Boxiang Dong

Assistant Professor
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Research Interests

Cybersecurity
- Verifiable computing
- Privacy-preserving data mining
- Intrusion detection

Big data analytics
- Data cleaning
- Deep learning
- Time series analysis

Employment

Assistant Professor   02/2017 - Present
Department of Computer Science, Montclair State University, Montclair NJ

Research Assistant   08/2011 - 12/2016
Department of Computer Science, Stevens Institute of Technology, Hoboken NJ

Research Intern   05/2015 - 08/2015
NEC Labs America, Princeton NJ

Research Intern   09/2014 - 12/2014
NEC Labs America, Princeton NJ

Education

Ph.D. in Computer Science   08/2011 - 12/2016
Department of Computer Science, Stevens Institute of Technology, Hoboken NJ

B.E. in Software Engineering   09/2007 - 06/2011
Dalian University of Technology, Dalian, P.R. China

Teaching

CSIT 111 Fundamentals of Programming I

CSIT 212 Data Structures and Algorithms

CSIT 503 Computer Science Foundations III

CSIT 100 Introduction to Computer Science

CSIT 345 Operating Systems

Publications

Journal

1. 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)

2. **Boxiang Dong**, Hui (Wendy) Wang. *Efficient Authentication of Approximate Record Matching for Outsourced Databases.* Information System Frontiers, 2018. (Impact Factor = 3.232)

3. **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)

4. **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).

5. **Boxiang Dong**, Ruilin Liu, Hui (Wendy) Wang. *Trust-but-Verify: Verifying Result Correctness of Outsourced Frequent Itemset Mining.* IEEE Transactions on Services Computing, 2015.

6. 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.

Conference

1. **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. (To Appear)

2. 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. (To Appear)

3. 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**

4. 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.

5. 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.

6. 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.

7. 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.

8. Kai Wang, **Boxiang Dong**. *Towards Computational Assessment of Idea Novelty.* Hawaii International Conference on System Sciences (HICSS). Grand Wailea, Maui. 2019.

9. 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%)

10. 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.

11. 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.

12. Bo Zhang, **Boxiang Dong**, Hui (Wendy) Wang. *AssureMR: Verifiable SQL Execution on MapReduce.* IEEE International Conference on Data Engineering (ICDE 2018). Paris, France. 2018.

13. **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%).

14. **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**

15. 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.

16. 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.

17. 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.

18. **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%).

19. **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%).

20. **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.

21. **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%).

22. **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%).

23. **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.

24. 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

Presentations

1. *Cost-efficient Data Acquisition on Online Data Marketplaces for Correlation Analysis.* VLDB, Los Angeles, CA. 2019.

2. *Towards Computational Assessment of Idea Novelty.* HICSS. Maui, Hawaii. 2019.

3. *Truth Inference on Sparse Crowdsourcing Data with Local Differential Privacy.* IEEE Big Data. Seattle, Washington. 2018.

4. *EARRING: Efficient Authentication of Outsourced Record Matching.* IEEE International Conference on Information Reuse and Integration (IRI). San Diego, CA. 2017.

5. *Pairwise Ranking Aggregation by Non-interactive Crowdsourcing with Budget Constraints.* IEEE International Conference on Distributed Computing Systems (ICDCS). Atlanta, GA. 2017.

6. *Budget-constrained High-quality Data Purchase on Data Markets.* The SIAM SDM'17 WinDS Workshop. Houston, TX. 2017.

7. *Frequency-hiding Dependency-preserving Encryption for Outsourced Databases.* IEEE International Conference on Data Engineering (ICDE). San Diego, CA. 2017.

8. *ARM: Authenticated Approximate Record Matching for Outsourced Databases.* IEEE International Conference on Information Reuse and Integration (IRI). Pittsburgh, PA, 2016.

9. *Secure Data Outsourcing with Adversarial Data Dependency Constraints.* IEEE International Conference on Big Data Security on Cloud (BigDataSecurity). Columbia University, New York, 2016.

10. *Privacy-preserving Data Deduplication-as-a-Service.* Stevens Graduate Research Conference. Hoboken, NJ. 2016.

11. *Integrity Verification of Outsourced Frequent Itemset Mining with Deterministic Guarantee.* IEEE International Conference on Data Mining (ICDM). Dallas, TX, 2013.

12. *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.

13. *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.

Professional Service
Conference and Journal Reviewer

1. IEEE Transactions on Emerging Topics in Computational Intelligence, 2019

2. IEEE Transactions on Dependable and Secure Computing (TDSC), 2019

3. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2019

4. IEEE Annual Conference of Industrial Electronics Society, 2019

5. Engineering Applications of Artificial Intelligence, 2019

6. Journal of Computer Science and Technology, 2019

7. Distributed and Parallel Databases

8. IEEE International Conference on Big Data, 2018.

9. Journal of King Saud University - Computer and Information Sciences, 2018

10. ACM Transactions on Privacy and Security, 2018.

11. International Conference on Data Mining (ICDM), 2018.

12. Frontiers in Big Data, 2018 (Reviewer editor).

13. Journal of ICT Research and Applications, 2018.

14. Journal of Information Security and Applications, 2018.

15. Computers & Security, 2018.

16. IEEE Transactions on Service Computing (TSC), 2018.

17. SIAM International Conference on Data Mining (SDM), 2018.

18. Journal of Computer and Communications, 2018.

19. Advances in Science, Technology and Engineering Systems Journal, 2018.

20. Journal of Computer and Communications, 2018.

21. IEEE Transactions on Information Forensics & Security (T-IFS), 2017.

22. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2017.

23. IEEE Access, 2017.

24. IEEE International Conference on Big Data, 2017.

25. Information Systems Journal, 2017.

26. Future Internet, 2017.

27. International Conference on Information System Security (ICISS), 2017.

28. Journal of Computer and Communications, 2017.

29. Mobile Information Systems, June 2016.

30. AAAI Conference on Artificial Intelligence (AAAI), 2016.

31. International Joint Conference on Artificial Intelligence (IJCAI), 2016.

32. International Workshop on the Web and Databases (WebDB), 2016.

33. International Conference on Communications in China, 2015.

34. International Journal of Distributed Sensor Network, January 2015.

35. International Conference on Data Science and Advanced Analytics, 2015.

36. International Conference on Extending Database Technology (EDBT), 2014.

Conference PC Member
1. International Conference on Tools with Artificial Intelligence(ICTAI), 2019.

2. Security and Privacy in Edge Computing Workshop (EdgeSP), 2019.

3. International Conference on Information Systems Security, 2019.

4. IEEE International Conference on Information Reuse and Integration for Data Science (IRI), 2018.

5. Security and Privacy in Edge Computing Workshop (EdgeSP), 2018.

6. International Workshop on Personal Analytics and Privacy (PAP), in conjunction with ECML PKDD 2017, 2018.

Awards

1. Best Paper Award at Workshop on Adversarial Learning Methods for Machine Learning and Data Mining, 2019 (Co-located with KDD'19).

2. Best Paper Award at IEEE 18th International Conference on Information Reuse and Integration, 2017.

3. Stevens Outstanding Graduate Student Award, 2017.

4. NEC Excellent Invention Award for the patent application "Graph-based Intrusion detection Using Process Traces ", 2017.

5. Stevens Graduate Conference Fund, 2013.