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Curriculum Vitae of **Abu ASADUZZAMAN** 259 (main office) E-mai
E-mail: abu.asaduzzaman@wichita.edu www.
Website: https://www.wichita.edu/academics/engineerin
Last Revision Date: August 1, 2024

EDUCATION:

Ph.D. Computer Engineering, Decembe

M.S. Computer Engineering, August 1997
Florida Atlantic University, Boca Raton, Florid
GPA: 3.94 out of 4.00
Thesis: *"Memory Latency Evaluation in Cluste*
Cache-Coherent Multiprocessor Systems with a
Interconnection Topologies"
Advisor: Dr. Imadeldin Mahgoub,

RESEARCH INTERESTS:

Computer Architecture / High Performance Computer Systems
Data Analytics / Machine Learning
Parallel Computing / Parallel Programming
Interdisciplinary Research / STEM Education

RESEARCH GRANTS/ACTIVITIES:(04 0.05.)J-0.0IVIVon i26 (y)16 (tc(on i26 (yp16 (t)-6 (ER)-43 Tc)16

	Online Data Analysis and Reduction (CODAR); total $43,815 (one student to support) for one year.
2022 – 2022	**PI,** “Network Application Modeling and Simulation on Exascale Machines,” funded by *the Department of Energy Exascale Computing Project (ECP) via*

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

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

18. **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)*, Virtual Conference, Phuket, Thailand, June 24-27, 2020.

19. **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.

20. Almohaimeed, A.*, **Asaduzzaman, A.,** Chidella, K.K.*, and Shahin, F.*, “Link-Renaming Technique for Efficiently Increasing Similarity among SDN Entries,” in *IEEE Joint Int’l Conf. on Informatics, Electronics & Vision (ICIEV) and Int’l Conf. on Imaging, Vision & Pattern Recognition (icIVPR)*, Spokane, WA, USA, 2019.

21. 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.

22. 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.

23. 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.

24. 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.

25. 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.

26. 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.

27. Almohaimeed, A.* and Asaduzzaman, A., “Distribution Model for OpenFlow-Based Networks,” in IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), pp. 603-608, New York, NY, Nov. 08-10, 2018.

28. **Asaduzzaman, A.,** Mashhadi, F.*, and Rani, M., “

36. **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.

37. 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.

38. 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, Banglad**Aah,4A**(2016)Tj-4 (, A)2 (.,)]TJ/T0 1 Tf**., and M,**( )Tj[(D)2 0 . (a)4zamo (ng)pi79(E)1 (E)1 (I)3 (nt)-2 (

46. **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.

47. **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.

48. 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),* Bangkok, Thailand, May 16, 2015.

49. **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),* Bangkok, Thailand, May 16, 2015. (This paper received the Excellent Paper Award.)

50. 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.

51. **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),* Dhaka, Bangladesh, Dec. 18-20, 2014.

52. 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.

53. **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),*

66. **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),* Dhaka, Bangladesh, May 17-18, 2013.

67. 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),* Dhaka, Bangladesh, May 17-18, 2013.

68. **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),* Al Ain, UAE, Mar. 17-19, 2013.

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

70. **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)*, Las Vegas, Nevada, USA, Nov. 12-14, 2012.

71. **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*, Al Ain, UAE, Mar. 18-20, 2012.

72. 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),* Las Vegas, USA, Nov. 12-14, 2012.

73. **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)*, Las Vegas, USA, Nov. 12-14, 2012.

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

75. **Asaduzzaman, A.**, Sibai, F.N., and Abonamah, A. "

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

77. **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 (RadarCon)*, Kansas City, MO, May 23-27, 2011.

78. **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)*, Cairo, Egypt, Dec. 19-22, 2010.

79. **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)*, Cairo, Egypt, Dec. [illegible]

6. (Oral) **Asaduzzaman, A.,** Chidella, K.K., and Sibai, F.N., “A Novel Multicore Architecture to Improve the Computing Performance for Audio Visual Applications,” International Conference on Industry, Engineering, and Management Systems (IEMS), Virtual, Mar. 15-16, 2021.

7. (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.

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8. (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.

9. (Oral) *Tj( )Tj-0T2 1 Tf0 9.53 Td[(A)2 (s)-1 (ad)-4 (u)-4 (z)4 (z)4 (a)-13 (an)-4 (, A)2 (.)]TJ/TT0 1 T

Research and Scholarly Projects (GRASP) Symposium at Wichita State University, Wichita, KS, April 29, 2016.

16. (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.

17. (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.

18. (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.

19. (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.

20. (Poster) Mummidi, A.*, **Asaduzzand and Catanuella, K.r)**

e) Book Chapters / Books

1. **Asaduzzaman, A.** and Asmatulu, R., "CUDA-Based Very Fast Analysis of Sacrificial Nanomaterials for Epoxy Coatings," accepted, Advances in Nanotechnology, Nova Science Publishers, Inc. (NOVA), 2022.

2. **Asaduzzaman, A.,** Sibai, F.N., Kanaya, S., Altaf-Ul-Amin, M., Md. Jashim Uddin, Chidella, K.K., and Mitra, P., "Image Analysis with Machine LearningcieeryrTa7J(s)-1 (he)4J[(M)-1

3. **R5 Meeting Chair and R5 Program Chair:** 2025 IEEE Green Technologies (GreenTech) Conference and Region 5 Annual Meeting, Wichita, KS, 2025.

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

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

6. **Technical Committee Chair:** 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.

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

8. **Track Chair:** International Conference on Industry, Engineering, and Management Systems (IEMS).

9. **Session Chair:** IEEE Integrated STEM Education Conference, WORLDCOMP PDPTA, IAS(u)2 (s)1 -zonvME), D1 (D)2 (C)-3 (O)2 gELS (O)2 (R)-13 (L)11 (D)2 j/TT1 1 Tf D1 (D

5. **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.

6. **Invited Speaker:** "Applications of High Performance Comp-8 (u(t)-2 (ons)-n(h P)-0.004 Tc 0.004 T

Aug. 2016-July 2024 **Associate Professor of Computer Engineering,** Wichita State University
1845 Fairmount St, Wichita, Kansas 67260-0083, USA
In addition to the research/teaching activities as an assistant professor (see below), I serve on many committees at the department, college, university, and community levels.

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-

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) Modeling, Simulation, and Analysis (developing) (UG/GR) High Performance Computer Systems (UG/GR) Computer-Based Cybersecurity (UG/GR) Applied Pa)23ied P- 0Comchitg3DC -0.02Tc 0J-0.02 Tc 0 Tw 3.860 Td[(A)] .(

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AWARDS:

Recipient of the Travel Award to attend the NSF CISE EWF Aspiring PI Summit in Atlanta, GA June 21-22, 2023
Outstanding Educator, IEEE R5 Wichita Section Nominee, 2023
Best Paper, IEEE Computing and Communication Workshop and Conference, 2021
Best Presenter, IEEE Comp. and Communication Workshop and Conference, 2021
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

Kansas Regional Independent Inventors Conference (representatives from the

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;

Applications of PETSc Library: *Network Modeling for Business Analyses using PETSc and DMNetwork Libraries.* A DoE SRP-HPC Summer 2022 Project at Argonne National Laboratory (Mentor: Dr. Hong Zhang)

Hardware Acceleration for HPC: *PyRTL Code Synthesize using OpenROAD for Hardware Acceleration.* A DoE VFP Faculty/Students Summer 2021 Project at Lawrence Berkeley National Laboratory (Mentor: Dr. John Shalf)

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.*