Dongkuan (DK) Xu **Assistant Professor of Computer Science**

CONTACT INFORMATION

Web: dongkuanx27.github.io/ *Google Scholar:* [Link]
E-mail: dxu27@ncsu.edu *Twitter:* https://twitter.com/DongkuanXu
Mobile: 814-699-0860 *Updated:* Oct 11th, 2023

RESEARCH INTERESTS

Hi! My research is fundamentally grounded in exploring and advancing **Landed Generative AI**, with particular emphasis on studying the autonomy of intelligent agents (*task planning, external tool use*), decision/reasoning reliability (*alignment, uncertainty, adaptability*), and resource efficiency (*parameter, data, computation*) in Generative AI Systems (*ChatGPT, GPT-X, diffusion models*). I'm leading the **NCSU Generative Intelligent Computing Lab**. 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.

WORKING

Assistant Professor, North Carolina State University, NC, USA. Aug 2022-Present
- Department of Computer Science
- **ICCCN Best Paper Award**, 2023

EDUCATION

PhD, Penn State University, PA, USA. 2022
- College of IST Award for Excellent Teaching [Top 2]

MS, University of Chinese Academy of Sciences, Beijing, China 2017
- Chinese Academy of Sciences President's Fellowship [Top 1]

BE, Renmin University of China, Beijing, China 2014

PUBLICATION SUMMARY

Published: 49 papers, **27** first/advising-authored papers, and **10** filed patents.
Impact: 2699 citations, h-index: **12**, i10-index: **17** (as of Oct 11th, 2023).
Published at NeurIPS, ICLR, AAAI, ACL, EMNLP, NAACL, CVPR, ICCV, DAC, etc.

COMMUNITY ENGAGEMENT

- The 1st Workshop on DL-Hardware Co-Design for AI Acceleration @AAAI2023, Chair
- Resource-Efficient Learning for Knowledge Discovery Workshop @KDD2023, Co-Chair
- ML & NLP Learning Community (Chinese), Founding Committee Member
- ACM SIGAI Newsletter, Column Editor
- NSF CAREER Panel Reviewer, 2023
- Area Chair, Session Chair, (Senior) Program Committee Member for $\geq$ 50 times

EDUCATION OUTREACH

- NCSU Educational Workshops (Integrating ChatGPT into K-12 Classrooms), Co-Chair
- NSF REU Site (SRCA, Socially Relevant Computing and Analytics), UG Mentor
- NCSU CSC 298 (Introduction to Computer Science Research Methods), Mentor (2 UGs)
- NCSU COE REU Program, UG Mentor (**$3,000 Research Award awarded to my student**)
- NSF-funded IUSE project (ExplainIt), UG Class Instructor
- NSF REU Site proposal (Topic: Algorithms and Theory), Mentor (2 UGs for 3-5 years)

OPEN-SOURCE PROJECT

Gentopia.AI: A Collaborative Platform for Tool-Augmented LLMs
- **Goal:** Aim to specialize & share agents to overlay collective growth for greater intelligence
- **Teams:** Researchers from NC State, George Mason, NYU, UMich, CMU
- **Web:** https://github.com/Gentopia-AI, **Demo** [link], **Quick Start** [link]
- **Paper:** Accepted to EMNLP'23 (System Demo) [link]

PEER-REVIEWED CONFERENCE AND JOURNAL PAPERS

[1] Binfeng Xu, Xukun Liu, Hua Shen, Zeyu Han, Yuhan Li, Murong Yue, Zhiyuan Peng, Yuchen Liu, Ziyu Yao, and **Dongkuan Xu**. Gentopia: A Collaborative Platform for Tool-Augmented LLMs [C]. The 2023 Conference on Empirical Methods in Natural Language Processing. **(EMNLP 2023, System Demo Track)**

[2] Jianwei Li, Qi Lei, Wei Cheng, and **Dongkuan Xu**. Towards Robust Pruning: An Adaptive Knowledge-Retention Pruning Strategy for Language Models [C]. The 2023 Conference on Empirical Methods in Natural Language Processing. **(EMNLP 2023)**

[3] Jianwei Li, Weizhi Gao, Qi Lei, and **Dongkuan Xu**. Breaking through Deterministic Barriers: Randomized Pruning Mask Generation and Selection [C]. The 2023 Conference on Empirical Methods in Natural Language Processing. **(EMNLP 2023, Findings)**

[4] Jiasheng Gu, Zifan Nan, Zhiyuan Peng, Xipeng Shen, and **Dongkuan Xu**. Co-evolving Data-driven and NLU-driven Synthesizers for Generating Code in Domain Growth and Data Scarcity [C]. The 2023 Conference on Empirical Methods in Natural Language Processing. **(EMNLP 2023, Pan-DL Workshop)**

[5] Dongyao Zhu, Bowen Lei, Jie Zhang, Yanbo Fang, Yiqun Xie, Ruqi Zhang, and **Dongkuan Xu**. Rethinking Data Distillation: Do Not Overlook Calibration [C]. International Conference on Computer Vision **(ICCV 2023)**

[6] Jiaqi Wang, Xingyi Yang, Suhan Cui, Liwei Che, Lingjuan Lyu, **Dongkuan Xu**, and Fenglong Ma. Towards Personalized Federated Learning via Heterogeneous Model Reassembly [C]. The 37th Conference on Neural Information Processing Systems **(NeurIPS 2023)**

[7] Shuya Li, Hao Mei, Jianwei Li, Hua Wei, and **Dongkuan Xu**. Toward Efficient Traffic Signal Control: Smaller Network Can Do More [C]. The 62nd IEEE Conference on Decision and Control **(CDC 2023)**

[8] Lei Zhang, Jie Zhang, Bowen Lei, Subhabrata Mukherjee, Xiang Pan, Bo Zhao, Caiwen Ding, Yao Li, and **Dongkuan Xu**. Accelerating Dataset Distillation via Model Augmentation [C]. The 34th IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR 2023, Highlight Paper**)
Acceptance rate: **235/9155=2.5%**

[9] 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)**

[10] 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)**

[11] 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)**

[12] 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)**

[13] Chengyuan Liu, Divyang Doshi, Muskaan Bhargava, Ruixuan Shang, Jialin Cui, **Dongkuan Xu**, and Edward Gehringer. 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)**

[14] 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)**

[15] 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, Best Paper Award)**

[16] 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)**

[17] 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)**

[18] 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)**

[19] 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)**

[20] 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)**

[21] 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)**

[22] 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.

[23] **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)**

[24] 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)**

[25] 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)**

[26] 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%

[27] **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%

[28] **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%

[29] 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%

[30] **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%

[31] **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%

[32] **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%

[33] 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%

[34] 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%

[35] 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%

[36] 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%

[37] **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%

[38] 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%

[39] **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%

[40] **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%

[41] **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%

[42] 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%

[43] Yingjie Tian, **Dongkuan Xu**, and Chunhua Zhang. A Review of Multi-Instance Learning Research [J]. Operations Research Transactions, 2018, 02: 1-17

[44] **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)**

[45] 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)**

[46] 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)**

[47] **Dongkuan Xu**, and Yingjie Tian. A Comprehensive Survey of Clustering Algorithms [J]. Annals of Data Science, 2015, 2(2): 165-193

[48] **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

[49] **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

Microsoft Research (MSR), Redmond, WA 2021
- Research Intern, Mentors: Subho Mukherjee, Xiaodong Liu, Debadeepta Dey, Ahmed H. Awadallah, Jianfeng Gao
- Project: Task-agnostic Auto-Transformer Search [NeurIPS 2022]

Moffett.AI, Los Altos, CA 2020
- Research Intern, Mentor: Ian En-Hsu Yen, Co-founder
- Project: Data-free Model Compression [NAACL 2021 & a U.S. patent]

NEC Labs America, Princeton, NJ 2019
- Research Intern, Mentor: Wei Cheng
- Project: Knowledge Transfer in Multi-Task Learning [AAAI 2021]
- Project: Trend Learning in Multivariate Time Series [AAAI 2020]

NEC Labs America, Princeton, NJ 2018
- Research Intern, Mentor: Wei Cheng, Senior Researcher
- Project: Contrastive Anomaly Detection [SDM 2021]

Academia Experience

Penn State University 2017-2022
- Graduate Research Assistant, Adviser: Xiang Zhang
- Thesis: Resource-efficient Deep Learning: Democratizing AI at Scale

Chinese Academy of Sciences, Beijing, China 2014-2017
- Graduate Research Assistant, Adviser: Yingjie Tian
- Thesis: Efficient Multi-instance Learning

Renmin University of China, Beijing, China 2012-2014
- Undergraduate Research Assistant, Adviser: Wei Xu
- Thesis: Ensemble Forecasting Model for Time Series Data

Teaching Experience

Instructor at NC State

- 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 (Jerry) 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
- LiChia (Jerry) Chang, 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
- AAAI 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
- AAAI 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
- 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