

Sisi Duan *Ph.D.*

Assistant Professor • Department of Information Systems • University of Maryland Baltimore County
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Education

Ph.D. 2014 University of California Davis, Computer Science
B.Eng. 2010 The University of Hong Kong, Electrical and Electronic Engineering

Experience in Higher Education

2015-2017 Oak Ridge National Laboratory
Weinberg Fellow, Computational Data Analytics Group
Jan-Jul, 2015 University of California, Davis
Postdoctoral Fellow, Department of Computer Science
Jan-Mar, 2014 University of Stavanger, Norway
Visiting Scholar, Department of Electrical Engineering and Computer Science

Experience other than Higher Education

2008-2009 HSBC, Hong Kong
FX/MM Product Solution Specialist, Department of FX, MM, Balance Sheet Product

Honors Received

2017 Best Paper in the Networking Track, ICDCN
2015 Alvin M. Weinberg Distinguished Fellowship, ORNL
2014 Graduate Student Travel Award, UC Davis
2014 Leiv Eiriksson Mobility Grant, The Research Council of Norway
2014 Top 100 in Google Code Jam I/O for women
2014 Best Paper Candidate Award, SRDS
2010 Block Grant Fellowship, Office of Graduate Studies, UC Davis

Research Support and Fellowships

2018 \$6,000. Summer Research Faculty Fellowship (SURFF), UMBC, PI
2015-2017 \$149,200, Oak Ridge National Laboratory, PI
2014 104000 NOK, The Research Council of Norway, PI

Students

PhD Advisees

- Xin Wang (IS, Fall 2018-present), Jack (Guohou) Shan (IS, Summer 2018-present), Jim Clavin (IS, Summer 2018-present)

Master Advisees

- Yunyue Zeng (IS, Fall 2018-present), Dharmendra Kanjariya (Fall 2018-present)

PhD Thesis Committee

- Md Abudullah Al Hafiz Khan (IS), Lawrence Sebald (CSEE)
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Teaching

IS 410 Introduction to Database Design Fall 2017
IS 651 Distributed Systems Fall 2018

Publications

Conference Proceedings

- Sisi Duan, Micheal K. Reiter, and Haibin Zhang. *BEAT: Asynchronous BFT Made Practical*, CCS 2018. (Acceptance Rate: 16.6%)
- Siddhant Goenka, Sisi Duan and Haibin Zhang. *A Formal Treatment of Efficient Byzantine Routing Against Fully Byzantine Adversary*, IEEE NCA 2018. (Acceptance Rate: 22.9%)
- Liangzhe Chen, Xinfeng Xu, Sangkeun Lee, Sisi Duan, Alfonso G. Tarditi, Supriya Chinthavali, and B. Aditya Prakash. *HotSpots: Failure Cascades on Heterogeneous Critical Infrastructure Networks*, pages 1599–1607, CIKM 2017. (Acceptance Rate: 20%)
- Sisi Duan, Micheal K. Reiter, and Haibin Zhang. *Secure Causal Atomic Broadcast, Revisited*, pages 61–72, DSN 2017. (Acceptance Rate: 22.2%)
- Sisi Duan, Sangkeun Lee, Supriya Chinthavali, and Mallikarjun Shankar. *Best Effort Broadcast under Cascading Failures in Interdependent Networks*, ACM ICDCN 2017: 27. *One of the 3 best papers of the networking track.*
- Sisi Duan, Yun Li, and Karl Levitt. *Cost Sensitive Moving Target Consensus*, pages 272–281, IEEE NCA 2016. (Acceptance Rate: 27.6%)
- Sisi Duan, Lucas Nicely, and Haibin Zhang. *Byzantine Reliable Broadcast in Sparse Networks*, pages 175–182, IEEE NCA 2016. (Acceptance Rate: 27.6%)
- Sisi Duan, Sangkeun Lee, Supriya Chinthavali, and Mallikarjun Shankar. *Reliable Communication Models in Interdependent Critical Infrastructure Networks*, pages 152–157, IEEE RWS 2016.
- Sisi Duan and Haibin Zhang. *Practical Randomized and Confidential Byzantine Replication*, pages 187–196, IEEE SRDS 2016. (Acceptance Rate: 32.5%)
- Sisi Duan and Jingtao Sun. *Energy Management Policies in Distributed Residential Energy Systems*, pages 121–133, IEEE IDCS 2016.
- Sangkeun Lee, Supriya Chinthavali, Sisi Duan, and Malikarjun Shankar. *Utilizing Semantic Big Data for realizing a National-scale Infrastructure Vulnerability Analysis System*, ACM SBD@SIGMOD 2016:3.
- Sisi Duan and Jingtao Sun. *A Self-Adaptive Middleware for Efficient Routing in Distributed Sensor Networks*, pages 322–327, IEEE SMC 2015.
- Sisi Duan, Jingtao Sun, and Sean Peisert. *Towards a Self-Adaptive Middleware for Building Reliable Publish/Subscribe Systems*, pages 157–168, IEEE IDCS 2015.
- Sisi Duan, Hein Meling, Sean Peisert, and Haibin Zhang. *BChain: Byzantine Replication with High Throughput and Embedded Reconfiguration*, pages 91–106, OPODIS 2014. (Acceptance Rate: 32.7%)
- Sisi Duan, Karl Levitt, Hein Meling, Sean Peisert, and Haibin Zhang. *ByzID: Byzantine Fault Tolerance from Intrusion Detection*, pages 253–264, IEEE SRDS 2014. *Best Paper Candidate Award.* (Acceptance Rate: 30.3%)
- Tiancheng Chang, Sisi Duan, Hein Meling, Sean Peisert, and Haibin Zhang. *P2S: A Fault-Tolerant Publish/Subscribe Infrastructure*, pages 189–197, ACM DEBS 2014. (Acceptance Rate: 9%)

Journal

- Sisi Duan, Sangkeun Lee, Supriya Chinthavali, and Mallikarjun Shankar. *Best Effort Broadcast under Cascading Failures in Interdependent Critical Infrastructure Networks*, *Pervasive and Mobile Computing*, Vol. 43, pp.114-130, 2018. (Impact Factor: 2.974)
- Sisi Duan, Sean Peisert, and Karl Levitt. *hBFT: Speculative Byzantine Fault Tolerance With Minimum Cost*, 12(1), pages 58–70, *IEEE Transactions on Dependable and Secure Computing*, 2015. (Impact Factor: 4.41)

Presentations

Invited Talks

- Building Resilient Distributed Systems from Byzantine Fault Tolerance. *Auburn University*. Mar 2017
- Building Resilient Distributed Systems from Byzantine Fault Tolerance. *University of Oklahoma*. Mar 2017
- Building Resilient Distributed Systems from Byzantine Fault Tolerance. *University of South Florida*. Mar 2017
- Resilience under Cascading Failures in Interdependent Distributed Systems. *University of Maryland Baltimore County*. Mar 2017
- Resilience under Cascading Failures in Interdependent Distributed Systems. *University of Idaho*. Mar 2017
- Building Resilient Distributed Systems from Byzantine Fault Tolerance. *United Technologies Research Center*. Feb 2017
- Building Resilient Distributed Systems from Byzantine Fault Tolerance. *Florida International University*. Feb 2017
- Reliable Communication under Cascading Failures in Interdependent Networks. *University of Connecticut*. Nov 2016
- Reliable Communication in Critical Infrastructure Networks. *CDA Group Seminar, ORNL*. Sep 2016
- Building Secure and Reliable Distributed Systems. *Oak Ridge National Laboratory*. June 2015
- BChain: A Family of Practical Byzantine Fault-Tolerant Protocols with Fault Diagnosis. *GGCS Seminar, UC Davis*. Dec 2012
- BChain: A Family of Practical Byzantine Fault-Tolerant Protocols with Fault Diagnosis. *Security Lab Seminar, UC Davis*. Nov 2012

Conference Presentations

- Best Effort Broadcast under Cascading Failures in Interdependent Networks. *ICDCN, Hyderabad, India*. Jan 2017
- Cost Sensitive Moving Target Consensus. *NCA, Boston, MA*. Nov 2016
- Byzantine Reliable Broadcast in Sparse Networks. *NCA, Boston, MA*. Nov 2016
- ByzID: Byzantine Fault Tolerance from Intrusion Detection. *SRDS, Nara, Japan*. Oct 2014
- Byzantine Chain Protocol: Byzantine Agreement with Fault Diagnosis. *Tidal News Workshop, Stavanger, Norway*. Aug 2012

Professional Service

Conference Program Committee/Session Chair

- CSIRW 2013, IDCS 2016, CISRC 2015-2018, NCA 2017-2018, UIC 2018, IDCS 2018, BlockSEA 2018

Conference External Reviewer

- ICDCS 2014, DSN 2016, RecSys 2016, SRDS 2017, ICNSC 2018

Journal Reviewer

- IEEE TKDE, IEEE TVT