

Boxiang Dong

Assistant Professor
Department of Computer Science
Montclair State University
Montclair NJ, 07043
dongb@montclair.edu
<https://msuweb.montclair.edu/~dongb/>

Employment

Assistant Professor Department of Computer Science, Montclair State University, Montclair NJ	02/2017 - Present
Research Assistant Department of Computer Science, Stevens Institute of Technology, Hoboken NJ	08/2011 - 12/2016
Research Intern NEC Labs America, Princeton NJ	05/2015 - 08/2015
Research Intern NEC Labs America, Princeton NJ	09/2014 - 12/2014

Education

Ph.D. in Computer Science Department of Computer Science, Stevens Institute of Technology, Hoboken NJ	08/2011 - 12/2016
B.E. in Software Engineering Dalian University of Technology, Dalian, P.R. China	09/2007 - 06/2011

Teaching

CSIT 100 Introduction to Computer Science
CSIT 111 Fundamentals of Programming I
CSIT 212 Data Structures and Algorithms
CSIT 345 Operating Systems (Undergraduate)
CSIT 503 Computer Science Foundations III
CSIT 547 Operating Systems (Graduate)

External Grants

1. NSF MRI: Acquisition of a High-Performance GPU Cluster for Research and Education. \$300,079. 2020-2023. (My Role: Senior Personnel).
2. NSF REU SITE: Enhancing Undergraduate Research Experiences in Cybersecurity and Privacy-Enhanced Technologies. \$395,470. 2021-2024. (My Role: Co-PI).

Publications

Journal

1. Weifeng Sun, Juanyun Wang, **Boxiang Dong**, Mingchu Li, Zhenquan Qin. *A Mediated RSA-based End Entity Certificates Revocation Mechanism with Secure Concern in Grid*. International Journal of Information Processing and Management, 2010.
2. **Boxiang Dong**, Ruilin Liu, Hui (Wendy) Wang. *Trust-but-Verify: Verifying Result Correctness of Outsourced Frequent Itemset Mining*. IEEE Transactions on Services Computing, 2015.
3. **Boxiang Dong**, Hui (Wendy) Wang, Anna Monreale, Dino Pedreschi, Fosca Giannotti, Wenge Guo. *Authenticated Outlier Mining for Outsourced Databases*. IEEE Transactions on Dependable and Secure Computing (TDSC). 2017. (Impact Factor = 2.926).
4. **Boxiang Dong**, Hui (Wendy) Wang. *Secure Partial Encryption with Adversarial Functional Dependency Constraints in the Database-as-a-Service Model*. Data & Knowledge Engineering, 2018. (Impact Factor = 1.694)
5. **Boxiang Dong**, Hui (Wendy) Wang. *Efficient Authentication of Approximate Record Matching for Outsourced Databases*. Information System Frontiers, 2018. (Impact Factor = 3.232)
6. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *CorrectMR: Authentication of Distributed SQL Execution on MapReduce*. IEEE Transactions on Knowledge and Data Engineering, 2019. (Impact Factor = 3.857)
7. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *Integrity Authentication for SQL Query Evaluation on Outsourced Databases: A Survey*. IEEE Transactions on Knowledge and Data Engineering, 2019. (Impact Factor = 3.857)
8. Allen Yang*, **Boxiang Dong**, Dawei Li⁺, Weifeng Sun, Bharath K. Samanthula⁺. *DeepICU: Imbalanced classification by using Deep Neural Networks for Network Intrusion Detection*. International Journal of Big Data Intelligence, 2020.
9. Bharath K Samanthula⁺, Divya Karthikeyan*, **Boxiang Dong**, K Anitha Kumari. *ESPADE: An Efficient and Semantically Secure Shortest Path Discovery for Outsourced Location-Based Services*. MDPI Cryptography, 2020
10. **Boxiang Dong**, Zhengzhang Chen, Hui (Wendy) Wang, Lu-An Tang, Kai Zhang, Ying Lin, Zhichun Li, Haifeng Chen. *Anomalous Event Sequence Detection*. IEEE Intelligent Systems, 2020.
11. En Wang, Dawei Li⁺, **Boxiang Dong**, Huan Zhou, Michelle Zhu⁺. *Flat and Hierarchical System Deployment for Edge Computing Systems*. Future Generation Computer Systems, 2020.

Conference

1. Weifeng Sun, **Boxiang Dong**, Zhenquan Qin, Juanyun Wang, Mingchu Li. *A Low-Level Security Solving Method in Grid*. International Conference on Intelligent Information Hiding and Multimedia Signal Processing. Darmstadt, Germany, 2010.
2. **Boxiang Dong**, Ruilin Liu, Hui (Wendy) Wang. *Result Integrity Verification of Outsourced Frequent Itemset Mining*. IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec). Newark, NJ, 2013.
3. **Boxiang Dong**, Ruilin Liu, Hui (Wendy) Wang. *Integrity Verification of Outsourced Frequent Itemset Mining with Deterministic Guarantee*. IEEE International Conference on Data Mining (ICDM). Dallas, TX, 2013. (Acceptance Rate: 159/809 = 19.7%).
4. **Boxiang Dong**, Ruilin Liu, Hui (Wendy) Wang. *PraDa: Privacy-preserving Data-Deduplication-as-a-Service*. ACM International Conference on Information and Knowledge Management (CIKM). Shanghai, P.R.China, 2014. (Acceptance Rate: 25/123=20%).

* stands for MSU student

⁺ stands for MSU colleague

5. **Boxiang Dong**, Hui (Wendy) Wang, Jie Yang. *Secure Data Outsourcing with Adversarial Data Dependency Constraints*. IEEE International Conference on Big Data Security on Cloud (BigDataSecurity). New York, NY, 2016.
6. **Boxiang Dong**, Hui (Wendy) Wang. *ARM: Authenticated Approximate Record Matching for Outsourced Databases*. IEEE International Conference on Information Reuse and Integration (IRI). Pittsburgh, PA, 2016. (Acceptance Rate: 25.6%).
7. **Boxiang Dong**, Hui (Wendy) Wang. *Frequency-hiding Dependency-preserving Encryption for Outsourced Databases*. IEEE International Conference on Data Engineering (ICDE). San Diego, CA. 2017. (Acceptance Rate: $292/1395 = 20.9\%$).
8. Yanying Li, **Boxiang Dong**, Dominik Jedruszczak, Hui (Wendy) Wang. *Budget-constrained High-quality Data Purchase on Data Markets*. The SIAM SDM'17 WinDS Workshop. Houston, TX. 2017.
9. Changjiang Cai, Haipei Sun, **Boxiang Dong**, Bo Zhang, Ting Wang, Hui (Wendy) Wang. *Pairwise Ranking Aggregation by Non-interactive Crowdsourcing with Budget Constraints*. IEEE International Conference on Distributed Computing Systems (ICDCS). Atlanta, GA. 2017.
10. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *Budget-constrained Result Integrity Verification of Outsourced Data Mining Computations*. Annual IFIP WG 11.3 Conference on Data and Application Security and Privacy (DBSec). Philadelphia, PA. 2017.
11. **Boxiang Dong**, Hui (Wendy) Wang. *EARRING: Efficient Authentication of Outsourced Record Matching*. IEEE International Conference on Information Reuse and Integration (IRI). San Diego, CA. 2017. (Acceptance Rate: 29%). **Best Paper Award**
12. **Boxiang Dong**, Zhengzhang Chen, Hui Wang, Lu-An Tang, Kai Zhang, Ying Lin, Zhichun Li and Haifeng Chen. *Efficient Discovery of Abnormal Event Sequences in Enterprise Security Systems*. ACM International Conference on Information and Knowledge Management (CIKM). Pan Pacific, Singapore. 2017. (Acceptance Rate: $171/820=21\%$).
13. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *AssureMR: Verifiable SQL Execution on MapReduce*. IEEE International Conference on Data Engineering (ICDE 2018). Paris, France. 2018.
14. Haipei Sun, **Boxiang Dong**, Bo Zhang, Hui (Wendy) Wang, Murat Kantarcioglu. *Sensitive Task Assignments in Crowdsourcing Markets with Colluding Workers*. IEEE International Conference on Data Engineering (ICDE). Paris, France. 2018.
15. Manish Puri*, Aparna S. Varde⁺, **Boxiang Dong**. *Pragmatics and Semantics to Connect Specific Local Laws with Public Reactions*. IEEE 2018 International Conference on Big Data. Seattle, WA. 2018.
16. Haipei Sun, **Boxiang Dong**, Hui (Wendy) Wang, Ting Yu, Zhan Qin. *Truth Inference on Sparse Crowdsourcing Data with Local Differential Privacy*. IEEE 2018 International Conference on Big Data. Seattle, WA. 2018. (Acceptance Rate: $99/518 = 19.1\%$)
17. Kai Wang, **Boxiang Dong**. *Towards Computational Assessment of Idea Novelty*. Hawaii International Conference on System Sciences (HICSS). Grand Wailea, Maui. 2019.
18. Yanying Li, **Boxiang Dong**, Hui (Wendy) Wang. *Cost-efficient Data Acquisition on Online Data Marketplaces for Correlation Analysis*. International Conference on Very Large Data Bases (VLDB). Los Angeles, CA. 2019.
19. Dawei Li⁺, **Boxiang Dong**, En Wang, Michelle Zhu⁺. *A Study on Flat and Hierarchical System Deployment for Edge Computing*. IEEE Computing and Communication Workshop and Conference (CCWC). Las Vegas, NV. 2019.
20. Yanying Li, Hui (Wendy) Wang, **Boxiang Dong**. *PIVOT: Privacy-preserving Outsourcing of Text Data for Word Embedding*. AAAI Spring Symposium on Privacy-Enhancing Artificial Intelligence and Language Technologies. 2019.
21. Bharath K. Samanthula⁺, Salha Albehairi*, **Boxiang Dong**. *A Privacy-Preserving Framework for Collaborative Association Rule Mining in Cloud*. IEEE International Conference on Cloud and Fog Computing Technologies and Applications. Washington DC. 2019.

22. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang, Hui Xiong. *Trust-but-Verify: Result Verification of Federated Deep Learning*. Workshop on Adversarial Learning Methods for Machine Learning and Data Mining, Anchorage, Alaska. 2019. (Co-located with KDD'19) **Best Paper Award**
23. Weifeng Sun, Zun Wang, Guanghao Zhang, **Boxiang Dong**. *MACCA: A SDN based Collaborative Classification Algorithm for QoS guaranteed Transmission on IoT*. The 15th International Conference on Advanced Data Mining and Applications, Dalian, China, 2019.
24. Weifeng Sun, Minghan Jia, Shumiao Yu, **Boxiang Dong**, Xinyi Li. *An SVM Based Secural Image Steganography Algorithm for IoT*. International Symposium on Cyberspace Safety and Security, Guangzhou, China, 2019.
25. **Boxiang Dong**, Wendy Hui Wang, Aparna S. Varde⁺, Dawei Li⁺, Bharath K. Samanthula⁺, Weifeng Sun and Liang Zhao. *Cyber Intrusion Detection by Using Deep Neural Networks with Attack-sharing Loss*. IEEE International Conference on Big Data Intelligence and Computing (IEEE DataCom 2019). Kaohsiung, Taiwan.
26. **Boxiang Dong**, Aparna S. Varde⁺, Danilo Stevanovic*, Jiayin Wang⁺ and Liang Zhao. *Interpretable Distance Metric Learning for Handwritten Chinese Character Recognition*. IEEE International Conference on Big Data Intelligence and Computing (IEEE DataCom 2019). Kaohsiung, Taiwan.
27. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *AuthPDB: Authentication of Probabilistic Queries on Outsourced Uncertain Data*. ACM Conference on Data and Application Security and Privacy (CODASPY 2020). New Orleans, LA.
28. Weifeng Sun, Shumiao Yu, Jin Yang, **Boxiang Dong**. *A Novel Collaborative Filtering Framework Based on Variational Self-Attention GAN*. IEEE Global Communications Conference (GLOBECOM 2020). Taipei, Taiwan.
29. **Boxiang Dong**, Hui (Bill) Li, Yang (Ryan) Wang, and Rami Safadi. *2D-ATT: Causal Inference for Mobile Game Organic Installs with 2-Dimensional Attentional Neural Network*. IEEE Conference on Big Data. Virtually Online. 2020.
30. Weifeng Sun, Shumiao Yu, **Boxiang Dong**. *VDGAN: A Collaborative Filtering Framework Based on Variational Denoising with GANs*. International Joint Conference on Neural Networks, 2021. Shenzhen, China.
31. **Boxiang Dong**, Bo Zhang, Hui (Wendy) Wang. *VeriDL: Integrity Verification of Outsourced Deep Learning Services*. The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), Virtual, 2021.

Presentations

1. *A Novel Grid Resource Scheduling Model Based on Extended Second Price Sealed Auction*. International Symposium on Parallel Architectures, Algorithms and Programming. Dalian, Liaoning, P.R. China. 2010.
2. *Result Integrity Verification of Outsourced Frequent Itemset Mining*. IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec). Newark, NJ, 2013.
3. *Integrity Verification of Outsourced Frequent Itemset Mining with Deterministic Guarantee*. IEEE International Conference on Data Mining (ICDM). Dallas, TX, 2013.
4. *Privacy-preserving Data Deduplication-as-a-Service*. Stevens Graduate Research Conference. Hoboken, NJ. 2016.
5. *Secure Data Outsourcing with Adversarial Data Dependency Constraints*. IEEE International Conference on Big Data Security on Cloud (BigDataSecurity). Columbia University, New York, 2016.
6. *ARM: Authenticated Approximate Record Matching for Outsourced Databases*. IEEE International Conference on Information Reuse and Integration (IRI). Pittsburgh, PA, 2016.
7. *Frequency-hiding Dependency-preserving Encryption for Outsourced Databases*. IEEE International Conference on Data Engineering (ICDE). San Diego, CA. 2017.

8. *Budget-constrained High-quality Data Purchase on Data Markets*. The SIAM SDM'17 WinDS Workshop. Houston, TX. 2017.
9. *Pairwise Ranking Aggregation by Non-interactive Crowdsourcing with Budget Constraints*. IEEE International Conference on Distributed Computing Systems (ICDCS). Atlanta, GA. 2017.
10. *EARRING: Efficient Authentication of Outsourced Record Matching*. IEEE International Conference on Information Reuse and Integration (IRI). San Diego, CA. 2017.
11. *Truth Inference on Sparse Crowdsourcing Data with Local Differential Privacy*. IEEE Big Data. Seattle, Washington. 2018.
12. *Towards Computational Assessment of Idea Novelty*. HICSS. Maui, Hawaii. 2019.
13. *Cost-efficient Data Acquisition on Online Data Marketplaces for Correlation Analysis*. VLDB, Los Angeles, CA. 2019.
14. *AuthPDB: Authentication of Probabilistic Queries on Outsourced Uncertain Data*. CODASPY, Virtually Online, 2020.
15. *2D-ATT: Causal Inference for Mobile Game Organic Installs with 2-Dimensional Attentional Neural Network*. IEEE BigData, Virtually Online, 2020.

Professional Service

Journal Reviewer

1. Scientific Programming for Multimodal Big Data. (Guest Editor)
2. IEEE Transactions on Knowledge and Data Engineering (TKDE).
3. ACM Computing Surveys.
4. Wireless Communications and Mobile Computing.
5. IEEE Transactions on Mobile Computing.
6. Computer & Security.
7. MDPI Information.
8. MDPI Entropy.
9. IEEE Transactions on Emerging Topics in Computational Intelligence.
10. IEEE Transactions on Dependable and Secure Computing (TDSC).
11. IEEE Intelligent Systems.
12. IEEE Annual Conference of Industrial Electronics Society.
13. Engineering Applications of Artificial Intelligence.
14. Journal of Computer Science and Technology.
15. Distributed and Parallel Databases.
16. Journal of King Saud University - Computer and Information Sciences.
17. ACM Transactions on Privacy and Security.
18. Frontiers in Big Data (Reviewer Editor).
19. Journal of ICT Research and Applications.
20. Journal of Information Security and Applications.
21. IEEE Transactions on Service Computing (TSC).
22. Journal of Computer and Communications.
23. Advances in Science, Technology and Engineering Systems Journal.
24. IEEE Transactions on Information Forensics & Security (T-IFS).
25. IEEE Access.

26. Information Systems Journal.
27. Future Internet.

Conference PC Member

1. International Conference on Communications in China, 2015.
2. International Conference on Information System Security (ICISS), 2017.
3. International Workshop on Personal Analytics and Privacy (PAP), in conjunction with ECML PKDD 2017, 2018.
4. Security and Privacy in Edge Computing Workshop (EdgeSP), 2018.
5. IEEE International Conference on Information Reuse and Integration for Data Science (IRI), 2018.
6. International Conference on Information Systems Security, 2019.
7. Security and Privacy in Edge Computing Workshop (EdgeSP), 2019.
8. International Conference on Tools with Artificial Intelligence(ICTAI), 2019.
9. International Conference on Information Systems Security (ICISS), 2019
10. IEEE Cloud Summit, 2020.
11. 2nd International Workshop on eXplainable Knowledge Discovery in Data Mining, 2020.
12. International Conference on Decision Aid Sciences and Application, 2020.
13. International Conference on Innovation and Intelligence for Informatics, Computing and Technologies, 2020.
14. International Conference on Web Search and Data Mining (WSDM), 2021.
15. IEEE International Conference on Big Data, 2021.
16. ACM International Conference on Information and Knowledge Management (CIKM), 2021.
17. IEEE Cloud Summit, 2021.
18. IEEE International Conference on Machine Learning and Applications, 2021.
19. AAAI Conference on Artificial Intelligence, 2022.

Awards

1. Stevens Graduate Conference Fund, 2013.
2. NEC Excellent Invention Award for the patent application "Graph-based Intrusion detection Using Process Traces ", 2017.
3. Stevens Outstanding Graduate Student Award, 2017.
4. Best Paper Award at IEEE 18th International Conference on Information Reuse and Integration, 2017.
5. Best Paper Award at Workshop on Adversarial Learning Methods for Machine Learning and Data Mining, 2019 (Co-located with KDD'19).