Tian, **Dongkuan Xu**, and Chunhua Zhang. A Review of Multi-Instance Learning Research [J]. Operations Research Transactions, 2018, 02: 1-17
- [41] **Dongkuan Xu**, Jia Wu, Dewei Li, Yingjie Tian, Xinquan Zhu, and Xindong Wu. SALE: Self-Adaptive LSH Encoding for Multi-Instance Learning [J]. **Pattern Recognition**, 2017 (**7.74 impact factor**)
- [42] Dewei Li, **Dongkuan Xu**, Jingjing Tang, and Yingjie Tian. Metric Learning for Multi-Instance Classification with Collapsed Bags [C]. The 30th IEEE International Joint Conference on Neural Networks (**IEEE IJCNN 2017**)
- [43] Dewei Li, Wei Zhang, **Dongkuan Xu**, and Yingjie Tian. Multi-Metrics Classification Machine [C]. International Conference on Information Technology and Quantitative Management (**ITQM 2016**) (**Best Paper Award**)
- [44] **Dongkuan Xu**, and Yingjie Tian. A Comprehensive Survey of Clustering Algorithms [J]. Annals of Data Science, 2015, 2(2): 165-193
- [45] **Dongkuan Xu**, Tianjia Chen, and Wei Xu. A Support Vector Machine-Based Ensemble Prediction for Crude Oil Price with VECM and STEPMRS [J]. International Journal of Global Energy Issues, 2015
- [46] **Dongkuan Xu**, Yi Zhang, Cheng Cheng, Wei Xu, and Likuan Zhang. A Neural Network-Based Ensemble Prediction Using PMRS and ECM [C]. The 47th IEEE Hawaii International Conference on System Sciences (**HICSS 2014**)

INDUSTRY EXPERIENCE	<b>Microsoft Research (MSR)</b> , Redmond, WA	2021
	<ul style="list-style-type: none"> <li>• Research Intern, Mentors: <a href="#">Subho Mukherjee</a>, <a href="#">Xiaodong Liu</a>, <a href="#">Debadeepta Dey</a>, <a href="#">Ahmed H. Awadallah</a>, <a href="#">Jianfeng Gao</a></li> <li>• Project: Task-agnostic Auto-Transformer Search [NeurIPS 2022]</li> </ul>	
	<b>Moffett.AI</b> , Los Altos, CA	2020
	<ul style="list-style-type: none"> <li>• Research Intern, Mentor: <a href="#">Ian En-Hsu Yen</a>, Co-founder</li> <li>• Project: Data-free Model Compression [NAACL 2021 &amp; a U.S. patent]</li> </ul>	
	<b>NEC Labs America</b> , Princeton, NJ	2019
ACADEMIA EXPERIENCE	<ul style="list-style-type: none"> <li>• Research Intern, Mentor: <a href="#">Wei Cheng</a></li> <li>• Project: Knowledge Transfer in Multi-Task Learning [AAAI 2021]</li> <li>• Project: Trend Learning in Multivariate Time Series [AAAI 2020]</li> </ul>	
	<b>NEC Labs America</b> , Princeton, NJ	2018
	<ul style="list-style-type: none"> <li>• Research Intern, Mentor: <a href="#">Wei Cheng</a>, Senior Researcher</li> <li>• Project: Contrastive Anomaly Detection [SDM 2021]</li> </ul>	
	<b>Penn State University</b>	2017-2022
	<ul style="list-style-type: none"> <li>• Graduate Research Assistant, Adviser: <a href="#">Xiang Zhang</a></li> <li>• Thesis: Resource-efficient Deep Learning: Democratizing AI at Scale</li> </ul>	
TEACHING EXPERIENCE	<b>Chinese Academy of Sciences</b> , Beijing, China	2014-2017
	<ul style="list-style-type: none"> <li>• Graduate Research Assistant, Adviser: <a href="#">Yingjie Tian</a></li> <li>• Thesis: Efficient Multi-instance Learning</li> </ul>	
	<b>Renmin University of China</b> , Beijing, China	2012-2014
	<ul style="list-style-type: none"> <li>• Undergraduate Research Assistant, Adviser: <a href="#">Wei Xu</a></li> <li>• Thesis: Ensemble Forecasting Model for Time Series Data</li> </ul>	
	<b>Instructor at NC State</b>	

- CSC 422: Automated Learning and Data Analysis Spring 2023, Fall 2023  
Course Materials: [Introduction to Data Mining \(Second Edition\)](#)
- CSC 791&591: Advanced Topics in Efficient Deep Learning Fall 2022  
Course Materials: [Dive into Deep Learning](#)

#### Teaching Assistant at Penn State

- SRA 268, Visual Analytics Fall 2021  
Instructor: Prof. [Mahir Akgun](#)  
Course Materials: [Visual Analytics with Tableau](#)  
(Responsible for teaching lab classes of 46 students)
- SRA 450, Cybercrime and Cyberwar Fall 2021  
Instructor: Prof. [John Hodgson](#)  
Course Materials: [Cybersecurity: What Everyone Needs to Know](#)
- DS/CMPSC 410, Programming Models for Big Data Spring 2021  
Instructor: Prof. [John Yen](#)  
Course Materials: [Learning Spark](#)
- SRA 365, Statistics for Security and Risk Analysis Fall 2020  
Instructor: Dr. [James Farrugia](#)  
Course Materials: [Discovering Statistics Using R](#)
- DS 402, Introduction to Social Media Mining Spring 2020  
Instructor: Prof. [Suhang Wang](#)  
Course Materials: [Social Media Mining: An Introduction](#)
- SRA 365, Statistics for Security and Risk Analysis Spring 2019  
Instructor: Dr. [Katherine Hamilton](#)  
  
Course Materials: [Foundations and Practice of Intermediate Statistics](#)
- IST 210, Organization of Data Fall 2018  
Instructor: Prof. [Xiang Zhang](#)  
Course Materials: [Database Systems Concepts](#)  
(The Award for Excellence in Teaching Support)

#### Guest Lecturer

- COSI 133A, Graph Mining Fall 2021  
Brandeis University, Slides [\[Link\]](#)
- COSI 165B, Deep Learning Spring 2021  
Brandeis University, Slides: [\[Link\]](#)

#### MENTORING EXPERIENCE

##### Postdoctoral Researcher

- Zhiyuan Peng, NC State University  
Topic: Augmented Large Language Model

##### Ph.D. Students

- Jianwei (Eric) Li, Ph.D. at NC State University  
Topic: Large Language Model Safety
- Chengyuan Liu, Ph.D. at NC State University  
Topic: Large Language Model in Education

##### Undergraduate Researchers

- Aditya Basarkar, Undergraduate at NC State University  
Topic: Large Language Model-driven Agents
- Zihan (Z) Dong, Undergraduate at NC State University  
Topic: Large Language Model in K-12 Education
- Rishabh Patel, Undergraduate at NC State University  
Topic: Large Language Model in Science Discovery

#### **Intern Researchers**

- Bowen Lei, Ph.D. student at Texas A&M University  
Topic: Theoretical Foundations of Sparse Training
- Binfeng Xu, Research Engineer at eBay  
Topic: Augmented Large Language Model
- Yuhan Li, Master at Tianjin University  
Topic: Augmented Large Language Model
- Hanyang Lin, Master at University of Illinois Urbana-Champaign  
Topic: Autonomous Tool Learning
- Zhengdong Zhang, Master at Georgia Tech  
Topic: Large Language Model in Education
- Xukun Liu, Undergraduate at SUSTech  
Topic: Efficient Transformer Architecture Search
- Boyan Li, Undergraduate at SUSTech  
Topic: Augmented Large Language Model

#### **PROFESSIONAL SERVICE**

##### **Panel Reviewer**

- NSF CAREER, 2023

##### **Column Editor**

- ACM SIGAI Newsletter

##### **Workshop Chair**

- The First Workshop on DL-Hardware Co-Design for AI Acceleration @AAAI2023
- The Resource-Efficient Learning for Knowledge Discovery Workshop @KDD2023

##### **Session Chair**

- Scalable, Distributed Systems & Trustable AI @KDD2022
- Deep Learning: New Architectures and Models @KDD2022

##### **Academic Committee Member**

- Machine Learning & Natural Language Processing Community (MLNLP)

##### **Area Chair**

- The Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING) 2024

##### **Senior Program Committee**

- AAI Conference on Artificial Intelligence (AAAI) 2024
- International Joint Conferences on Artificial Intelligence (IJCAI) 2021

##### **Program Committee**

- Neural Information Processing Systems (NeurIPS) 2020, 2021, 2022, 2023
- International Conference on Learning Representations (ICLR) 2021, 2022, 2023, 2024
- International Conference on Machine Learning (ICML) 2021, 2022, 2023
- AAI Conference on Artificial Intelligence (AAAI) 2020, 2021, 2022, 2023

- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2020-2023
- Association for Computational Linguistics (ACL) Rolling Review 2022
- North American Chapter of the Association for Computational Linguistics (NAACL) 2021
- Conference on Empirical Methods in Natural Language Processing (EMNLP) 2020, 2021
- International Conference on Computational Linguistics (COLING) 2022
- Learning on Graphs Conference (LoG) 2022
- International Joint Conferences on Artificial Intelligence (IJCAI) 2020, 2022
- ACM International Conference on Web Search and Data Mining (WSDM) 2022
- SIAM International Conference on Data Mining (SDM) 2022
- European Chapter of the Association for Computational Linguistics (EACL) 2021
- Conference on Information and Knowledge Management (CIKM) 2020, 2021, 2022
- Asia-Pacific Chapter of the Association for Computational Linguistics & International Joint Conference on Natural Language Processing (AACL-IJCNLP) 2020
- International Joint Conference on Neural Networks (IJCNN) 2018, 2019, 2020, 2021

#### **Journal Reviewer**

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Cybernetics
- Information Fusion
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- Pattern Recognition
- Neural Networks
- ACM Transactions on Asian and Low-Resource Language Information Processing
- IEEE Access
- Neural Computation
- Complexity
- Soft Computing
- Journal of Sports Engineering and Technology
- Complex & Intelligent Systems
- Multimedia Tools and Applications
- Big Data

#### **External Conference Reviewer**

- AAAI'18-20, ACM CIKM'18-19, Big Data'18, ICDM'18-19, IJCNN'16-17, ITQM'16-17, KDD'18-21, SDM'18-22, TheWebConf (WWW)'20-22, WSDM'20-21

#### **Conference Volunteer**

- The Annual Conference of NAACL-HLT, 2021
- Backuping SDM Session Chairs, 2021
- The 35th AAAI Conference on Artificial Intelligence, 2021
- The 26th SIGKDD Conference on Knowledge Discovery and Data Mining, 2020

#### **PATENTS**

- Spatio Temporal Gated Recurrent Unit  
Wei Cheng, Haifeng Chen, and **Dongkuan Xu**  
U.S. Patent. 11,461,619. Oct. 2022
- System and Method for Knowledge-Preserving Neural Network Pruning  
Enxu Yan, **Dongkuan Xu**, and Zhibin Xiao  
U.S. Patent. 11,200,497. Dec. 2021

#### **PATENT APPLICATIONS**



- Information-aware Graph Contrastive Learning  
Wei Cheng, **Dongkuan Xu**, and Haifeng Chen  
U.S. Patent App. 17/728,071. Dec. 2022
- Neural Network Pruning Method and System via Layerwise Analysis  
Enxu Yan, **Dongkuan Xu**, and Jiachao Liu  
U.S. Patent App. 17/107,046. Jun. 2022
- Bank-balanced-sparse Activation Feature Maps for Neural Network Models  
Enxu Yan, **Dongkuan Xu**, and Jiachao Liu  
U.S. Patent App. 17/038,557. Mar. 2022
- Tensorized LSTM with Adaptive Shared Memory for Learning Trends  
Wei Cheng, Haifeng Chen, Jingchao Ni, **Dongkuan Xu**, and Wenchao Yu  
U.S. Patent App. 16/987,789. Mar. 2021
- Modular Networks with Dynamic Routing for Multi-task Recurrent Modules  
Wei Cheng, Haifeng Chen, Jingchao Ni, and **Dongkuan Xu**  
U.S. Patent App. 17/158,483. July. 2021
- Unsupervised Multivariate Time Series Trend Detection for Group Behavior Analysis  
Wei Cheng, Haifeng Chen, Jingchao Ni, **Dongkuan Xu**, and Wenchao Yu  
U.S. Patent App. 16/987,734. Mar. 2021
- Adaptive Neural Networks for Node Classification in Dynamic Networks  
Wei Cheng, Haifeng Chen, Wenchao Yu, and **Dongkuan Xu**  
U.S. Patent App. 16/872,546. Nov. 2020
- Automated Anomaly Precursor Detection  
Wei Cheng, **Dongkuan Xu**, Haifeng Chen, and Masanao Natsumeda  
U.S. Patent App. 16/520,632. Feb. 2020

## PROFESSIONAL TALKS

- Sculpting the Future of Collective Growth in Collaborative AI  
Microsoft Research Asia, Beijing, China, Sep 2023 [remote]
- ChatGPT in Corporate Real Estate - Unlocking the Potential [[link](#)]  
CoreNet Global, Raleigh, NC, USA, Aug 2023
- Testing Accuracy is Not All You Need: Less Training Cost & More Testing Reliability  
Rutgers University, New Brunswick, USA, Feb 2023
- Resource-efficient Deep Learning: Democratizing AI at Scale  
Pinterest, San Francisco, USA, Aug 2022
- Resource-efficient Deep Learning: Democratizing AI at Scale  
Amazon Search (A9), USA, May 2022
- Resource-efficient Deep Learning: Democratizing AI at Scale  
Vanderbilt University, Nashville, USA, April 2023
- Resource-efficient Deep Learning: Democratizing AI at Scale  
University of Connecticut, Stamford, USA, April 2023
- Parameter Efficiency: Democratizing AI at Scale [[Slides](#)]  
Brandeis University, Waltham, USA, Dec 2021
- Chasing Efficiency of Pre-trained Language Models  
Microsoft Research Lab, Redmond, Washington, USA, Jun 2021

- BERT Pruning: Structural vs. Sparse [Slides]  
Brandeis University, Waltham, USA, Apr 2021
- BERT, Compression, and Applications [Slides]  
Xpeng Motors, Mountain View, USA, Apr 2021
- BERT Architecture and Computation Analysis  
Moffett.AI, Los Altos, USA, May 2020.
- Anomaly Precursor Detection via Multi-Instance Contrastive Learning  
NEC Laboratories America, Princeton, USA, May 2019
- Efficient Multiple Instance Learning [Slides]  
NEC Laboratories America, Princeton, USA, May 2018

#### HONORS AND AWARDS

##### **North Carolina State University**

- ICCCN Best Paper Award 2023

##### **The Pennsylvania State University**

- College of IST Award for Excellence in Teaching Support (top 2) 2019
- Third Place Winner (Eng.) in The 37rd Annual PSU Graduate Exhibition 2022
- NAACL Scholarship 2021
- SIAM Student Travel Award 2021
- KDD Student Registration Award 2020
- AAAI Student Scholarship 2020
- IST Travel Award 2019-2021

##### **University of Chinese Academy of Sciences**

- Chinese Academy of Sciences President's Fellowship (the most prestigious award) 2016
- National Graduate Scholarship, China (2% in university) 2016
- Graduate Student Academic Scholarship 2015-2017

##### **Renmin University of China**

- First-class Scholarship of Sashixuan Elite Fund, China (5% in university) 2014
- Kwang-hua Scholarship of RUC, China 2014
- Second-class Scholarship of Excellent Student Cadre 2014
- Meritorious Winner in Mathematical Contest in Modeling, USA 2013
- First-class Scholarship of Social Work and Volunteer Service of RUC 2013

#### EXTRACURRICULAR ACTIVITIES

- IEEE Membership 2023-Present
- ACM Membership 2021-Present
- ACL Membership 2021-Present
- AAAI Student Membership 2019-2021
- SIAM CAS Student Member 2016-2021
- Volunteer of Beijing Volunteer Service Federation 2012-2014
- President of Youth Volunteers Association of School of Information 2012-2013
- Leader of National Undergraduate Training Programs 2011-2012