Curriculum Vitae of **Abu ASADUZZAMAN**

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EDUCATION:

Ph.D.	Computer Engineering, December 2009 Florida Atlantic University, Boca Raton, Florida GPA: 3.94 out of 4.00 Dissertation: *"Cache Optimization for Real-Time Embedded Systems"* Advisor: Dr. Imadeldin Mahgoub Mahgoub, Tecore Professor Advisor's E-mail: mahgoubi@fau.edu; Tel: 561-297-3458
M.S.	Computer Engineering, August 1997 Florida Atlantic University, Boca Raton, Florida GPA: 3.94 out of 4.00 Thesis: *"Memory Latency Evaluation in Cluster-Based Cache-Coherent Multiprocessor Systems with different Interconnection Topologies"* Advisor: Dr. Imadeldin Mahgoub Mahgoub, Tecore Professor Advisor's E-mail: mahgoubi@fau.edu; Tel: 561-297-3458
B.S.	Electrical and Electronic Engineering, November 1993 Bangladesh University of Engineering & Technology (BUET) Dhaka, Bangladesh Final Grade: First Class (stood 51st in a class of 146 students) Major Project: *"Computer Aided Design of Batwing Antenna Arrays by Standing Wave Modeling of Current Distribution"*
Advanced Courses Taken	Modern Computer Architecture, Parallel Computing, Database Systems, Computer Systems Management and Information Technology, and Embedded Systems

CITIZENSHIP: U.S. Citizen

MARITAL STATUS: Married with one child

RESEARCH INTERESTS:

- Computer Architecture
- High Performance Computing
- Parallel Programming; Data Analytics; Embedded Systems; Healthcare Technology; Internet-of-Things; Performance-Power Evaluation; and Interdisciplinary Research/Education

RESEARCH GRANTS/ACTIVITIES:

2021 – 2021	**Applicant,** "Open2C framework and OpenSoC Fabric to build up a communication-aware level-2 cache controller," fudded by Department of Energy Visiting Faculty Program (VFP – Faculty and VFP – Student) and Sustainable Horizons Institute for summer research at the Lawrence Berkeley National Laboratory; total $26,000 (estimated for one faculty and two students) for summer 2021.
2021 – 2024	**Principal Investigator (PI),** "IRES: Developing World-Class Research Skills in Bio-Medical Image Processing at NAIST-Japan," under preparation, *the NSF International Research Experiences for Students (IRES) Program*; total $300,000 for three years.
2021 – 2022	**PI,** "Image Processing and Machine Learning: An Integrative Approach to Treat Breast Cancer," under review, *Sony (Faculty Innovation Award)*; total $99,997 for one year.
2022 – 2024	**PI,** "CSforAll: RPP: Small: Experiential Learning Pathways for Advancing Computational Literacy," under preparation, *the NSF Computer Science for All (CSforAll: Research and RPPs) Program*; total $300,000 for two years. Wichita State University: Kaye Monk-Morgan (Co-PI), Mara Alagic (Co-PI), Ajita Rattani (Co-PI), Sergio Salinas Monroy (Co-PI) Derby Public Schools: Holly Putnam Jackson (Co-PI)
2020 – 2021	**PI,** "A Real-Time Imaging System to Assist Surgical Procedures," *Wichita State University Research/ Creative Projects Award (URCA)*; total $4,500 for one year.
2016 – 2017	**PI,** "Applying Massively Parallel Processing to Analyze Mammogram Images that Should Lead Solutions to Treat Cancer," *Wichita State University (WSU) Research/Creative Projects Award;* total $4,500 for one year.
2015 – 2017	**PI,** "NVIDIA GPU Research Center at Wichita State," *NVIDIA Corporation;* multiple benefits including recognition as a GPU

Research Center, invitation to NVIDIA Special Events, and inclusion in NVIDIA GPU Seeding Programs; total $10,000 for two years.

2015 – 2016 **PI,** "Collaborative Research: NetApp NFS Connector for Apache Spark Systems," *NetApp, Inc.*; total $60,000 ($49,828 for PI) for nine months.
Wichita State University: Tonya Witherspoon (Co-PI)

2014 – 2015 **PI,** "An Empirical Application of High-Performance Pattern Recognition and Protein Binding to Treat Cancer," *WSU Flossie E. West Memorial Foundation;* total $24,984 for one year.

2014 – 2015 **PI,** "NVIDIA Academic Research Programs," *NVIDIA Corporation*; total $3,800 for one year (hardware donation).

2014 – 2015 **PI,** "Discovering CUDA-Accelerated New Programming Paradigm to Address the Growing Low-Power High Performance Computing Requirements," *WSU University Research/Creative Projects Award;* total $4,498 for one year.

2014 – 2014 **PI,** "Wiktronics-WSU Embedded Systems Research Project 2014," *Wiktronics Collaborative Project 2014;* total $11,466 for six months.

2013 – 2014 **PI,** "A novel task and data regrouping based parallel approach to solve massive problems faster on multithreaded computing systems," *Kansas NSF EPSCoR First Award;* total $105,296 for 15 months.

2012 – 2013 **PI,** "CUDA Teaching Center at Wichita State University;" *NVIDIA Corporation*; total $7,702 (hardware plus money) for one year.

2012 – 2012 **PI,** "M2SYS-WSU Biometric Cloud Computing Research Project;" *M2SYS Technology*; total $2,875 for four months.

PUBLICATIONS**:**
(Student coauthor is indicated with an asterisk.)

a) Selected Journal Papers

1. **Asaduzzaman, A.,** Sibai, F.N., Chidella, K.K., Kanaya, S., Altaf-Ul-Amin, M., and Uddin, M.J., "An Effective Machine Learning Approach for Addressing Contrast Errors in Mammography," *under review, Springer Journal of Medical and Biological Engineering (JMBE), Manuscript Number JMBE-D-20-00823,* 2020.

2. Sibai, F., El-Moursy, A., **Asaduzzaman, A.,** and Majzoub, S., "Hardware Acceleration of the STRIKE String Kernel Algorithm for Estimating Protein to

Protein Interactions," *under review, IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB), Manuscript ID TCBB-2020-01-0008.R1,* 2020.

3. Uddin, M.J., **Asaduzzaman, A.,** Huda, T., Crews, B.C., Kingsley, P.J., McIntyre, J.O., Oltman, C.G., Aleem, A.M., Milad, M., and Marnett, L.J., "Redox-Based Sensing Enables Detection of Cylooxygenase-2 Status in Cells and Animals," *under review, Journal of Biomedical Optics,* 2020.

4. **Asaduzzaman, A.,** Mazumder, S.*, and Salinas, S., "A Promising Security-Aware Architecture for Near Field Communication," *Inderscience International Journal of Security and Networks (IJSN),* Vol. 13, No. 2, pp. 98-107, 2018.

5. Chidella, K.K.* and **Asaduzzaman, A.**, "A Novel Wireless Network-on-Chip Architecture with Distributed Directory for Faster Execution and Minimal Energy," *Elsevier Journal of Computers and Electrical Engineering,* Vol. 65, pp. 18-31, 2018.

6. **Asaduzzaman, A.,** Chidella, K.K.*, and Vardha, D.*, "An Energy-Efficient Directory Based Multicore Architecture with Wireless Routers to Minimize the Communication Latency," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Vol. 28, No. 2, pp. 374-385, May 2016.

7. **Asaduzzaman, A.,** Mummidi, A.*, and Sibai, F.N., "An Eye Blinking Password Based Liveness Monitoring System to Improve the Detection of Video Spoofing," *Journal of Mechatronics, Electrical, and Computer Technology (IJMEC),* Vol. 5, No. 17, pp. 2398-2407, Oct. 2015.

8. **Asaduzzaman, A.** and Gunasekara, G.H.*, "Power and Performance Analysis of Multimedia Applications Running on Low-Power Devices by Cache Modeling," *Springer Journal of Multimedia Tools and Applications (MTAP),* Vol. 72, No. 1, pp. 207-230, Sept. 2014.

9. **Asaduzzaman, A.**, Chaturvedula, S.R.*, and Pendse, R., "A Novel Folded-Torus Based Network Architecture for Power-Aware Multicore Systems," *Elsevier Journal of Computers & Electrical Engineering (*COMPELECENG*),* Vol. 39, No. 8, pp. 2494-2506, Nov. 2013.

10. Asmatulu, R., Muppalla, H., Veisi, Z., Khan, W.S., **Asaduzzaman, A.,** and Nuraje, N., "Study of Hydrophilic Electrospun Nanofiber Membranes for Filtration of Micro and Nanosize Suspended Particles," *Special Issue: Nanocomposite Membranes Journal,* Membranes 2013, 3, 1-x manuscripts; (doi:10.3390/membranes30x000x), Oct. 2013.

11. **Asaduzzaman, A.**, Suryanarayana, V.R.*, and Sibai, F.N., "On level-1 cache locking for high-performance low-power real-time multicore systems," *Elsevier Journal of Computers & Electrical Engineering (*COMPELECENG*),* Vol. 39, No. 4, pp. 1333-1345, May 2013.

12. **Asaduzzaman, A.,** Sibai, F.N., and Rani, M., "Improving Cache Locking Performance of Modern Embedded Systems via the Addition of a Miss Table at the L2 Cache Level," *Elsevier Journal of Systems Architecture (JSA),* Vol. 56, No. 4-6, pp. 151-162, April 2010.

13. **Asaduzzaman, A.** and Sibai, F.N., "Impact of Level-2 Cache Sharing on the Performance and Power Requirements of Homogeneous Multicore Embedded Systems," *Elsevier Journal of Microprocessors and Microsystems (MICPRO),* Vol. 33, No. 5-6, pp. 388-397, Aug. 2009.

14. **Asaduzzaman, A.** and Mahgoub, I., "Cache Modeling and Optimization for Portable Devices Running MPEG-4 Video Decoder," *Springer Journal of Multimedia Tools and Applications (MTAP),* Vol. 28, No. 1, pp. 239-256, January 2006.

15. Mahgoub, I., Yousif, M., and **Asaduzzaman, A.,** "Evaluation of memory latency in cluster-based cache-coherent multiprocessor systems with different interconnection topologies," *Elsevier Journal of Computers & Electrical Engineering (*COMPELECENG*),* Vol. 26, Issue 3-4, pp. 207-220, 2000.

b) Selected Conference Papers/Presentations

1. **Asaduzzaman, A.,** Trent, A.*, Osborne, S.*, Aldershof, C.*, and Sibai, F.N., "Impact of CUDA and OpenCL on Parallel and Distributed Computing," accepted in *IEEE International Conference on Electrical and Electronics Engineering (ICEEE-2021),* Antalya, Turkey, April 9-11, 2021.

2. **Asaduzzaman, A.,** Kamalakannan, P.*, and Sibai, F.N., "The Eight Class of Service Model – An Improvement Over the Five Classes of Service," accepted in *IEEE International Conference on Electrical and Electronics Engineering (ICEEE-2021),* Antalya, Turkey, April 9-11, 2021.

3. **Asaduzzaman, A.,** Jojigiri, S.*, Sabu, T.*, and Tailam, S.*, "Studying Execution Time and Memory Transfer Time of Image Processing Using GPU Cards," accepted in *IEEE Computing and Communication Workshop and Conference (CCWC-2021),* Virtual Conference, USA, Jan. 27-30, 2021.

4. **Asaduzzaman, A.,** Telakapalli, A.*, and Sibai, F.N., "Energy Consumption Analyses for Unmanned Aerial Systems used in Disaster Management," accepted in *IEEE Computing and Communication Workshop and Conference (CCWC-2021),* Virtual Conference, USA, Jan. 27-30, 2021.

5. **Asaduzzaman, A.,** Telakapalli, A., and Sibai, F.N., "Smart Disaster Management using Software-Defined Unmanned Aerial Systems," accepted in *IEEE ComSoc Consumer Communications & Networking Conference (IEEE CCNC-2021),* Virtual Conference, USA, Jan. 9-12, 2021.

6. **Asaduzzaman, A.** and Gupta, D., "Geospatial Cyberinfrastructure for Regional Economic Growth," in *IEEE Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON 2020),* Virtual Conference, Phuket, Thailand, June 24-27, 2020.

7. **Asaduzzaman, A.**, Almohaimeed, A.*, and Chidella, K.K.*, "Shared Entry Logger to Eliminate Duplicate Requests to SDN Controller," in *IEEE Computing and Communication Workshop and Conference (CCWC),* Las Vegas, Nevada, 2019.

8. Almohaimeed, A.*, **Asaduzzaman, A.,** Chidella, K.K.*, and Shahin, F.*, "Link-Renaming Technique for Efficiently Increasing Similarity among SDN Entries," in *IEEE Joint International Conference on Informatics, Electronics & Vision (ICIEV) and International Conference on Imaging, Vision & Pattern Recognition (icIVPR),* Spokane, WA, USA, 2019.

9. Almohaimeed, A.* and **Asaduzzaman, A.**, "Dedicated Backup Units to Alleviate Overload on SDN Controllers," in *IEEE Computing and Communication Workshop and Conference (CCWC),* Las Vegas, Nevada, Jan. 7-9, 2019.

10. Chidella, K.K.*, **Asaduzzaman, A.**, and Almohaimeed, A.*, "Impact of Non-Uniform Subnets on Wireless Network-on-Chip Performance," in *IEEE Computing and Communication Workshop and Conference (CCWC),* Las Vegas, Nevada, 2019.

11. Almohaimeed, A.* and **Asaduzzaman, A.**, "Introducing Edge Controlling to Software Defined Networking to Reduce Processing Time," in *IEEE Computing and Communication Workshop and Conference (CCWC),* Las Vegas, Nevada, 2019.

12. Almohaimeed, A.* and **Asaduzzaman, A.**, "A Novel Moving Target Defense Technique to Secure Communication Links in Software-Defined Networks," in *IEEE International Conference On Mobile and Secure Services (MobiSecServ),* Miami Beach, Florida, March 2-3, 2019.

13. Almohaimeed, A.* and **Asaduzzaman, A.**, "Incorporating Monitoring Points in SDN to Ensure Trusted Links Against Misbehaving Traffic Flows," in *IEEE International Conference On Mobile and Secure Services (MobiSecServ),* Miami Beach, Florida, March 2-3, 2019.

14. Almohaimeed, A.*, **Asaduzzaman, A.,** Singh, G.*, "A Tiling Approach for Multiple Parallel Routing in Software-Defined," in *IEEE Long Island Systems, Applications and Technology Conference (LISAT),* Farmingdale, NY, 2019.

15. Almohaimeed, A.* and **Asaduzzaman, A.**, "Distribution Model for OpenFlow-Based Networks," in *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON),* New York, NY, Nov. 8-10, 2018.

16. **Asaduzzaman, A.,** Mashhadi, F.*, and Rani, M., "Applying Learner-Centered Project-Oriented Approach to Enhance STEM Education Experience – A Case Study," in *Midwest Section Conference of the American Society for Engineering Education (ASEE)*, Stillwater, OK, Sept. 24-26, 2017.

17. Chidella, K.K.*, **Asaduzzaman, A.,** Chintam, A.*, and Mridha, M.F., "Optimization of Design Framework for Real-Time Microcontroller Applications," in *IEEE International Conference on Advances in Electrical Engineering (ICAEE)*, Dhaka, Bangladesh, Sept. 28-30, 2017.

18. **Asaduzzaman, A.,** Mitra, P.*, Chidella, K.K.*, Saeed, K.A., Cluff, K., and Mridha, M.F., "A Computer-Assisted Mammography Technique for Analyzing Breast Cancer," in *IEEE International Conference on Advances in Electrical Engineering (ICAEE)*, Dhaka, Bangladesh, Sept. 28-30, 2017.

19. Chidella, K.K.* and **Asaduzzaman, A.**, "Prior Detection of Explosives to Defeat Tragic Attacks using Knowledge Based Sensor Networks," in *IEEE Green Technologies Conference (GreenTech)*, Denver, CO, Mar. 29-31, 2017.

20. Mashhadi, F.* and **Asaduzzaman, A.**, "A Novel Resource Scheduling Approach to Improve Throughput of Shuffle-Exchange Networks," in *IEEE Green Technologies Conference (GreenTech)*, Denver, CO, Mar. 29-31, 2017.

21. Mashhadi, F.*, **Asaduzzaman, A.**, and Mridha, M.F., "A Novel Resource Scheduling Approach to Improve Reliability of Shuffle-Exchange Networks," in *IEEE International Conference on Imaging, Vision, and Pattern Recognition (icIVPR)*, Dhaka, Bangladesh, Feb. 13-14, 2017. (Acceptance rate is 25%)

22. **Asaduzzaman, A.**, Mazumder, S.*, Salinas, S., and Mridha, M.F. "A Security-Aware Near Field Communication Architecture," in *ACM/IEEE International Conference on Networking, Systems and Security (NSysS)*, BUET, Dhaka, Bangladesh, Jan. 5-8, 2017. (Acceptance rate is 26%)

23. **Asaduzzaman, A.** and Chidella, K.K.*, "A Novel Directory Based Hybrid Cache Coherence Protocol for Shared Memory Multiprocessors," in *IEEE International Symposium on Phased Array Systems and Technology (PAST),* Boston, Massachusetts, Oct. 18-21, 2016.

24. **Asaduzzaman, A.**, Mazumder, S.*, and Salinas, S., "An Auspicious Secure Processing Technique for Near Field Communication Systems," in *IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON),* New York City, USA, Oct. 20-22, 2016.

25. Moniruzzaman, M.*, **Asaduzzaman, A.,** and Mridha, M.F., "Optimizing Controller Area Network System for Vehicular Automation," in *IEEE International Conference*

on Informatics, Electronics and Vision (ICIEV), Dhaka, Bangladesh, May 13-14, 2016.

26. Mabbu, V.*, **Asaduzzaman, A.,** and Mridha, M.F., "A Novel Semantic Knowledge Engine Using Automated Knowledge Extraction from World Wide Web," in *IEEE International Conference on Informatics, Electronics and Vision (ICIEV),* Dhaka, Bangladesh, May 13-14, 2016.

27. **Asaduzzaman, A.**, Moniruzzaman, M.*, Chidella, K.K.*, and Tamtam, P., "An Efficient Simulation Method Using VisualSim to Assess Autonomous Power Systems," *in IEEE SoutheastCon 2016,* Norfolk, Virginia, Mar. 30-Apr. 3, 2016.

28. Jain, Jainish.* and **Asaduzzaman, A.**, "A Novel Data Logging Framework to Enhance Security of Cloud Computing," *in IEEE SoutheastCon 2016,* Norfolk, Virginia, USA, Mar. 30-Apr. 3, 2016.

29. **Asaduzzaman, A.**, Samadarsinee, S.*, and Chidella, K.K.*, "Simulating Multisensor Noninvasive Blood Glucose Monitoring System," *in IEEE SoutheastCon 2016,* Norfolk, Virginia, USA, Mar. 30-Apr. 3, 2016.

30. **Asaduzzaman, A.** and Asmatulu, R., "A Learner-Centered Computational Experience in Nanotechnology for STEM Students," *in IEEE Integrated STEM Education Conference (ISEC'16),* Princeton University, New Jersey, March 5, 2016.

31. **Asaduzzaman, A.,** Mummidi, A.*, Mridha, M.F., and Sibai, F.N., "Improving Facial Recognition Accuracy by Applying Liveness Monitoring Technique," *in IEEE International Conference on Advances in Electrical Engineering (ICAEE),* Dhaka, Bangladesh, Dec. 17-19, 2015. (This paper received the Best Paper Award.)

32. **Asaduzzaman, A.**, Martinez, A.*, and Sepehri, A.*, "A Time-Efficient Image Processing Algorithm for Multicore/Manycore Parallel Computing," *in IEEE SoutheastCon 2015*, Fort Lauderdale, Florida, April 9-12, 2015.

33. **Asaduzzaman, A.**, Chidella, K.K.*, and Sibai, F.N.*, "A Smart Data Logger for Enhancing Data Communication in Wi-Fi Based Mobile Systems," *in IEEE SoutheastCon 2015*, Fort Lauderdale, Florida, April 9-12, 2015.

34. **Asaduzzaman, A.**, Gummadi, D.*, and Waichal, P.*, "A Promising Parallel Algorithm to Manage the RSA Decryption Complexity," *in IEEE SoutheastCon 2015*, Fort Lauderdale, Florida, April 9-12, 2015.

35. **Asaduzzaman, A.**, Chidella, K.K.*, and Mridha, M.F., "A Time and Energy Efficient Parking System Using ZigBee Communication Protocol," *in IEEE SoutheastCon 2015*, Fort Lauderdale, Florida, April 9-12, 2015.

36. Chidella, K.K.*, **Asaduzzaman, A.**, and Mridha, M.F., "Early Estimation of Cache Properties for Multicore Embedded Processors," *in ISERD International Conference on Engineering, Technology, and Management (ICETM'15),* Bangkok, Thailand, May 16, 2015.

37. **Asaduzzaman, A.,** Moniruzzaman, M.*, and Tamtam, P., "Efficient Management of Renewable Solar Energy for Vehicular Applications," *in ISERD International Conference on Engineering, Technology, and Management (ICETM'15),* Bangkok, Thailand, May 16, 2015. (This paper received the Excellent Paper Award.)

38. Yip, C.M.* and **Asaduzzaman, A.**, "A Promising CUDA-Accelerated Vehicular Area Network Simulator Using NS-3," *in 33rd IEEE International Performance Computing and Communications Conference (IPCCC),* Austin, TX, Dec. 5-7, 2014.

39. **Asaduzzaman, A.**, Chidella, K.K.*, and Mridha, M., "A Smart Embedded System for Better Detection of Perilous Gases," *in 8th International Conference on Software, Knowledge, Information Management and Applications (SKIMA'14),* Dhaka, Bangladesh, Dec. 18-20, 2014.

40. Whitman, L., Namboodiri, V., **Asaduzzaman, A.,** Han, K., and Tamtam, P., "Technology to aid instructional effectiveness and improve STEM educational experiences," *in 2014 American Society for Engineering Education (ASEE) Midwest Section Conference*, Fort Smith, AR, Sept. 24-26, 2014.

41. **Asaduzzaman, A.**, Lee, H.Y.*, and Gummadi, D.*, "The Impact of Thread Synchronization and Data Parallelism on Multicore Game Programming," *in WORLDCOMP Conference: Parallel and Distributed Processing Techniques and Applications (PDPTA),* Las Vegas, NV, July 21-24, 2014.

42. **Asaduzzaman, A.**, Gummadi, D.*, and Yip, C.M.*, "A Talented CPU-to-GPU Memory Mapping Technique," *in IEEE SoutheastCon 2014*, Lexington, Kentucky, March 13-16, 2014.

43. **Asaduzzaman, A.**, Yip, C.M.*, and Maiti, A.*, "CUDA-Assisted Energy-Efficient Primality Test," *in IEEE SoutheastCon 2014*, Lexington, Kentucky, March 13-16, 2014.

44. Rahman, M, and **Asaduzzaman, A.**, "Parallelizing Computation of Elastodynamic Response on Arbitrary Domains Using GPU," *in IEEE SoutheastCon 2014*, Lexington, Kentucky, March 13-16, 2014.

45. **Asaduzzaman, A.,** Allen, M.P.*, Jareen, T.*, "A Cache-Locking Free Effective Solution for Multicore Cache Memory Organizations," *in IEEE International Conference on Informatics, Electronics & Vision (ICIEV'14)*, Dhaka, May 23-24, 2014.

46. **Asaduzzaman, A.**, Suryanarayana, V.R.*, and Rahman, M., "Performance-Power Analysis of H.265/HEVC and H.264/AVC Running on Multicore Cache Systems," *in 2013 International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS'13)*, Naha, Okinawa, Japan, Nov. 12-15, 2013.

47. Husain, M., Asmatulu, R., **Asaduzzaman, A.,** et al, "Magnetic Nanoparticles-Based Water Treatment System for Arsenic Removal," *in Governor's Conference on the Future of Water in Kansas*, Manhattan, Kansas, Oct. 24-25, 2013.

48. **Asaduzzaman, A.,** Yip, C.M.*, Asmatulu, R., and Rahman, M., "CUDA/C Based 'Green' Technology for Very Fast Analysis of Nanocomposite Properties," *in SAMPE Tech 2013 Conference*, Wichita, Kansas, Oct. 21-24, 2013.

49. Asmatulu, R., Muppalla, H., Veisi, Z., Khan, W.S., Misak, H., **Asaduzzaman, A.,** and Nuraje, N., "Filtration of Micro and Nanosize Suspended Particles via Highly Hydrophilic Electrospun Nanofiber Membranes," *in SAMPE Tech 2013 Conference*, Wichita, Kansas, Oct. 21-24, 2013.

50. **Asaduzzaman, A.** and Yip, C.M.*, "Develop Task/Data Regrouping Based Parallel Algorithm for Multicore/Manycore Systems and Educate Parallel Computing to STEM Students," *in 2013 Kansas NSF EPSCoR Annual Meeting*, Lawrence, Kansas, Oct. 7-8, 2013.

51. **Asaduzzaman, A.**, Asmatulu, R., and Pendse, R., "Thinking in Parallel: Multicore Parallel Programming for STEM Education," *in the American Society for Engineering Education (ASEE'13) Midwest Section Annual Conference*, Salina, Kansas, Sept. 18-20, 2013.

52. Asmatulu, R., **Asaduzzaman, A.**, and Srikanth, M., "Beware of High Tech Cheating Techniques and Their Effects on Engineering Education," *in the American Society for Engineering Education (ASEE'13) Midwest Section Annual Conference*, Salina, Kansas, Sept. 18-20, 2013.

53. **Asaduzzaman, A.**, Yip, C.M.*, Kumar, S., and Asmatulu, R.; "Fast, Effective, and Adaptable Computer Modeling and Simulation of Lightning Strike Protection on Composite Materials," *in IEEE SoutheastCon Conference 2013*, Jacksonville, Florida, April 4-7, 2013.

54. **Asaduzzaman, A.**, Mridha, M.F., and Uddin, M.N., "An Inexpensive Plug-and-Play Hardware Security Module to Restore Systems from Malware Attacks," *in International Conference on Informatics, Electronics & Vision (ICIEV'13),* Dhaka, Bangladesh, May 17-18, 2013.

55. Mridha, M.F., **Asaduzzaman, A.**, and Shaha, A.K., "An Effective Measurement Technique of Level-2 Cache Performance for Multicore Embedded Systems," *in*

International Conference on Informatics, Electronics & Vision (ICIEV'13), Dhaka, Bangladesh, May 17-18, 2013.

56. **Asaduzzaman, A.,** Sibai, F.N., and Elsayed, H.; "Performance and Power Comparisons of MPI vs Pthread Implementations on Multicore Systems," *in 2013 International Conference on Innovations in Information Technology (ITT'13)*, Al Ain, UAE, Mar. 17-19, 2013.

57. Gunasekara, G.H.* and **Asaduzzaman, A.**; "A Concurrency Modeling Technique for Performance and Power Evaluation of Multicore Systems," *in IASTED/WMSF/IEEE Int'l Conference on Engineering and Applied Science (EAS-2012)*, Colombo, Sri Lanka, Dec. 27-29, 2012.

58. **Asaduzzaman, A.**, Chaturvedula, S.R.*, and Pendse, R., "Folded Torus Based Power Aware Interconnection Topology for High-Performance Multicore Architecture," *in IASTED Parallel and Distributed Computing and Systems (PDCS 2012)*, Las Vegas, Nevada, USA, Nov. 12-14, 2012.

59. **Asaduzzaman, A.**, Joseph, A.R.*, Sibai, F.N., and Mohamed, N. "Cloud Computing: A Cloudy Future?," *in the Eighth International Conference on Innovations in Information Technology (Innovations'12)*, Al Ain, UAE, Mar. 18-20, 2012.

60. Suryanarayana, V.R.*, Dhanekula, S., **Asaduzzaman, A.**, and Pendse, R.; "Desktop Virtualization in Cloud and BWT Compression," *in IASTED Parallel and Distributed Computing and Systems (PDCS 2012)*, Las Vegas, USA, Nov. 12-14, 2012.

61. **Asaduzzaman, A.**, Papri, R.J.*, and Rahman, M., "A Power-Aware Versatile Victim Cache to Reduce the Average Memory Latency in Parallel Architectures," *in IASTED Parallel and Distributed Computing and Systems (PDCS 2012)*, Las Vegas, USA, Nov. 12-14, 2012.

62. **Asaduzzaman, A.,** "An Efficient Memory Block Selection Strategy to Improve the Performance of Cache Memory Subsystem," *in 14th International Conference on Computer and Information Technology (ICCIT-2011),* Dhaka, Dec. 22-24, 2011.

63. **Asaduzzaman, A.**, Sibai, F.N., and Abonamah, A. "An Effective Dynamic Way Cache Locking Scheme to Improve the Predictability of Power-Aware Real-Time Embedded Systems," *in ICECS-2011,* Beirut, Lebanon, Dec. 11-14, 2011.

64. **Asaduzzaman, A.,** "Effective Level-1 Cache Locking Strategies for Power-Aware Real-Time Multicore Systems," *in ICCIT-2011 AIUB,* Dhaka, Bangladesh, Dec. 22-24, 2011.

65. **Asaduzzaman, A.,** Hassan, W.*, and Koivisto, D., "Multicore Distributed Processing Architecture with Miss Table in Radar Systems for Real-Time Severe Weather

Analysis," *in 2011 IEEE Radar Conference (RadarCon11)*, Kansas City, MO, May 23-27, 2011.

66. **Asaduzzaman, A.,** Manira, R., and Sibai, F.N., "On the Design of Low-Power Cache Memories for Homogeneous Multi-Core Processors," *in IEEE International Conference on Microelectronics (ICM-2010)*, Cairo, Egypt, Dec. 19-22, 2010.

67. **Asaduzzaman, A.** and Sibai, F.N., "Investigating Cache Parameters and Locking in Predictable and Low Power Embedded Systems," *in IEEE International Conference on Microelectronics (ICM-2010)*, Cairo, Egypt, Dec. 19-22, 2010.

68. **Asaduzzaman, A.,** Mahgoub, I., and Sibai, F.N., "Evaluation of the Impact of Miss Table and Victim Caches in Parallel Embedded Systems," *in IEEE International Conference on Microelectronics (ICM-2010)*, Cairo, Egypt, Dec. 19-22, 2010.

69. Rani, M., Mridha, M.F., and **Asaduzzaman, A.,** "Investigation of the Impact of Multimedia Applications on Multicore Multimedia Systems," *in IEEE International Conference on Electrical and Computer Engineering (ICECE-2010)*, Dhaka, Bangladesh, Dec. 18-20, 2010.

70. Rani, M. and **Asaduzzaman, A.**, "Power Aware Design of Second Level Cache for Multicore Embedded Systems," *in IEEE SoutheastCon2010*, Charlotte-Concord, North Carolina, Mar. 2010.

71. **Asaduzzaman, A.** and Sibai, F.N., "Conceptual Modeling of Petascale Computer Systems," *in IEEE International Conference on Innovations in Information Technology (IIT-2009),* Al-Ain, United Arab Emirates, Dec. 2009.

72. **Asaduzzaman, A.**, "Modeling of High-Performance Multi-Core Computing Systems," *in Huntsville Simulation Conference (HSC-2009) sponsored by the Society for Modeling and Simulation International (SCS) and hosted by the Alabama Modeling and Simulation Council (AMSC),* Huntsville, Alabama, Oct. 2009.

73. **Asaduzzaman, A.**, Rani, M., and Koivisto, D., "Level-2 Shared Cache versus Level-2 Dedicated Cache for Homogeneous Multicore Embedded Systems," *in International Conference on Computing, Communications and Control Technologies (CCCT-2009) in the context of IMETI-2009,* Orlando, Florida, July 2009.

74. **Asaduzzaman, A.,** Mahgoub, I., and Sibai, F.N., "Impact of L1 Entire Locking and L2 Way Locking on Performance, Power Consumption, and Predictability of Multicore Real-Time Systems," *in ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-2009),* Rabat, Morocco, May 2009.

75. **Asaduzzaman, A.** and Sibai, F.N., "Performance and Energy Consumption Optimization by Tuning Level-2 Cache Attributes for Real-Time Signal Processing

Systems," *in IEEE SoutheastCon 2009 hosted by the IEEE Atlanta Section and the Georgia Tech IEEE Student Branch,* Atlanta, Georgia, March 2009.

76. **Asaduzzaman, A.** , Rani, M., and Koivisto, D., "Modeling Multicore Distributed Systems and Simulation of Performance, Power, and Predictability using VisualSim," *in Huntsville Simulation Conference (HSC-2008) sponsored by the Society for Modeling and Simulation International (SCS) and hosted by the Alabama Modeling and Simulation Council (AMSC),* Huntsville, Alabama, Oct. 2008.

77. Rani, M., **Asaduzzaman, A.,** and Koivisto, D., "Simulation of Multicore Parallel Computing Systems to Explore the Impact of Level-2 Cache Locking on Performance, Power, and Predictability," *in 20th International Association of Science and Technology for Development (IASTED) Conference on Parallel and Distributed Computing and Systems (PDCS-2008),* Orlando, Florida, Nov. 2008.

78. **Asaduzzaman, A.,** Niranjan, L., Mahgoub, I., and Sibai, F.N., "Evaluation of I-Cache Locking Technique for Real-Time Embedded Systems," *in IEEE International Conference on Innovations in Information Technology (IIT-2007),* Dubai, United Arab Emirates, Nov. 2007.

79. **Asaduzzaman, A.**, Rani, M., and Koivisto, D., "Impacts of Level-2 Cache on Performance of Multimedia Systems and Applications," *in International Conference on Signal Processing and Multimedia Applications (ICETE/SIGMAP-2007),* Barcelona, Spain, July 2007.

80. **Asaduzzaman, A.,** Niranjan, L., and Mahgoub, I., "Predictability and Performance Enhancement for Real-Time Embedded Systems by Cache-Locking," *in IEEE-GCC Conference and Exhibition (IEEE/GCC-2007),* Bahrain, Nov. 2007.

81. **Asaduzzaman, A.**, Rani, M., and Koivisto, D., "Performance Analysis of Scheduling-Based Load Balancing for Distributed and Parallel Systems using VisualSim," *in International Conference on Software and Data Technologies (ICSOFT-2007),* Barcelona, Spain, July 2007.

82. **Asaduzzaman, A.** and Mahgoub, I., "Cache Optimization for Embedded Systems Running H.264/AVC Video Decoder," *in ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-2006),* Dubai/Sharjah, United Arab Emirates, March 2006.

83. **Asaduzzaman, A.,** Mahgoub, I., Sanigepalli, P., Kalva, H., Shankar, R., and Furht, B., "Cache Optimization for Mobile Devices Running Multimedia Applications," *in 6th IEEE International Symposium on Multimedia Software Engineering (ISMSE-2004),* Miami, Florida, Dec. 2004.

84. **Asaduzzaman, A.** and Mahgoub, I., "Evaluation of Application-Specific Multiprocessor Mobile System," *in International Symposium on Performance*

Evaluation of Computer and Telecommunication Systems (SPECTS-2004), San Jose, California, July 2004.

85. **Asaduzzaman, A.,** Mahgoub, I., and Yousif, M.S., "Memory Latency Evaluation in Cluster-Based Cache Coherent Multiprocessor with Different Network Topologies," *in (CATA-98, pp. 393-396) International Symposium on Computer Architecture (ISCA),* Honolulu, Hawaii, March 1998.

c) Patents

1. Eslami, A., **Asaduzzaman, A.,** and Erjaei, M.H., "Internet-Based Remote Control and Monitoring System for Commercial Doors Using Mobile Devices," US Patent Number 10689898, US Patent and Trademark Office, June 23, 2020.

2. **Asaduzzaman, A.,** "Noninvasive Blood Glucose Monitoring System," under preparation, USPTO Patent.

d) Oral/Poster Presentations

1. (Oral) **Asaduzzaman, A.**, "Open2C framework and OpenSoC Fabric to build up a communication-aware level-2 cache controller," Sustainable Research Pathways Workshop, virtually organized by Sustainable Horizons Institute and Lawrence Berkeley National Laboratory, Berkeley Lab, CA, Dec. 1-2, 2020.

2. (Oral) **Asaduzzaman, A.**, "Geospatial Cyberinfrastructure for Regional Economic Growth and Sustainability," Sustainable Research Pathways Workshop, organized by Sustainable Horizons Institute and Lawrence Berkeley National Laboratory, Berkeley Lab, CA, Dec. 2-3, 2019.

3. (Oral) Chidella, K.K.*, **Asaduzzaman, A.**, and Mashhadi, F.*, "Knowledge Based Prior Detection of Explosives to Defeat Catastrophic Attacks," Humane Water Conference, Wichita, KS, Oct. 28, 2017.

4. (Oral) Mashhadi, F.*, **Asaduzzaman, A.**, and Chidella, K.K.*, "Promising Shuffle-Exchange Networks for Multicore/Many-core Computer Systems," Humane Water: International Conference 2017 on Water & Energy, ..., and Science & Technology, Wichita, KS, Oct. 28, 2017.

5. (Oral) **Asaduzzaman, A.,** Mabbu, V.*, Jain, J.R.*, Chintam, A.*, and Emmanuel, S.R.*, "Open Source Linux Based Network File System Connector for Apache Spark," *in Kansas Linux Fest 2016 at Wichita State University,* KS, May 21, 2016.

6. (Oral) Mitra, P.*, Chidella, K.K.*, and **Asaduzzaman, A.,** "A Promising MATLAB Assisted Image Segmentation for Detecting Breast Cancer," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 29, 2016.

7. (Poster) Chidella, K.K.* and **Asaduzzaman, A.,** "A Directory Based Hybrid Cache Update Strategy to Reduce Memory Latency of Shared Memory Multiprocessors," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 29, 2016.

8. (Poster) Mazumder, S.* and **Asaduzzaman, A.,** "A Comparative Study of Time and Energy Savings Due to Near Field Communication Technology," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 29, 2016.

9. (Poster) Mabbu, V.* and **Asaduzzaman, A.,** "A Semantic Knowledge Engine Using Automated Knowledge Extraction from World Wide Web," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 29, 2016.

10. (Poster) Jain, J.R.* and **Asaduzzaman, A.,** "A Novel Highly Decentralized Information Accountability Framework to Enhance Data-Security of Cloud Computing," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 29, 2016.

11. (Oral) Chidella, K.K.*, Mitra, P.*, and **Asaduzzaman, A.,** "High Performance Computer Analysis of Mammogram Images for Treating Breast Cancer," *in 24th Annual University of Kansas School of Medicine at Wichita Research Forum,* Wichita, KS, April 21, 2016.

12. (Poster) **Asaduzzaman, A.,** Mabbu, V.*, Jain, J.R.*, and Emmanuel, S.R.*, "NetApp NFS Connector for Spark Systems," NetApp University Day 2016, Sunnyvale, CA, February 22, 2016.

13. (Poster) Mitra, P.*, **Asaduzzaman, A.,** and Chidella, K.K.*, "Application of High-Performance Pattern Recognition and Protein Binding in Cancer Treatment," *in 23rd Annual University of Kansas School of Medicine at Wichita Research Forum,* Wichita, KS, April 29, 2015.

14. (Poster) Mummidi, A.*, **Asaduzzaman, A.**, Chidella, K.K.*, Moniruzzaman, M.*, and StAubin, R.*, "Poster: An Effective Computing System for Managing Sustainable Energy in Vehicles," *in Oklahoma Supercomputing Symposium 2014,* Norman, Oklahoma, Sept. 23-24, 2014.

15. (Poster) Yip, C.M.* and **Asaduzzaman, A.,** "GPU-Accelerated "Green" Technology for Fast Analysis of Nano-Composites," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 25, 2014.

16. (Poster) Yip, C.M.*, **Asaduzzaman, A.**, and Rahman, M., "Poster: Thinking in Parallel: to Save Time, Energy, and Climate using Multithreaded Concurrent/Parallel

Processing on Multicore/Manycore Systems," *in 2013 Oklahoma Supercomputing Symposium*, Norman, Oklahoma, Oct. 1-2, 2013.

17. Allen, M.P.*, Yip, C.M.*, and **Asaduzzaman, A.**, "Poster: Educate Science, Technology, Engineering, and Mathematics (STEM) Students to 'Think in Parallel' for Future Challenges in Computing," *in the ASEE'13 Midwest Section Annual Conference*, Salina, Kansas, Sept. 18-20, 2013.

18. (Poster) Yip, C.M.* and **Asaduzzaman, A.,** "A Microprocessor Based Green-Device for Analyzing Students' Classroom Attendance and Performance," *in the Graduate Research and Scholarly Projects (GRASP) Symposium at Wichita State University,* Wichita, KS, April 18, 2012.

e) Book Chapters / Books

1. **Asaduzzaman, A.,** Sibai, F.N., Kanaya, S., Altaf-Ul-Amin, M., Md. Jashim Uddin, Chidella, K.K., and Mitra, P., "Image Analysis with Machine Learning Algorithms to Assist Breast Cancer Treatment," accepted, Springer ViSA13 Book (Vision, Sensing and Analytics: Integrative Approaches), 2020.

2. **Asaduzzaman, A.** and Sibai, F.N., "On the Design of Multicore Architectures Guided by a Miss Table at Level-1 and Level-2 Caches to Improve Predictability and Performance/Power Ratio", *in Multicore Hardware-Software Design and Verification Techniques*, eISBN: 978-1-60805-225-7, pp.19-32 (14), 2011.

f) Technical Reports

1. **Asaduzzaman, A.,** Mahgoub, I., and Yousif, M., "Evaluation of Memory … Topologies", *FAU Technical Report (TR-CSE-98-7),* Jan., 1998, Florida, USA.

2. **Asaduzzaman, A.,** Et al, "Computer Aided Design of Batwing Antenna Arrays by Standing Wave Modeling of Current Distribution", *BUET,* Dec., 1994, Dhaka.

g) White Papers

1. **Asaduzzaman, A.,** Rutherfoord, V., and Mahgoub, I., "Component-based Design for Multi-core Embedded Systems", *FAU CSE Dept and Motorola-FAU One Pass to Production (OPP) project,* Dec., 2005, Florida, USA.

2. **Asaduzzaman, A.** and Mahgoub, I., "Architecture Exploration Using Performance Modeling", *FAU CSE Dept and Motorola-FAU One Pass to Production (OPP) project,* Dec., 2004, Florida, USA.

h) Professional/Research Services

1. **NSF Reviewer:** GRFP (2019, 2018, 2015, 2012), EPSCoR RSV Panel-2 (2012), and TUES (CS) Type-1 program (2012), Washington D.C., USA.

2. **Journal Reviewer:** IEEE Transactions on Cloud Computing; IEEE Access; Elsevier Journal on Computers and Electrical Engineering; Springer Journal on Design Automation for Embedded Systems; Springer Journal on Multimedia Tools and Applications; Elsevier Journal on Ad Hoc Networks; and Springer Journal on Molecular Neurobiology.

3. **Paper Competition Chair:** IEEE Region 5 Student Paper Competition, Virtual Conference (due to COVID-19 pandemic), 2020.

4. **Technical Program Chair:** American Society for Engineering Education (ASEE) Midwest Section Conference (AMSC'19), Wichita, KS, USA, 2019.

5. **Technical Committee:** Co-Chair of Track/Area: High-Performance Low-Power Computing in the IEEE Int'l Conference on Informatics, Electronics & Vision (ICIEV'14), Dhaka University, Bangladesh.

6. **TPC/IPC Member:** IEEE Conferences include ABC, CCWC, ECTI-CON, ICCIT, ICEEE, ICIEV, ICOSST, IPCCC, ISEC, NoCArc, SECon, SKIMA, TENSYMP, and VLSIS, and Scopus Bulletin of Electrical Engineering and Informatics (BEEI) Conference.

7. **Session Chair:** IEEE Integrated STEM Education Conference, WORLDCOMP PDPTA, and IASTED PDCS.

i) Selected Presentations

1. **Invited Speaker:** "High Performance Computing, Machine Learning, and Big Data Analytics for Common Good," *Computational Systems Biology Lab at Nara Institute of Science and Technology*, Jan. 14, 2020, Nara, Japan.

2. **Keynote Speaker:** "Image Processing with Machine Learning to Assist Real-Time Breast Cancer Analysis," *Advanced Machine Learning Lab, Bangladesh University of Business and Technology (BUBT)*, Sept. 20, 2020, Dhaka, Bangladesh.

3. **Graduate Seminar Talk:** "Fast Effective Analysis of 'Digital' Mammogram Images for Breast Cancer Treatment," Department of Electrical and Computer Engineering, College of Engineering and Technology, Old Dominion University, April 1, 2016, Norfolk, Virginia, USA.

4. **Invited Guest Speaker:** "CAPPLab Research Activities: Efficient Management of Renewable Energy Systems," *at the joint conference of the International Society for*

Engineering Research and Development (ISERD) and International Institute of Engineers and Researchers (IIER), May 16, 2015, Bangkok, Thailand.

5. **Invited Speaker:** "Applications of High Performance Computing to Healthcare Technology," *at the University of Asia Pacific (UAP),* May 21, 2015, Dhaka, Bangladesh.

6. **Invited Speaker:** "SMT/GPU Provides High Performance; at WSU CAPPLab, we can help you!" in *Bogazici University,* June 2, 2014, Istanbul, Turkey.

7. **Invited Speaker:** "Teaching Energy-Efficient High-Performance Computing Systems? WSU CAPPLab may help!," *in International Conference on Informatics, Electronics & Vision (ICIEV'14)*, May 23-24, 2014, Dhaka, Bangladesh.

8. **Guest Speaker:** "Multicore CPU and Manycore GPU Provides the Ultimate Performance; at WSU CAPPLab, we can help!," *at the University of Colombo School of Computing (UCSC)*, Dec. 2012, Colombo, Sri Lanka.

9. **Guest Speaker:** "Multicore architecture with SMT/GPGPU provides the ultimate performance; at WSU CAPPLab, we can help!," *in the Fall IEEE event (for Wichita Professional Section and WSU Student Section)*, Nov. 2012, Wichita, KS, USA.

PROFESSIONAL EXPERIENCES:

SUMMARY:

I am experienced with collaborative research and projects that involve research-oriented universities and leading high-tech industries in the U.S.A. I have over 20 years of demonstrated teaching excellence in university education in the areas of computer architecture, parallel programming, embedded systems, and performance-power evaluation. I am highly skilled in information technology (IT) with over a decade of experience in working with and working for major IT corporate clients (e.g., Blue Cross and Blue Shield of Florida) using cutting edge technology. I have acquired extraordinary knowledge and experience of successfully applying innovative techniques for diverse populations of learners into classroom and online teaching. I have served as the principle investigator (PI) of grants from several agencies including Kansas NSF EPSCoR, NVIDIA, NetApp, WSU, CybertronPC, Wiktronics, and M2SYS. I have served as reviewer of NSF programs including GRFP, TUES, and EPSCoR RSV Panel-2. I have been serving as a reviewer of refereed journals including IEEE TCC and as a TPC/IPC member of peer-reviewed conferences including IEEE IPCCC and ICCIT.

Aug. 2016-Present **Associate Professor of Computer Engineering,** Wichita State University
1845 Fairmount St, Wichita, Kansas 67260-0083, USA

- In addition to the activities as an assistant professor (see below), I serve many committees at the university, college, and department level.

Aug. 2010-July 2016 **Assistant Professor of Computer Architecture,** Wichita State University
1845 Fairmount St, Wichita, Kansas 67260-0083, USA

- Conduct advanced research in the area of Computer Science and Engineering (e.g., high-performance low-power computing); publish scientific findings supported by experimental results; and seek external research funding.
- Teach various graduate and undergraduate courses for the Department of Electrical Engineering and Computer Science (EECS). Courses I taught include Intro to Computer Architecture; Algorithm Design Methodologies; Microprocessor Based Systems; Multicore Arch & Programming; and High Performance Low Power Computers.
- Supervise graduate (Ph.D./M.S.) dissertation/thesis and undergraduate research; advise undergraduate students.
- Improve/develop existing/new courses, syllabi, and overall course structures; administer tests, projects, and all grades.
- Serve as EECS Webmaster, member of EECS Curriculum & Assessment Committee and CoE Learning Enhancement Committee.
- Provide additional/volunteer services to the department, college, university, and the local community as needed.

July 2006-July 2010 **Specialist Computer Applications,** Florida Atlantic University
777 Glades Road, Boca Raton, Florida 33431

- Train how to use computer applications including Oracle Database and Crystal Reports in a classroom/lab environment; design and develop training materials and requirements documents.
- Provide IT customer support regarding hardware/software issues.
- Design, develop, and maintain various cross-platform computer applications; assess new software/ hardware; and install/upgrade, configure, troubleshoot them as needed.

Aug. 2003-Aug.2006 **Teaching Instructor/Assistant,** Florida Atlantic University
777 Glades Road, Boca Raton, Florida 33431

- Taught various undergraduate courses for the Department of Computer and Electrical Engineering and Computer Science (CEECS), including Programming Microcontrollers in C, Intro to Microprocessor Systems, Intro to Database Structures, and Foundation of Computer Science.
- Developed syllabus and overall course structure.
- Administered exams, assignments, projects, and all grades.
- Helped faculty members by doing a variety of tasks such as grading.
- Provided a positive environment in which students are encouraged to be actively engaged in the learning process.

Aug. 2003-Dec. 2004 **Research Associate,** Florida Atlantic University
777 Glades Road, Boca Raton, Florida 33431

- Conducted research for Motorola-FAU projects on Architectural Optimization by Performance Modeling and Component-Based Modeling for Multimedia Applications.
- Worked on Motorola-FAU Research Grants Executable process Flow (Grant 670177 in 2003) and One Pass to Production (Grant 670190 in 2004), PI Prof. Borko Furht and Co-PI Prof. Imad Mahgoub.
- Presented research work at Motorola and conferences.
- Published research work in journal and conference proceedings.

May 2001-July 2003 **IT Consultant,** BlueCross and BlueShield of Florida /Ajilon
4800 Deerwood Campus Pkwy., Jacksonville, Florida 32256

- Designed and developed C/Pro*C-Tuxedo-Gentran Pipelines to process CF I/P, Med A/B, 837 I/P claims.
- Designed and developed Database related applications using Oracle tools for internal use (like tracing down Virtual Office Service Center Tickets) following BCBSFL standards for coding and documentation.
- Administered Gentran (Server, Client, and users) for EGW-VO group.

Dec. 1997-Apr. 2001 **Software Engineer,** ECI IP Inc.
8160 Baymeadows Way, Jacksonville, FL 32256

- Designed, developed, and maintained databases, applications, and reports using the cutting-edge technology from Microsoft, Oracle, and Seagate.
- Created packages, procedures, and functions for data extractions and interface data from Oracle/Java applications.
- Designed, developed, and maintained HLD, ERD, Data Dictionary (DD), and PL/SQL codes.
- Trained QA Testing Group databases applications; worked with QA group to test the databases and applications.

Aug. 1997-Dec. 1997 **Graduate Assistant,** University of Florida
Department of Computer & Information Science & Engineering
E301 CSE Building, Gainesville, Florida 32611

Jan. 1996-Aug. 1997 **Instructor and Graduate Assistant**, Florida Atlantic University
777 Glades Road, Boca Raton, Florida 33431

- As instructor, developed syllabus and overall course structure and administered all grades for courses including Intro to Microprocessor Systems Lab and Programming in C and Data Structures.
- As Graduate Assistant, helped the course instructor with developing the syllabus and grading the tests and assignments.

COURSES TAUGHT:
(UG for Undergraduate level and GR for Graduate level)

Wichita State University	♦ (UG) Intro to Computer Architecture (online/hybrid/classroom) ♦ (UG) Microprocessor-Based System Design/Lab (Assembly and C) ♦ (UG/GR) High Performance Computer Systems ♦ (UG/GR) Computer-Based Security Engineering ♦ (UG/GR) Applied Parallel Computing (from UCB) ♦ (GR/UG) Multicore Architectures and Programming (CUDA/C) ♦ (GR/UG) Embedded Systems Programming (C/C++ languages) ♦ (GR) Computer Systems in Data Analytics ♦ (UG) Algorithm Design Methodologies (C/C++) ♦ (UG) Introduction to Digital Design ♦ (GR) Systems Modeling and Simulation (developing)
Florida Atlantic University	♦ (UG) Introduction to Microprocessor Systems (68K Assembly) ♦ (UG) Programming Microcontrollers in C ♦ (UG) Structured Computer Organization ♦ (UG) Foundation of Computer Science (using C++) ♦ (UG) Programming in C and Data Structures ♦ (UG) Introduction to Logic Design

STUDENTS SUPERVISED:

- **Ph.D. Dissertation:** Vidya Suryanarayana (2013), Kishore K. Chidella (2018), Abdulrahman Almohaimeed (2019), Abdurrahman Basalan (2024), Venkatesh Mabbu (2025), Rumman Rafi (2026).
- **M.S. Thesis:** Sri R. Chaturvedula (2011), Phanendra S.N. Gavara (2012), Divya Vardha (2012), Deepthi Gummadi (2014), Tania Jareen (2014), Chok M. Yip (2014), Abhishek Mummidi (2014), Md Moniruzzaman (2015), Soumyashree Samadarsinee (2015), Parthib Mitra (2016), Shanta Mazumder (2016), and Jainish R. Jain (2017).
- **M.S. Project:** Neeraj Kumar (2012), Mohammad S. Rahman (2013), Sandip Bhowmick (2014), Naga R.R. Kondapalli (2014), Zhitao Yang (2015), Venkatesh Mabbu (2015), Prasanth Kamalakannan (2018), Michael Milhon (2019), Abhignan Telakapalli (2019), and Gurtaj Shing (2020).
- **Undergraduate (UG) Research:** Danny Nguyen (2012), Vinosha Theagan (2012), Zachary Vickery (2012), Emmanuel Perez (2013), Scott J. Dick (2013), Josh N. Gable (2013), Justin B. Seal (2015), Brent A. Duncan (2016), Khondoker Usama (2016), Christopher Hiller (2016), Parth Amin (2017), Chase Weber (2017), Tyler McDonald (2017), Brad Nguyen (2018), Mohsin Zahid (2018), Seth Layton (2018), Shohoud Shawaf (2018), Willhelmi Kleruu (2018), and Duncan Campbell (2021).

PROFESSIONAL AFFILIATIONS:

- Institute of Electrical and Electronics Engineers (IEEE) – Senior Member
- American Society for Engineering Education (ASEE) – Member

RELEVANT LEADERSHIP EXPERIENCE:

- IEEE Region 5 Student Professional Awareness Program (SPAx) Chair (also serves as Activities Coordinator under Regional Student Activities Chair), 2020-present
- Director, Undergraduate (B.S.) Computer Engineering Program, 2019 - present
- Director, WSU CAPPLab (http://www.cs.wichita.edu/~capplab/), 2011 - present
- Faculty Advisor, ACM Student Chapter at Wichita State University, 2017 - present
- Faculty Co-Advisor, Bangladesh Student Association at WSU, 2015 - present
- Faculty Advisor, IEEE Student Branch at Wichita State University, 2016 - 2018
- Lead Project at WSU Ennovar as a Research Fellow, 2015
- Director, Green Energy Program, AWHEE (http://www.academyofwater.org/)
- Conduct GPGPU/CUDA/C Workshop at WSU, 2012
- Lead Student Tracking project at FAU Office of Multicultural Affairs, 2006
- Successfully completed Higher Education Leadership Program at FAU, 2006
- Founding Vice-President, Mobile Computing Group, CEECS/FAU, 2003-06

HONOR SOCIETIES:

- Phi Kappa Phi (PKP) – Member, 1996
- Tau Beta Pi (TBP) – Member, 1996
- Upsilon Pi Epsilon (UPE) – Member and Officer (FAU'96), 1996
- Golden Key – Member, 2009
- Who's Who in the World 2018
- Who's Who in the Albert Nelson Marquis Lifetime Achievement Award 2018
- Who's Who in America – 2010, 2014, 2015, 2018 Editions
- Who's Who in Science and Engineering – 2010, 2016 Editions
- Who's Who Among American Colleges & Universities – 1997 Edition

AWARDS:

- CoE Wallace Excellence in Teaching Award, EECS Dept. Nominee, WSU, 2020
- Outstanding Student Branch Counselor Award, IEEE Region 5 (includes AR, CO, KS, LA, MO, OK, TX, and parts of: NE, NM, SD, and WY), 2018
- Finalist, IEEE-HKN Nikola Tesla Award, WSU EECS Department, Spring 2017
- CoE Strategic Enrollment Management (SEM) Faculty Fellow, 2016-2017
- ICAEE Best Paper Award at the IEEE ICAEE Conference, Bangladesh, 2015
- NVIDIA GPU Research Center at Wichita State Award (made the front page of the WSU website, URL: http://www.wichita.edu/thisis/stories/story.asp?si=3026), 2015
- Travel Scholarship, NCSI/XSEDE Computational Thinking Workshop, Utah, 2015
- ISERD Excellent Paper Award, ISERD Int'l Conference, Thailand, 2015

- WSU Ennovar Research Fellowship, 2015
- CoE Wallace Excellence in Teaching Award, EECS Dept. Nominee, WSU, 2015
- Kansas NSF EPSCoR FIRST AWARD, Kansas, 2013-2014
- NSF Faculty Workshop Travel Award (1 of 20, out of 43), Atlanta, Georgia, 2013
- AHWEE Excellence in Service Award, Wichita, Kansas, 2013
- NVIDIA CUDA Teaching Center at Wichita State Award, 2012
- FAU Graduate Student Association Wise Owl Awards (one per college), 2009
- Student Affairs Fellowship Award, FAU Dept of Educational Leadership, 2006
- First Place (Oral Presentation), FAU Graduate Research Symposium, 2005
- PKP Graduate Scholarship Award, PKP FAU Chapter, 2004 and 1996
- UPE Graduate Scholarship Award, UPE FAU Chapter, 1997
- Bangladesh Univ. of Engineering and Technology Merit Scholarship, 1988-91
- Dhaka Education Board Honor Scholarship, Bangladesh, 1985-86

ADVANCED TRAINING AND CERTIFICATION:

- SBIR Innovation Summit, John Bardo Center, WSU, Dec. 11, 2019
- WSU Leadership Development Workshop, Wichita, KS, Nov. 18-20, 2015
- Assessment Symposium (by the College of Education), WSU, Nov. 12, 2014
- Professional Development Series (in the WSU Media Resources Center), WSU, Oct. 22, 2014
- Workshops on Citation Searching at WSU Ablah Library (organized by WSU OFDSS and Ablah Library), WSU, Aug. 12, 2014
- NSF-Supported Faculty Workshop: Integrating Professional Practice into the Engineering Curriculum, Atlanta, GA, June 26-28, 2013
- Kansas Regional Independent Inventors Conference (representatives from the United States Patent and Trademark Office), April 19-20, 2013
- Faculty Development: Information Literacy for Teaching & Learning, WSU, 2013
- NSF-funded FPGA Workshop in Wichita, Kansas, Oct. 12-13, 2012
- NIH Grant Training Seminar, University of Kansas, Lawrence, KS, July 30, 2012
- Engineering Faculty Workshop – Learning Objectives, WSU, March 2, 2012
- NETI Workshop, Vancouver, BC, Canada, June 2011
- Engineering Reboot Camp (Online Teaching), Wichita State University, 2011
- NSF Day at KU, University of Kansas, Lawrence, KS, 2010
- Proposal and Grant Writing Workshop, FAU, Boca Raton, FL, 2009
- AppWorx v6.1 Basic, FAU, Boca Raton, FL, 2007
- System-level Simulation Training, Mirabilis Design, Inc., San Jose, CA, 2005
- Executable Process Flow Training, Motorola iDen Group at FAU, FL, 2004
- RUP and UML Training, BCBSFL, Jacksonville, FL, 2002
- Advanced Crystal Reports Professional Training, Orlando, FL, 2000
- Data Modeling and Relational Database Design Training, Tampa, FL, 1999

OTHER SYNERGISTIC ACTIVITIES

- Member (CoE), Faculty Senate Undergraduate Research Committee, 2017-present
- Member (CoE), Faculty Senate Scholarship & Student Aid Committee, 2017-2020
- Member (CoE), Technology Fair Planning Team, 2018-2020
- Member (CoE), Faculty Senate Planning and Budget Committee, 2017-2019
- Faculty Senator, EECS Department, 2016-2018
- Member (CoE), Faculty Senate Academic Affairs Committee, 2015-2016
- Member, Search Committees, EECS Department, 2011-2016, 2018
- Chair, Search Committees, EECS Department, 2016-2017
- Webmaster, EECS Department, 2011-2015
- Webmaster (backup), EECS Department, 2015-present
- Member, CoE Committee on Learning Enhancement, 2011-present
- Moderator/Judge, WSU competitions (such as WISE and GRASP), 2011-present
- Advisor, Humane Water (formerly AHWEE), 2010-present
- Volunteer, the Robinson Middle School Chess Club, Wichita, Kansas, 2019-present

TECHNICAL SKILLS:

Languages	Assembly-68K, FORTRAN, C/SystemC, HDL, Verilog, Chisel, Pro*C, SQL, PL/SQL, C++, Java, Python, Shell Scripts, HTML, Visual Basic, XML
Operating Systems	Windows 10/7/Vista/XP/2000/95, Unix Sun Solaris/IBM AIX, Linux Debian/Fedora/RedHat, MS-DOS
Software/Tools	CUDA, Open MPI, OpenMP, MATLAB; Cachegrind, SMPCache, Heptane, VisualSim; Oracle Tools, Microsoft VS .NET Suite, Crystal Reports; Visual Basic; Banner, Talisma, AppWorx, UML
Hardware	Nvidia GPU cards; Microcontrollers from various vendors
Databases	Oracle, SQL Server, Informix, UDB-DB2, Access, SYBASE
Network	LAN/WAN/Wireless in small/medium/large organizations

COMPLETED PROJECTS:

Front Tier	Developed simulation model using VisualSim; GUI applications and reports using Oracle and Crystal tools; Class/object diagrams using UML tools;
Middle Tier	Wrote C/C++/Java codes to communicate between front-end GUI applications (such as Oracle Forms) and back-end databases (such as Oracle and Access);
Back Tier	VisualSim java code for functional cache modeling; Traces using Cachegrind and Heptane; Database systems using Oracle, Access, and UDB-DB2;

- CUDA/GPU Technology: *Effective application of high-performance pattern recognition to treat cancer.* A related story (Wichita State lab earns top research designation) made the front page of the WSU website on Nov. 9, 2015 (depttools.wichita.edu/aasaduzzaman/pdf/WSU_frontpage_GPU_Research_2015.pdf).
- Project Lead, *CAPPLab Renewable Energy Management System* (using microcontrollers and CAN bus) to generate useful electric energy from freely available solar and thermal energy for vehicular and household applications. (depttools.wichita.edu/aasaduzzaman/pdf/WSU_frontpage_Solar_Project_2015.pdf).
- Project Lead, *SNKC-WSU Scanner Project* (addressed the technical challenges – primarily the use of dated technology in the microchip scanners). (depttools.wichita.edu/aasaduzzaman/pdf/WSU_frontpage_SNKC_Scanner_2016.pdf).
- Guided Graduate Projects: *Supervise EECS graduate students at WSU with various research projects including multicore multithreaded parallel programming and embedded systems.*
- CUDA/GPGPU Technology: *Effective application of high-performance pattern recognition and protein binding to treat cancer.*
- Embedded Systems: *Efficient Management of Renewable Solar Energy for Vehicular Applications.*
- CUDA Accelerated Multithreaded Programming: *The use of CUDA to improve decryption in a partially homomorphic encryption scheme.*
- GPU Assisted Multithreaded Parallel Programming: *Performance comparison of image processing in CPU/C and CUDA/C.*
- Train Computer Applications: *Teach and train FAU Admissions staff about various computer applications including Oracle, FACTS, Banner, and Talisma.*
- Data Structures: *Developed C code to demonstrate various Data Structures including stacks, queues, linked-list, trees, and graphs.*
- Analysis of Algorithms: *Designed and implemented Searching and Sorting Algorithms including Kruskals Algorithm, Miller-Rabin Algorithm, and LasVegas Algorithm.*
- Database Concepts: *Developed dynamic SQL code in C/Pro*C to implement various DDL (Create, Alter, Drop, etc.) and DML (Select, Update, Delete, Insert, etc).*
- Mobile Database Systems: *Designed and developed a mobile database using Palm, Bluetooth, Microsoft, and Oracle technology; where the Palm connects to the (local) database server through access point.*
- Programming Microcontroller in C: *Developed AC/DC converter.*
- Concurrency Modeling: *Modeled architectural concurrency for multicore systems.*
- Network Simulator Version 2: *Simulated network-on-a-chip (NOC) architecture.*
- ECI Applications: *Designed and developed database applications and user manuals.*
- UADM Holds: *Oracle PL/SQL application to set/update FAU Admissions holds.*

- Talisma Extracts: *Cross-platform application to extract data from Banner/Unix server (Oracle database) for Talisma/Windows server (MySQL database); PL/SQL packages and AppWorx Chain/Modules to automate the process.*
- Workload: *Characterized real-time multimedia applications including MPEG4 and H.264/AVC for cache optimization.*
- UADM Letters/Reports: *Crystal Reports to produce FAU Admissions decision and scholarship letters and various statistics.*
- EGW-VO Group: *Lead Developer EGW-VO pipelines to process CFI, CFP, MedA, MedB, 837I, and 837P claims. Administer Gentran for EGW-VO Group.*

REFERENCES:

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