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RESEARCH AREAS

Security and resilience: side-channels, power attacks, thermal attacks, handling overloads

Computer architecture: performance, scheduling and resource allocation, energy efficiency, load balancing

Warehouse-scale computers: data center power and cooling, thermal aware management, carbon-water efficiency

Economics and computing: market design, auction and bidding, coordination through markets

EMPLOYMENT

2019 - current	Assistant Professor Department of Computer Science and Engineering University of Texas at Arlington
2008 - 2012	Specialist , Core Network Planning, Robi Axiata Ltd., Bangladesh <i>Duties:</i> team leader for core network modernization and expansion projects
2008	Engineer , BSS, Huawei Technologies Ltd., Bangladesh <i>Duties:</i> installation and maintenance of base station subsystem (BSS) of cellular network

EDUCATION

2018	Ph.D. in Electrical Engineering University of California, Riverside California, USA
2008	B.Sc. in Electrical and Electronics Engineering Bangladesh University of Engineering and Technology Dhaka, Bangladesh

AWARDS

2019 - 2021	Rising STARS Award University of Texas Systems
2015 - 2016	Dean's Distinguished Fellowship University of California, Riverside
Travel grants	NSF-CSR Aspiring PI Workshop'19, IEEE HPCA'18, ACM CCS'17, ACM SIGMETRICS'17, ACM SIGMETRICS'18, USENIX CoolIDC'16 (collocated with NSDI'16)

FULL LIST OF PUBLICATIONS

Journals

POMACS	Zhihui Shao, M. A. Islam , and Shaolei Ren, "Your Noise, My Signal: Exploiting Switching Noise for Stealthy Data Exfiltration from Desktop Computers", in <i>Proc. ACM Meas. Anal. Comput. Syst.</i> 4, 1, Article 7 (March 2020), 39 pages. https://doi.org/10.1145/3379473
POMACS	M. A. Islam , L. Yang, K. Ranganath, and S. Ren, "Why Some Like It Loud: Timing Power Attacks in Multi-tenant Data Centers Using an Acoustic Side Channel", in <i>Proc. ACM Meas. Anal. Comput. Syst.</i> 2, 1, Article 6 (March 2018), 33 pages. https://doi.org/10.1145/3179409
TCC	M. A. Islam , K. Ahmed, H. Xu, N. Tran, G. Quan, and S. Ren, "Exploiting Spatio-Temporal Diversity for Water Saving in Geo-Distributed Data Centers", in <i>IEEE Transactions on Cloud Computing</i> , vol. 6, no. 3, pp. 734-746, 1 July-Sept. 2018. (Impact factor: 5.97)
TWC	M. N. H. Nguyen, N. H. Tran, M. A. Islam , C. Pham, S. Ren, and C. S. Hong, "Fair Sharing of Backup Power Supply in Multi-Operator Wireless Cellular Towers", in <i>IEEE Transactions on Wireless Communications</i> , 2017. (Impact factor: 6.39)

- TCC [M. A. Islam](#), H. Mahmud, S. Ren, and X. Wang, “A Carbon-Aware Incentive Mechanism for Greening Colocation Data Centers”, in *IEEE Transactions on Cloud Computing*, 2017 (early access). (Impact factor: 5.97)
- TCC [M. A. Islam](#), S. Ren, G. Quan, M. Shakir, and A. Vasilakos, “Water-Constrained Geographic Load Balancing in Data Centers”, in *IEEE Transactions on Cloud Computing*, vol. 5, no. 2, pp. 208-220, April-June 1 2017. (Impact factor: 5.97)
- TSC [M. A. Islam](#), S. Ren, A. H. Mahmud and G. Quan, “Online Energy Budgeting for Cost Minimization in Virtualized Data Center”, in *IEEE Transactions on Services Computing*, vol. 9, no. 3, pp. 421-432, May-June 1 2016. (Impact factor: 5.7)
- SUSCOM [M. A. Islam](#), S. Ren, N. Pissinou, A. H. Mahmud, and A. V. Vasilakos, “Distributed Temperature-aware Resource Management in Virtualized Data Center”, *Sustainable Computing: Informatics and Systems*, vol. 6, pp. 3-16, June 2015. (Impact factor: 1.2)
- TSP S. Ren, N. Deligiannis, Y. Andreopoulos, [M. A. Islam](#), and M. van der Schaar, “Dynamic Scheduling for Energy Minimization in Delay-Sensitive Stream Mining”, in *IEEE Transactions on Signal Processing*, vol. 62, no. 20, pp. 5439-5448, Oct. 15, 2014. (Impact factor: 5.23)

Conferences

- SIGMETRICS’20 Zhihui Shao, [M. A. Islam](#), and Shaolei Ren, “Your Noise, My Signal: Exploiting Switching Noise for Stealthy Data Exfiltration from Desktop Computers”, *ACM International Conference on Measurement and Modeling of Computer Systems*, 2020.
- SIGMETRICS’19 Zhihui Shao, [M. A. Islam](#), and Shaolei Ren, “A First Look at Thermal Attacks in Multi-Tenant Data Centers.”, *SIGMETRICS Perform. Eval. Rev. 46, 2 (January 2019)*, 93–94. DOI:<https://doi.org/10.1145/3305218.3305254>, 2020. (work in progress paper)
- CCS’18 [M. A. Islam](#) and S. Ren, “Ohm’s Law in Data Centers: A Voltage Side Channel for Timing Power Attacks”, *ACM Conference on Computer and Communications Security*, 2018.
- SIGMETRICS’18 [M. A. Islam](#), L. Yang, K. Ranganath, and S. Ren, “Why Some Like It Loud: Timing Power Attacks in Multi-Tenant Data Centers Using an Acoustic Side Channel”, *ACM International Conference on Measurement and Modeling of Computer Systems*, 2018.
- HPCA’18 [M. A. Islam](#), X. Ren, S. Ren, and A. Wierman, “A Spot Capacity Market to Increase Power Infrastructure Utilization in Multi-Tenant Data Centers”, *IEEE Intl. Symp. on High Performance Computer Architecture*, 2018.
- NOMS’18 M. N. H. Nguyen, N. H. Tran, [M. A. Islam](#), C. Pham, S. Ren and C. S. Hong, “Multi-operator backup power sharing in wireless base stations”, *IEEE/IFIP Network Operations and Management Symposium*, 2018.
- CCS’17 [M. A. Islam](#), S. Ren, and A. Wierman, “Exploiting a Thermal Side Channel for Power Attacks in Multi-Tenant Data Centers”, *ACM Conference on Computer and Communications Security*, 2017.
- SIGMETRICS’17 [M. A. Islam](#), X. Ren, S. Ren, and A. Wierman, “A Spot Capacity Market to Increase Power Infrastructure Utilization in Multi-tenant Data Centers”, *ACM International Conference on Measurement and Modeling of Computer Systems*, 2017. (extended summary of HPCA’18)
- Greenmetrics’17 [M. A. Islam](#), S. Ren, and A. Wierman, “A First Look at Power Attacks in Multi-Tenant Data Centers”, *ACM Greenmetrics (collocated with SIGMETRICS’17)*, 2017. (extended abstract of CCS’17)
- HPCA’16 [M. A. Islam](#), X. Ren, S. Ren, A. Wierman, and X. Wang, “A Market Approach for Handling Power Emergencies in Multi-Tenant Data Center”, *IEEE Intl. Symp. on High Performance Computer Architecture*, 2016.
- IGSC’16 [M. A. Islam](#), A. Gandhi, and S. Ren, “Minimizing Electricity Cost for Geo-Distributed Interactive Services with Tail Latency Constraint”, *Intl. Green and Sustainable Computing Conference*, 2016.

- IGSC'16** T. Wei, **M. A. Islam**, S. Ren, and Q. Zhu, "Co-Scheduling of Datacenter and HVAC Loads in Mixed-Use Buildings", *Intl. Green and Sustainable Computing Conference*, 2016.
- CoolDC'16** **M. A. Islam** and S. Ren, "A New Perspective on Energy Accounting in Multi-Tenant Data Centers", *USENIX Workshop on Cool Topics on Sustainable Data Centers (collocated with NSDI'16)*, 2016.
- HPCA'15** **M. A. Islam**, H. Mahmud, S. Ren, and X. Wang, "Paying to Save: Reducing Cost of Colocation Data Center via Rewards", *IEEE Intl. Symp. on High Performance Computer Architecture*, 2015.
- ICCAD'15** K. Ahmed, **M. A. Islam**, and S. Ren, "A Contract Design Approach for Colocation Data Center Demand Response", *Intl. Conference on Computer Aided Design*, 2015.
- ICAC'14** S. Ren and **M. A. Islam**, "Colocation Demand Response: Why Do I Turn Off My Servers?", *USENIX Intl. Conf. on Autonomic Computing*, 2014.
- ICAC'14** **M. A. Islam**, K. Ahmed, S. Ren, and G. Quan, "Exploiting Temporal Diversity of Water Efficiency to Make Data Center Less Thirsty", *USENIX Intl. Conf. on Autonomic Computing*, 2014.
- IGCC'14** **M. A. Islam**, S. Ren, and X. Wang, "GreenColo: A Novel Incentive Mechanism for Minimizing Carbon Footprint in Colocation Data Center", *Intl. Green Computing Conference*, 2014.
- HotPower'14** K. Ahmed, **M. A. Islam**, S. Ren, and G. Quan, "Can data center become water self-sufficient?", *In Proceedings of the 6th USENIX conference on Power-Aware Computing and Systems*, 2014.
- Greenmetrics'14** S. Ren and **M. A. Islam**, "A First Look at Colocation Demand Response", *ACM Greenmetrics (co-located with SIGMETRICS)*, 2014. (extended summary of ICAC'14)
- MASCOTS'13** **M. A. Islam**, S. Ren, and G. Quan, "Online Energy Budgeting for Virtualized Data Centers", *IEEE Intl. Symp. on Modeling, Analysis and Simulation of Computer and Telecommunication Systems*, 2013.
- IGCC'13** **M. A. Islam**, S. Ren, N. Pissinou, H. Mahmud, and A. V. Vasilakos, "Distributed Resource Management in Data Center with Temperature Constraint", *Intl. Green Computing Conf.*, 2013.