

# Atef Mohamed (Shalan)

## Curriculum Vitae

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### EDUCATION

- Ph.D.** • Queen's University, Computer Science, Sep 2012.  
2012 Kingston, Ontario, Canada.  
Dissertation: *Software Architecture-Based Failure Prediction*.  
Advised by: Dr. Mohammad Zulkernine (chair), Dr. Patrick Martin, and Dr. Robert Crowford.
- M.Sc.** • Lakehead University, Computer Science, May 2006.  
2006 Thunder Bay, Ontario, Canada.  
Thesis: *A Context Sensitive Neural Network by Overlapped Systems*.  
Advised by: Dr. Ruizhong Wei.
- B.Sc.** • Ain Shams University, Pure Mathematics and Computer Science, Sep 1993  
1993 Cairo, Egypt.  
Graduation Project: *Graph Theory and Planar Trees*.  
Advised by: Dr. Abdel Sattar El-Dabbour.
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### PERSONAL STATEMENT

I am an assistant professor of computer science at Georgia Southern University, Statesboro, GA, USA. I received my PhD in Computer Science from Queen's University, Kingston, Ontario, Canada, and my MSc degree in Artificial Intelligence and Machine Learning from Lakehead University, Thunder bay, Ontario, Canada. My research focuses on software system reliability and security with emphasis on architectural design, system monitoring, and prediction techniques. My qualifications for teaching and research include experience, capabilities, enthusiasm, and spirit to continuously learn and improve my skills. My career goals involve continuous acquiring of, and contributing to best practice related to teaching excellence and research effectiveness, active participation in community development, and increased contribution to the fast-paced and continuously expanding computer technology. To fulfill my career goals, I seek the opportunity that enables me to play an active role in teaching, research, and academic services through high standard curricula, contemporary teaching courses, well organized and fast-paced academic environment. My main requirements to achieve my career goals include enabled participation to academic planning and program improvements, balanced workload, and high spirits for enhancement and cooperation.

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### SUMMARY OF ACADEMIC AND INDUSTRIAL EXPERTISE

- 2020-Now • Assistant Professor at Georgia Southern University, Statesboro, GA, USA, Aug 2020 till now.  
2015-2020 • Assistant Professor at Alderson Broaddus University, Philippi, WV, USA, Aug 2015 till Jul 2020.  
2015-2015 • Visiting Assistant Professor at Bucknell University, Lewisburg, PA, USA, Jan 2015 to May 2015.  
2013-2014 • Assistant Professor at Umm Al-Qura University, Saudi Arabia, Jan 2013 to Dec 2014.  
2012-2012 • Postdoctoral Fellow at Queen's University, Ontario, Canada, Sep 2012 to Dec 2012.  
2006-2012 • Research Assistant at Queen's University, Ontario, Canada, Sep 2006 to Sep 2012.  
2005-2006 • Application Developer at Abitibi Consolidated, Ontario, Canada, May 2005 to Jan 2006.  
2002-2004 • IT Manager at Innovative Industries Group, Ontario, Canada, Nov 2002 to Nov 2004.
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### RESEARCH INTERESTS

- Software Reliability Engineering
  - Software Fault Tolerance
  - Software Error Detection and Failure Prediction
  - Software Injection and Dynamic analysis
  - Software Quality Analysis
  - Software and System Security
  - Software Reengineering and Program Analysis
  - Software Architectural Representation
  - Software Performance Analysis
  - Machine Learning and Neural Networks
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## ACADEMIC AND RESEARCH AWARDS AND SCHOLARSHIPS

2019-2020	● Faculty Research Seed Grant	Georgia Sothern Univ.	\$4,608
2018-2019	● Outstanding Faculty of the Year	Alderson Broaddus Univ.	-
2017-2018	● Global Initiatives for Academic Networks	NIT Kurukshetra, India	\$5,300
2012-2013	● Outstanding PhD Research Achievement, honorable mention	Queen's University	-
2009-2010	● OGSST scholarship (one of forty awarded campus-wide)	Queen's University	\$15,000
2008-2009	● R.S. McLaughlin Fellowship (First Class Doctoral Student)	Queen's University	\$10,000
	● Queen's Graduate Award	Queen's University	\$12,100
2007-2008	● Queen's Graduate Award	Queen's University	\$12,100
2006-2007	● Arts and Science Graduate Growth Funding	Queen's University	\$7,055
	● Queen's Graduate Award	Queen's University	\$5,545

## TEACHING PROFILE

For the past 8 years, I have been serving in academia through Georgia Southern University (GS), Statesboro, GA, and previously through Alderson Broaddus University (AB), Philippi, WV, Bucknell University (BU), Lewisburg, PA and Umm Al-Qura University (UQU), Saudi Arabia. At these universities, I have been mostly involved in teaching undergraduate level courses to computer science and cybersecurity majors. My teaching involves introductory and advanced, core and elective, and special topic courses. I have been leading new curriculum design, and new BSc degree program creation and establishment. My academic service activities include course and program reviews, students advising, graduation project supervision, industry engagement, organizing student events, and participation in student recruitment activities. My teaching courses include Python, Java, and C++ programming, Web and mobile app. development, software engineering, computer organization, operating systems, computer networks, intro to cybersecurity, network security, data structures and algorithms, data science, database management, computer graphics, and others.

## ACADEMIC TEACHING AND TUTORING

At Georgia Southern University (GS), Alderson Broaddus University (AB), Bucknell University (BU), Umm Al-Qura University (UQU), and Queen's University (QU), National Institute of technology-India (NIT) I taught (T) a number of graduate and undergraduate courses. I provided guest lectures (L) and tutorials (U), ran sections (S), supervised labs (B), graded (G) assignments, quizzes, and projects, and participated in oral examination (E). I fixed office hours and chat time (H) to respond to student questions and inquiries. I also prepared (P) and Reviewed (R) course materials. The following table list some selective teaching courses

Course Id and Name	Univ.	T	L	U	S	B	G	E	H	P	R	Level	Times	Students
2020-Now ● IT3230: Data Visualaization	GS	●				●	●	●	●	●		UG	1	20
● IT2530: Operating Systems	GS	●				●	●	●	●	●		UG	6+	≈300
● IT2430: Data Programming	GS	●				●	●	●	●	●		UG	1	30
2015-2020 ● CSEC111: Intro. to Computer Security	AB	●				●	●	●	●	●		UG	4	12-18
● CSEC221: Network Security	AB	●				●	●	●	●	●		UG	1	5
● CSCI320: Operating Systems	AB	●				●	●	●	●	●		UG	4	5-10
● CSCI240: Web & Mobile Application Development	AB	●				●	●	●	●	●		UG	4	12-20
● CSCI355: Computer Networks	AB	●				●	●	●	●	●		UG	3	8-15
● CSCI230: Comp. Organization and Architecture	AB	●				●	●	●	●	●		UG	4	12-20
● CSCI390: Python Data Analytics	AB	●				●	●	●	●	●		UG	1	6
● ————— Secure Information Technology	NIT	●				●	●	●	●	●		Grad	1	46
● CSCI343: Database Management Systems	AB	●				●	●	●	●	●		UG	1	6
2015-2015 ● CSCI203: Intro. to Computer Science I	BU	●			●	●	●	●	●	●		UG	1	≈120
2012-2014 ● CSCI521: Software Quality Assurance	UQU	●				●	●	●	●	●		Grad	1	5
● CSCI348: Web Application Development	UQU	●				●	●	●	●	●		UG	2	≈110
● CSCI351: Data Structures and Algorithms	UQU	●				●	●	●	●	●		UG	1	60
2007-2011 ● CSCI832: Advanced Database Management	QU		●	●		●	●	●	●	●		Grad	2	20
● CSCI101: Introduction to Java Programming	QU			●	●	●	●	●	●	●		UG	1	60

## INDUSTRIAL TEACHING AND TRAINING

I have conducted several training courses for audience from various disciplines and backgrounds.

	Course Name	Company	#Audience
2002	<ul style="list-style-type: none"><li>Oracle Financials 9i ERP Inventory</li></ul>	Raya Group	10
2001	<ul style="list-style-type: none"><li>Baan ERP Setup Parameters</li></ul>	Ghabbour Group (RGI)	5
	<ul style="list-style-type: none"><li>Baan Tools and Package Customization</li></ul>	Ghabbour Group (RGI)	3
2000	<ul style="list-style-type: none"><li>Baan Exchange and Security Management</li></ul>	Ghabbour Group (RGI)	8
1999	<ul style="list-style-type: none"><li>Baan manufacturing: item Control</li></ul>	Ghabbour Group (RGI)	15
1998	<ul style="list-style-type: none"><li>Baan manufacturing: bill of material and routing</li></ul>	Ghabbour Group (RGI)	15
1997	<ul style="list-style-type: none"><li>Open-Ingres relational database</li></ul>	Future Systems	20

## GRADUATE AND PROFESSIONAL DEVELOPMENT COURSES TAKEN

During my MSc and Ph.D. programs, and academic career, I have taken a number of advanced graduate and professional development courses. Some selective courses are shown below.

	Course Name	University	Instructor	Grade
2020	<ul style="list-style-type: none"><li>Responsible Conduct of Research (RCR)</li></ul>	Collaborative Institutional Training Initiative (CITI)		
	<ul style="list-style-type: none"><li>Conflict Of Interest for funds (FCOI)</li></ul>	Collaborative Institutional Training Initiative (CITI)		
	<ul style="list-style-type: none"><li>Online Course Design Practicum</li></ul>	GS University Center of Teaching Excellence (CTE)		
	<ul style="list-style-type: none"><li>Building Momentum for Student Success</li></ul>	GS University Center of Teaching Excellence (CTE)		
2018	<ul style="list-style-type: none"><li>Independent Applying the QM Rubric</li></ul>	Quality Matters (QM)	Roxann Humbert	100%
2007	<ul style="list-style-type: none"><li>Programming Language Theory</li></ul>	Queen's University	Dr. Bob Tennant	90%
2006	<ul style="list-style-type: none"><li>Software Reliability &amp; Security</li></ul>	Queen's University	Dr. MD. Zulkernine	83%
	<ul style="list-style-type: none"><li>Verification of Software Systems</li></ul>	Queen's University	Dr. Juergen Dingel	90%
	<ul style="list-style-type: none"><li>Quality of Computer Networks</li></ul>	Queen's University	Dr. H. Hassanein	88%
	<ul style="list-style-type: none"><li>Parallel Computing</li></ul>	Lakehead University	Dr. Maurice Benson	94%
2005	<ul style="list-style-type: none"><li>Research on Network Models</li></ul>	Lakehead University	Dr. Hosam El-Ocla	86%
	<ul style="list-style-type: none"><li>Topics in Computer Networks</li></ul>	Lakehead University	Dr. Hosam El-Ocla	90%
2004	<ul style="list-style-type: none"><li>Advanced Topics in Artificial Intelligence</li></ul>	Lakehead University	Dr. Nasir Norozi	85%

## RESEARCH PROFILE

My research focuses on the dependability (reliability, security, and other attributes) of enterprise software, Web application, and cloud computing systems by addressing the complexity and diversity aspects of their architectures and execution behaviors. Briefly, these aspects are multi-mode failure behavior, intricate control flow structures, architectural diversities, Web integration, and concurrent execution. My goals involve ensuring system dependability, software resiliency, and structural solidity. My research sprawls across a number of areas including software dependability analysis, reliable architectural design, fault tolerance, error detection and system monitoring, program analysis and compilation, software architectures, and component-based systems. My main methodologies include static and dynamic analysis, experimental analysis, statistical analysis, and mathematical modeling. My research is highly influenced by the new software technology transitions with respect to their impacts on the architectural complexity and execution intricacy. The practical implications of my work involve understanding the dynamic behavior and ensuring the dependability of software systems and Web applications. My research provides software researchers and practitioners the skills needed to assess and achieve reliable software technologies.

## SELECTIVE PUBLICATIONS

### Refereed Publications

- [1] Andrew Gomez, Hossain Shahriar, Victor Clincy, Atef Shalan. "Hands-on Lab on Smart City Vulnerability Exploitation," Proceedings of The 15th IEEE International Workshop on Security, Trust & Privacy for Software Applications (STPSA2020), pg. 1752-1757, May 2020.

- [2] Hossain Shahriar, Kai Qian, Atef Shalan, Fan Wu. "Enhancing Proactive Control Mobile and Web Software Security Education with Hands-on Labware," Proceedings of The IEEE Computer Society Conference on Computers, Software and Applications (COMPSAC 2020) - Fast Abstract, pg. 1075-1076, July 2020.
- [3] Hossain Shahriar, CHi Zhang, S. Dunn, MD Talukder, R. Bronte, A. Shalan, K. Tarmissi. "Mobile Phishing Attacks: Mitigations and Challenges," The Journal of Information Security: A Global Perspective, pg. 178-193, May 2019.
- [4] Hossain Shahriar, Atef Shalan, Khaled Tarmissi. "Towards Secure Password Protection in Portable Applications," The National Cyber Summit, pg. 3-13, May 2019.
- [5] Hossain Shahriar, Md Arabin Talukder, Hongmei Chi, Mohammad Rahman, Sheikh Ahamed, Atef Shalan, Khaled Tarmissi. "Data Protection Labware for Mobile Security," The International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage, pg. 953-972, Jul 2019.
- [6] A. M. Shalan and M. Zulkernine. "A Control Flow Monitor Implementation Using Connection Dependence Graph," The Journal of Computer and Systems Science, Vol 80, Issue 5, pg. 953-972, Aug 2014.
- [7] A. M. Shalan and M. Zulkernine. "Runtime Failure Mode Prediction from System Error Logs," Proceedings of the 18th IEEE International Conference on Engineering of Complex Systems, pg. 232-241, Singapore, Jul 2013, acceptance rate 25%.
- [8] A. M. Shalan and M. Zulkernine. "A Simple Control Flow Representation for Component-Based Software Reliability Analysis," Proceedings of the 6th IEEE International Conference on Secure System Integration and Reliability Improvement (SERE'12), pp.1-10, Gaithersburg, MD, 2012.
- [9] A. M. Shalan and M. Zulkernine. "A Connection-Based Signature Approach for Control Flow Error Detection," Proceedings of the 9th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC'11), pg. 129-136, Sydney, Australia December 2011, acceptance rate 35%.
- [10] A. M. Shalan and M. Zulkernine. "Architectural Design Decisions for Achieving Reliable Software Systems," Proceedings of the 1st International Symposium on Architecting Critical Systems (ISARCS), Lecture Notes in Computer Science, vol. 6150, pg. 19-32, Prague, Czech Republic, June 2010.
- [11] A. M. Shalan and M. Zulkernine. "The Level of Decomposition Impact on Component Fault Tolerance," Proceedings of the 5th Workshop on Quality Oriented Reuse of Software, pg. 57-62, Seoul, Korea, July 2010.
- [12] A. M. Shalan and M. Zulkernine. "Failure Type-Aware Reliability Assessment with Component Failure Dependency," Proceedings of the 4th IEEE International Conference on Secure System Integration and Reliability Improvement (SSIRI), pg. 98-105, Singapore, June 2010, acceptance rate 33%.
- [13] A. M. Shalan and M. Zulkernine. "A Taxonomy of Software Architecture-Based Reliability Efforts," Proceedings of the 5th ICSE Workshop on Sharing and Reusing architectural Knowledge (SHARK), pg. 44-51, ACM, Cape Town, South Africa, May 2010, acceptance rate 53%.
- [14] A. M. Shalan and M. Zulkernine, "Quantifying Safety in Software Architectural Designs", Proceedings of the International Workshop on Design of Dependable Critical Systems, pp.68-75, Germany, Sep 2009.
- [15] A. M. Shalan and M. Zulkernine. "At What Level of Granularity Should We be Componentizing for Software Reliability?" Proceedings of the 11th International Symposium On High Assurance System Eng. (HASE'08). Nanjing, China, Dec 2008, pg. 273-282, acceptance rate 22%.
- [16] A. M. Shalan and M. Zulkernine. "On Failure Propagation in Component-Based Software Systems", Proceedings of the 8th International Conference on Quality Software, Oxford, UK, Aug 2008, pg. 402-411, acceptance rate 30%.
- [17] A. M. Shalan and M. Zulkernine. "Improving Reliability and Safety by Trading off Software Failure Criticalities", Proceedings of the 10th International Symposium On High Assurance System Eng, Dallas, TX. Nov 2007, pg. 267-274, acceptance rate 30%.
- [18] A. M. Shalan and Ruizhong Wei. "Context Dependent Controller on Performance Metrics Revision", Proceedings of the 5th International Conference on Cognitive Information (ICCI'06), Beijing, China, Jul 2006, pg. 507-516.

### **Non-Refereed Publications**

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- [19] A. M. Shalan, Software Architecture-Based Failure Prediction, School of Computing, Queen's University, Kingston, Ontario, Canada, Sep 2012. 162 Pages.

- [20] A. M. Shalan and M. Zulkernine, "A Comparative Study on the Reliability Efforts in Component-Based Software Systems", Technical Report No. 2009-559, School of Computing, Queen's University, Kingston, Ontario, Canada, June 2009.
- [21] A. M. Shalan, "A Context Sensitive Neural network by overlapped systems", Lakehead University, Thunder Bay, Ontario, Canada. May 2006. Call #: M.Sc. 2006 M69, 110 Pages.
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## CONFERENCE PRESENTATIONS AND INVITED TUTORIALS

- [1] The 2nd Career Workshop: Guidelines for successful job search (Spring 2013), Mecca, SA, Apr 2013.
- [2] Invited talk: New Research Vistas in The Reliability Analysis of Complex Software Systems, College of Engineering and Computer Science, University of Michigan at Dearborn, Mar 2013.
- [3] Invited talk: Reliability Analysis of Complex Software Systems, Department of Computer Science, East Carolina University, Mar 2013.
- [4] The Consortium for Software Engineering Research (CSER) Fall 2012 Meeting, "Runtime Failure Mode Prediction from System Error Logs", Toronto, Ontario, Canada, Nov 2012.
- [5] The 6th IEEE Int'l Conference on Secure System Integration and Reliability Improvement, "A Simple Control Flow Representation for Component-Based Software Reliability Analysis", Gaithersburg, MD, June 2012.
- [6] The International Symposium on Architecting Critical Systems (ISARCS), "Architectural Design Decisions for Achieving Reliable Software Systems", Prague, Czech Republic, June 2010.
- [7] The 25th Symposium On Applied Computing, Invited tutorial (ACM-SAC), "Reliable and Failure Type-Aware Component-Based Software Systems", Sierre, Switzerland, Mar 2010.
- [8] The International Workshop on Design of Dependable Critical Systems (DDCS), "Quantifying Safety in Software Architectural Designs", Hamburg, Germany, Sep 2009.
- [9] The 8th IEEE International Conference on Quality Software (QSIC'08), "On Failure Propagation in Component-Based Software Systems", Oxford, UK, Aug 2008.
- [10] The 10th IEEE International Symposium on High Assurance System Eng. (HASE'07). Improving Reliability and Safety by Trading off Software Failure Criticalities. Dallas, Texas, Nov 2007.
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## MAIN PROFESSIONAL ACTIVITIES

### Selective Program Chairing

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- 2016 ● The International Workshop on Enterprise Web Application Dependability (EWAD'16).

### Selective Program Committees

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- 2015 ● The 12th International Conference on Mobile Systems and Pervasive Computing (MobiSPC'15).  
● The 6th International Conference on Ambient Systems, Networks and Technologies (ANT'15).
- 2013 ● The 8th International Workshop on Security, Trust, and Privacy for Software Applications (STPSA'13).

### Selective Session Chairing

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- 2012 ● The IEEE International Conference on Secure System Integration and Reliability Improvement (SERE'12).

### Selective Peer Reviewing

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- 2014 ● The Software Quality Journal (SQJO'14).
- 2013 ● The Elsevier Journal of Systems and Software (JSS'13).
- 2012 ● The IEEE/IFIP International Conference on Dependable Systems and Networks (DSN'12).  
● The Journal of Software and Systems Modeling (JSSM'12).
- 2011 ● The Journal of Software: Practice and Experience (SPE'11).
- 2010 ● The IEEE Transactions on Dependable and Secure Computing (TDSC'10).
- 2009 ● The Journal of IEEE Software 2009.
- 2008 ● The IEEE Transactions on Systems, Man and Cybernetics.
- 2007 ● The IEEE International Conference on Quality Software (QSIC'07).
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## PROFILE OF INDUSTRIAL EXPERTISE

Throughout my years of experience in the field of software engineering and information technology, I have served in a number of national and international organizations including software manufacturers, consulting firms, and business organizations. My professional accomplishments have spanned software design and development, -

business process analysis and implementation, and project planning and management. My software development projects involved small to large systems and spread across multiple business areas including manufacturing, distribution, accounting, and real estate management. I have been repeatedly recognized for developing innovative solutions and achieving customer appreciation through product efficiency, interface simplicity, and support persistence. My proposed models for reengineering business processes based on Enterprise Resource Planning (ERP) systems have been gaining global satisfaction among system users, auditors, and decision makers. Due to my quality assurance practices, my software projects have contributed to the business process automation with minimal processing time and user intervention, delicate deliverable and documentations, and highly precise computations and results.

## MAIN TECHNICAL SKILLS

My technical skills span a number of programming paradigms, languages and scripts, databases, platforms, systems, and frameworks. This table provides a list of main skills that I have (or had in the past). For each skill, the table shows the mastery level on scale: 1 to 5, last year used (Col: Last), number of years used (Col: Yrs), number of medium ( $\approx 1$  to 5 K-LOC) to large ( $\approx 5$  to 10 K-LOC) projects completed (Col: Prj).

Category	Skill	Mastery	Last	Yrs	Prj	Skill	Mastery	Last	Yrs	Prj
Paradigms	● Object Oriented	●●●●●	2019	10+	6	● GUI& Event Driven	●●●●●	2019	10+	10+
Languages	● Java	●●●●○	2019	5+	2	● Python	●●●●○	2019	5+	3
Scripts	● C/C++	●●●●○	2012	5+	2	● Assembly	●●○○○	2018	1	0
	● JavaScript	●●●●○	2019	5+	4+	● PHP	●●●●○	2006	1	2
	● HTML/CSS	●●●●●	2019	10+	10+	● Shell Script	●●●●○	2019	5+	5+
Dev. Process	● Agile& Scrum	●●●●○	2019	3	5					
Database	● SQL Server	●●●●○	2006	4	3	● PostgreSQL	●●○○○	2012	1	1
	● Open Ingres	●●●●○	1997	2	2	● MySQL	●●●●○	2012	1	1
	● XML	●●●●●	2006	1	1	● Embedded SQL	●●●●●	2019	10+	10+
Graphics	● OpenGL	●●●●○	2017	3	2	● WebGL	●●●●○	2018	1	0
Operating Systems	● Windows	●●●●●	2019	10+	10+	● Linux/Unix	●●○○○	2012	4	2
	● AS/400	●●●●○	1996	3	4					
ERP	● BaaN	●●●●●	2001	6	10+	● Oracle Financial	●●●●○	2002	1	2
Publishing	● Latex	●●●●●	2019	10+	10+	● Google Docs, MS Office	●●●●●	2019	10+	

## ACADEMIC AND INDUSTRIAL EXPERTISE

2020-Now **Assistant Professor at Georgia Southern University**, Statesboro, GA, USA, Aug 2020 till now.

- Provided teaching, supervision, administration, and other academic services.
- Taught multiple Information Technology courses through F2F, Online, and Hybrid style.
- Provided support undergraduate and graduate studies through the online BSIT, BIT, and MSIT degree program.
- Conducted research on Web application credibility and contributed to academic and professional development activities.

2015-2020 **Assistant Professor at Alderson Broaddus University**, Philippi, WV, USA, Aug 2015 till Jul 2020.

- Provided teaching, supervision, administration, and other academic services.
- Taught multiple computer science and cybersecurity courses on regular basis, in addition to a number of bi-yearly major elective, and occasional contemporary special topic courses.
- Participated in revamping computer science curriculum and consistently worked on improving it.
- Participated in planning, designing, and creating new BSc degree program of Cyber security and led its curriculum design and establishment and contributed to industry relations and public outreach.
- Supervised capstone senior design and research projects.
- Supervised work study and teaching assistants.
- Advised and mentored students w.r.t., their academic program fulfillment.
- Frequently provided course and program assessment, and academic program reviews.
- Participated actively in a committee work and academic affairs.
- Provided public talks, tutorials, and short courses at national and international venues

- Mentored computer science faculties and provided guidance at all levels.
  - Continuously participated in student recruitment activities, organized local career workshops, involved industry representatives.
  - Actively participated in West Virginia cybersecurity workforce planning group meeting.
  - Planned for future growth of the computer science and cybersecurity programs and improvement of the students' retention.
  - Participate in decision making regarding academic improvements at the global level of the university.
- 2015-2015 **Visiting Assistant Professor at Bucknell University**, Lewisburg, PA, USA, Jan 2015 to May 2015.
- Provided undergraduate teaching and other academic services.
  - Taught introductory courses for early undergraduate students.
  - Participated in departmental meetings and decisions.
- 2013-2014 **Assistant Professor at Umm Al-Qura University**, Saudi Arabia, Jan 2013 to Dec 2014.
- Provided teaching and advising, designed new courses, and followed ABET standards.
  - Taught a number of undergraduate and graduate courses including software quality assurance, programming language design, web programming, and data structures and algorithms.
  - Provided distance teaching for university students in remote campuses.
  - Created tutorials and lab practices for a number of programming languages and Web scripts.
  - Participated in a new undergraduate curriculum design and graduate course reviewing.
- 2012-2012 **Postdoctoral Fellow at Queen's University**, Ontario, Canada, Sep 2012 to Dec 2012.
- Acted as a senior research lab member, supported new researchers and research projects.
  - Provided research guidance and mentoring for a number of graduate students.
- 2006-2012 **Research Assistant at Queen's University**, Ontario, Canada, Sep 2006 to Sep 2012.
- Generated and utilized new research techniques to improve software system reliability and performance and built large software tools to improve software engineering practices.
  - Supervised a number of course projects and provided technical advising for student groups.
  - Developed a software re-engineering toolkit for extracting important architectural information of large scale C-based programs and representing them in XML.
  - Led a number of technical teams and research projects (e.g., secure software components, testing framework for SQL injection attack, and fault injection toolkit for C-based programs).
  - Developed an automatic software operation toolkit to allow configuring, compiling, and building executable files of different software versions. (Shell Script).
  - Developed a toolkit for deriving and representing the control flow diagram of large-scale programs.
  - Developed a program monitor software for error detection, failure prediction, and reliability estimation of large-scale programs. (Java).
  - Provided teaching assistance in a number of courses including Advanced Database Management, Distributed Computing, and Java Programming.
- 2005-2006 **Application Developer at Abitibi Consolidated**, Ontario, Canada, May 2005 to Jan 2006.
- Accomplished multiple IT projects for automating and simplifying production operations.
  - Developed a number of real-time software systems to perform some product quality tests (Lint View and Dirt). (Visual Studio, ActiveX Data Objects (ADO), Prophecy Database).
  - Automated the replication of production data among heterogeneous systems and platforms.
  - Developed XML interface generation tool for the Ministry of the Environment Wastewater System (MEWS) of Canada. (Visual Studio, SQL server, DOM, and ADO).
  - Developed a number of Web applications for safety violation tracking and worker attendance. (PHP, JavaScript, Internet Information Services (IIS), and SQL server).
- 2002-2004 **IT Manager at Innovative Industries Group**, Ontario, Canada, Nov 2002 to Nov 2004.
- Managed IT projects, implementations, maintenance, and audits activities.
  - Managed ERP system (Great Planes) implementations in multiple group companies.
  - Developed a property management and financial systems. (Visual Studio).
  - Developed process and distribution management systems. (Visual Studio).