

Ahmed S. Shatnawi

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EDUCATION

- Ph.D.** Computer Science, University of Wisconsin-Milwaukee, Milwaukee, USA, 2017
Dissertation: *Enhanced Version Control for Unconventional Applications*
Supervised by Prof. Ethan V. Munson.
- M. Sc.** Software Engineering, George Mason University, Virginia, USA, 2012
- B. Sc.** Computer Engineering, Jordan University of Science and Technology, Irbid, Jordan, 2007

PROFESSIONAL EXPERIENCE

PROFESSIONAL APPOINTMENTS

- Jordan University of Science and Technology, Assistant Professor, Department of Software Engineering, Department of Network Engineering & Security, January 2018 - present.
 - Prepared assignment, quiz, exam, lecture, and lab activity for courses fresh each semester.
 - Evaluated hundreds of students over eight semesters.
 - Designed the syllabus, course structure, and focus for two graduate level courses.
 - Redesigned the coursework and lectures of an existing courses.
- Jordan University of Science and Technology, Director, Information Technology and Communication Center, January 2022 - present
 - Planning, development, and management of new automated information systems and enhancements to existing automated systems at JUST.
 - Identifying and acting on opportunities to improve and update software and systems
 - Facilitates IT security audits or investigations.
 - Develops and maintains relationships with external I.T. vendors and service providers.
 - Establishing efficiency and efficacy standards, providing recommendations for improvement of IT infrastructure.
 - Determining time-frames for major center's projects including system updates, upgrades, migrations and outages.

- Managing and reporting on allocation of the center’s budget
- Identifying opportunities for team training and skills advancement
- Jordan University of Science and Technology, Deputy Director, Information Technology and Communication Center, September 2018 - September 2019.
 - Assisted in the planning, development, and management of new automated information systems and enhancements to existing automated systems at JUST.
 - Performed network and system penetration testing.
 - Communicated risks and recommendations to mitigate security risks to ensure the security of information systems and information entrusted to the University.
 - R&D to address the challenges created by the introduction of new technologies.
- University of Wisconsin-Milwaukee, Graduate Teaching Assistant, Department of Electrical Engineering and Computer Science, August 2014 - December 2017.
 - Primary instructor: prepared assignments, quizzes, exams, lectures, and lab activities for intermediate programming using Java (Spring 2017).
 - Ran laboratories and graded for six courses.
- University of Wisconsin-Milwaukee, Research Assistant, Pavement and geotechnical research laboratory, June 2017 - August 2017
 - Designed and implemented a framework for analyzing Wisconsin’s historic OSOW permit program data. The framework provides an interactive, web-based interface to query the OSOW permit data, link OSOW records to geospatial data features, and dynamically visualize query results
- University of Wisconsin–Milwaukee, Security Coordinator-Risk Assessment Support, Information Security Office, January 2014 - August 2014
 - Worked with System administrators to fix security issues on servers and workstations found using a vulnerability scanner.
 - Managed vulnerability scanner.
 - Worked on various technical and non-technical projects for the office as assigned.
 - Developed two automated tools for UWM security office using C#.
- Blue Sky Broadband, Senior Engineer and Operational Manager, MN, USA, August 2012-February 2013.
 - Responsible for the Internet service provider (ISP) infrastructure including performance and quality of service
 - Designed LAN/WAN and configured routers and switches according to the network design.
 - Installed, maintained, and supported Linux Servers (i.e. AAA, SIP and web server).

- Installed, configured, and monitored wireless devices (Alvarion, Motorola, Radwin, and Ubiquity).
- Web applications and services development using C#, ASP.NET and JavaScript
- George Mason University, Web Application Developer, Center of Intelligent Spatial Computing for Water/Energy Science, June 2011 - August 2011.
 - Developed an open-source standalone Application to utilize the cloud computing to support earth and geography science communities. Windows Azure Platform was used.
- Jordan University of Science and Technology, Teaching Assistant, Computer Engineering Department, January 2007 - August 2010.
 - Trained undergraduate students on new technologies, including using the Verilog Hardware Description Language; on lab tools; and on relating theories to practice.
 - Taught students how to write synthesizable code to implement digital circuits using Altera Quartus II Software.
 - Supervised the systems programming course projects which included the design and implementation of emulators, assemblers, linkers and loaders.
 - Taught the web technologies lab which primarily focused on web applications design and development. Several technologies were used in the lab including ASP.NET and Ajax.
 - Helped in designing the lab component of several courses including Hardware Description Languages, Visual Programming, Computer Networks, and Systems Programming
- iHorizons, Software Engineer, Amman, Jordan, August 2006 - January 2007.
 - Part of the team that developed the intranet of the Ministry Of Economy and Commerce in Qatar. My role was focused on SharePoint Technology.

VISITING APPOINTMENTS

- Teaching for one week on Software Security at the Romanian-American University May 1st - May 7th, 2022.

GRANTS AND FUNDS

- **Principal Investigator**, “Secured a fund to support four groups to travel and participate in the Arab Security Cyber Wargames, 2021”, (\$5,000), September 2021.
- **Co-Principal Investigator**, “Determination and Enforcement of the Component-Based Architecture for the Object-Oriented Java Software Systems”, (\$12,694), 2019-2022.
- **Principal Investigator**, “Analysis preservation infrastructure task and requirements.”, (\$10,500), 2021-2023.
- **Co-Principal Investigator**, “The Compact Muon Solenoid Data Curation”, (\$10,000), 2021-2023.

AWARDS & HONORS

- Green Circle Recognition for helping organizing the CTFJo2021, 2021.
- UWM Chancellor's Graduate Student Award., 2015-2017.
- Received ACM SIGSOFT CAPS travel award to attend ICSE, 2016.
- Phi Kappa Phi National Honor Society, 2016-present.
- JUST Graduate Fellowship, a scholarship from Jordan University of Science and Theology to obtain Master's and PhD degrees in Software Engineering, 2010 - 2015.
- Distinguished Academic Achievement Award, Department of Computer Science, GMU, 2012.
- Outstanding Academic Achievement Award, Office of International Programs and Services, GMU, 2012.
- Dean's Recognition for Designing and Implementing the Faculty of Computer & Information Technology streaming channel to broadcast lectures and seminars on the web, 2009.

SCHOLARLY ACCOMPLISHMENTS

RESEARCH JOURNAL PUBLICATIONS

1. Al-Dwairi, Mahmoud, **Ahmed S. Shatnawi**, Osama Al-Khaleel, and Basheer Al-Duwairi. 2022. "Ransomware-Resilient Self-Healing XML Documents" *Future Internet* 14, no. 4: 115. doi:[10.3390/fi14040115](https://doi.org/10.3390/fi14040115)
2. Luay Alawneh, Mahmoud Al-Ayyoub, Ziad A Al-Sharif, **Ahmed S. Shatnawi**. "Personalized human activity recognition using deep learning and edge-cloud architecture" *Journal of Ambient Intelligence and Humanized Computing* (2022): 1-13. doi:[10.1007/s12652-022-03752-w](https://doi.org/10.1007/s12652-022-03752-w)
3. Mohammad Malkawi, **Ahmed S. Shatnawi**, Khaldoon Al-Zoubi, and Luay Alawneh. "Improving Network Entry Procedure in Broadband Wi-Fi Networks." *International Journal on Communications Antenna and Propagation (IRECAP)* . Vol 11, No 5 (2021) doi:[10.15866/irecap.v11i5.20996](https://doi.org/10.15866/irecap.v11i5.20996)
4. Basheer Al-Duwairi, Moath Jarrah, and **Ahmed S. Shatnawi**. "PASSVM: A highly accurate fast flux detection system." *Computers & Security* 110 (2021): 102431. doi:[10.1016/j.cose.2021.102431](https://doi.org/10.1016/j.cose.2021.102431).
5. Mohammad Malkawi, Khaldoon Al-Zoubi, and **Ahmed S. Shatnawi**. "Quasi Real-Time Intermodulation Interference Method: Analysis and Performance." *International Journal of Communication Networks and Information Security (IJCNIS)*. 13.1 (2021)
6. Ziad A. Al-Sharif, Mohammed I. Al-Saleh, Yaser Jararweh, Luay Alawneh, and **Ahmed S. Shatnawi**. "The Effects of Platforms and Languages on the Memory Footprint of the Executable Program: A Memory Forensic Approach." *The International Journal of Universal Computer Science (J.UCS)*. 25, no. 9 (2019): 1174-1198. doi:[10.3217/jucs-025-09-1174](https://doi.org/10.3217/jucs-025-09-1174).

7. **Ahmed S. Shatnawi**, Nicholas Coley, and Hani H. Titi. “Interactive data framework and user interface for Wisconsin’s oversize-overweight vehicle permits.” *Data*. 3, no. 2 (2018): 20. doi:[10.3390/data3020020](https://doi.org/10.3390/data3020020).
8. Saleh Abdel-Hafeez, Ann Gordon-Ross, Asem Albosul, **Ahmed S. Shatnawi**, and Shadi Harb. “A shadow dynamic finite state machine for branch prediction: an alternative for the 2-bit saturating counter.” *Informatica* 35, no. 2 (2011).

CONFERENCE PUBLICATIONS

9. **Ahmad S. Shatnawi**, Abderraouf Drine, Mohammad Al-Zinati, Qutaibah Althebyan. “Simulation study of speed control at congested arms of roundabouts.” *22nd International Arab Conference on Information Technology (ACIT)*, pp. 1-5. IEEE. doi:[10.1109/ACIT53391.2021.9677273](https://doi.org/10.1109/ACIT53391.2021.9677273).
10. Raghad Al-Syouf, Basheer Al-Duwairi, and **Ahmad S. Shatnawi**. “Towards a Secure Web-Based Smart Homes.” *12th International Conference on Information and Communication Systems (ICICS)*, pp. 195-200. IEEE. doi:[10.1109/ICICS52457.2021.9464563](https://doi.org/10.1109/ICICS52457.2021.9464563).
11. Wafaa Al-Kahla, **Ahmed S. Shatnawi**, and Eyad Taqieddin. “Taxonomy of Web Security Vulnerabilities.” *12th International Conference on Information and Communication Systems (ICICS)*, pp. 424-429 IEEE. doi:[10.1109/ICICS52457.2021.9464576](https://doi.org/10.1109/ICICS52457.2021.9464576).
12. **Ahmed S. Shatnawi**, and Ethan V. Munson. “Interactive and Scalable visualization framework for Version-aware XML documents.” *ACM Symposium on Document Engineering*, pp. 1-4. doi:[10.1145/3395027.3419586](https://doi.org/10.1145/3395027.3419586).
13. Al-Rawashdeh, Ahmad M., Ziad A. Al-Sharif, Mohammed I. Al-Saleh, and **Ahmed S. Shatnawi**. “A Post-Mortem Forensic Approach for the Kik Messenger on Android.” *11th International Conference on Information and Communication Systems (ICICS)*, pp. 079-084. IEEE. doi:[10.1109/ICICS49469.2020.239559](https://doi.org/10.1109/ICICS49469.2020.239559).
14. **Ahmed S. Shatnawi**, and Ethan V. Munson. “Enhanced Automated Policy Enforcement eXchange framework (eAPEX).” *ACM Symposium on Document Engineering*, pp. 1-4. doi:[2019.10.1145/3342558.3345408](https://doi.org/2019.10.1145/3342558.3345408)
15. **Ahmed S. Shatnawi**, Ethan V. Munson, and Cheng Thao. “Maintaining integrity and non-repudiation in secure offline documents.” *ACM Symposium on Document Engineering*, pp. 59-62. doi:[10.1145/3103010.3121038](https://doi.org/10.1145/3103010.3121038)

WORKSHOP PUBLICATIONS

16. **Ahmed S. Shatnawi**, Qussai Yassen, Abdulrahman Yateem. “An Android Malware Detection Approach Based on Static Feature Analysis Using Machine Learning Algorithms” *The 3rd International Workshop on Data-Driven Security (DDSW 2022), Porto, Portuga*, pp. 653-658. doi:[10.1016/j.procs.2022.03.086](https://doi.org/10.1016/j.procs.2022.03.086).
17. Alawneh, Luay, Belal Mohsen, Mohammad Al-Zinati, **Ahmed Shatnawi**, and Mahmoud Al-Ayyoub. “A Comparison of Unidirectional and Bidirectional LSTM Networks for Human

Activity Recognition.” *IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops)*, pp. 1-6. IEEE doi:[10.1109/PerComWorkshops48775.2020.9156264](https://doi.org/10.1109/PerComWorkshops48775.2020.9156264).

PUBLICATIONS SUBMITTED

18. Mahmoud M. Almazari, Eyad Taqieddin, **Ahmed S. Shatnawi**¹, and Zakarea AlShara “An Evaluation of the RSA Private Keys and the Existence of Weak Keys” *Submitted to Journal of Discrete Mathematical Sciences and Cryptography on 11 April 2022*.
19. Rama A. AL-Share, **Ahmed S. Shatnawi**, Basheer Al-Duwairi, “Detecting and Mitigating Collusive Interest Flooding Attacks in Named Data Networking” *Submitted to IEEE Access Journal on 3 April 2022*.
20. **Ahmed S. Shatnawi**, Mahmoud M. Almazari, Zakarea AlShara, Eyad Taqieddin, and Dheya Mustafa “RSA Cryptanalysis with Exact Fermat Bound Using the Role of Integer Sequences Factorization” *Submitted to Journal of Cryptographic Engineering on 27 Feb 2022*.
21. **Ahmed S. Shatnawi**, Basheer Al-Duwairi, Mahmoud M. Almazari, Mohammad S. Alshakhatreh, Ahmad N. Khader, and Abdullah A. Abdullah “Adaptable Plug and Play Security Operations Center Leveraging a Novel Programmable Plugin-based Intrusion Detection and Prevention System” *Submitted to Computers & Security Journal on 7 June 2021*.

GRADUATE STUDENT SUPERVISION

Ph. D.

- There are **NO** Ph. D. programs offered by the Faculty of Computer & Information Technology at JUST.

MASTER’S

- Currently supervising the M.S. thesis research of Wafaa Al-Kahla and Omar Elayan.
- Rama Al-Sharea, *Detecting and Mitigating Collusive Interest Flooding Attacks in Named Data Networking*. Graduated January 2021. Now a Lecturer at Jordan University of Science and Technology.
- Mahmoud Dwairi, *Towards Self-Healing XML Documents Against Ransomware*. Graduated January 2020. Now with the Ministry of Digital Economy and Entrepreneurship, Amman, Jordan.

UNDERGRADUATE

- Academic advisor for 15 students per semester at the Software Engineering Department. 2018-present.
- Supervised/co-supervised 20 senior projects for about 60 students and served as a member of a project examination committee for over 30 senior projects.

PRESENTATIONS

- “Closing Cybersecurity Skill Gap with Education Diversity”, *European Cybersecurity Online Conference For Middle East And North Africa, Online, 2020*. • **Invited talk**
- “Cybersecurity Curriculum Development in Higher Education”, *Digital Economy and Cybersecurity Conference, Amman, Jordan, 2019*. • **Invited talk**
- “Presentation for CMS/CERN membership”, 125th Meeting of the CMS Collaboration Board, Geneva, Switzerland, 2019. • **Invited talk**
- “Virtual Office Hours, Collaborating and More”, *Teaching and Learning Symposium, UWM, USA, 2016*.

SERVICE AND PROFESSIONAL ACTIVITIES

NATIONAL AND INTERNATIONAL PROFESSIONAL ACTIVITIES

- Member of Technical Administrative Committee (TAC) for Jordanian Universities Networks (JUNet) since 2022.
- Member of Technical Program Committee, The 19th International Conference on Mobile Systems and Pervasive Computing, 2022, Niagara Falls, Ontario, Canada.
- International Conference on Information and Communication Systems (ICICS), Jordan.
 - Track Chair of “Security, privacy, and digital forensics”, 2022.
 - Publicity Chair, 2022.
 - Session Chair of “Security, privacy, and digital forensics”, 2020.
 - Track Chair of “Software and web Engineering”, 2019.
- Member of Technical Program Committee, 3rd International Workshop on Data-Driven Security (DDSW 2022), Porto, Portugal.
- Member of Technical Committee, International Conference on Computer and Communication Systems (ICCCS), China, 2020 - 2022.
- Member of Program and Scientific Committees, The 3rd Jordan CTF Competition, Amman, Jordan, 2021.
- Technical Program Committee, 33rd International Conference on Microelectronics, 2021, Cairo, Egypt.
- Grant Research Evaluation Committee, Industrial Scientific Research and Development Fund (IRDF), Amman, Jordan, 2021.
- Founder of the OWASP Irbid chapter, 2021.

- Founder of Security BSides Irbid Conference, 2021.
- Member of Technical Program Committee, The 18th International Conference on Mobile Systems and Pervasive Computing, 2021, Leuven, Belgium.
- Scientific Committee, Blockchain Technology Virtual Conference (IFERP), 2020.
- Member of Technical Program Committee, 14th International Conference on Innovations in Information Technology (IIT), UAE 2020.
- Training of Trainers (TOT), One Million Jordanian Coders, Jordan, 2019 - 2020.
- Member of Steering Committee, The 32nd International Conference on Microelectronics, 2020.
- Project Security Advisor, J-SANDS: Jordan Stillbirths and Neonatal Deaths Surveillance and Auditing System project, Jordan, 2019 - 2020
- Track co-chair of the Cyber-physical Systems Security track, The International Conference on Microelectronics 2020.
- Served as reviewer for the Ad Hoc Networks Journal. Elsevier, 2019.

COMMUNITY SERVICE

- Implemented and deployed king Hussain Orphanage internal portal, 2020 - 2021.
- Offered a free Object Oriented course at JUST for undergraduate students, 2019.
- Conducted a security risk assessment and penetration testing for King Abdullah University Hospital (KAUH), 2019.
- Offered a free C# and ASP.net course at UWM for undergraduate students, UWM, 2017.

UNIVERSITY SERVICE

- JUST's strategic plan Implementation committee, 2022 - present.
- Council Member of the Academic Development and Quality Assurance Center, 2022 - 2023.
- University website committee, 2022 - present..
- Time and attendance tracking system committee, 2021.
- High availability (HA) committee (*ad hoc* advisory group for JUST's vice president) , 2020.
- Council Member of the Information Technology & Communications Center (ITCC), 2019 - 2020.
- E-learning committee (*ad hoc* advisory group for JUST's vice president) , 2020.
- Tenders committee for high performance computing infrastructure, 2019.

COLLEGE SERVICE

- CMS/CERN Induction Project, 2020 - present.
- Officer, Security Operation Center at JUST, 2020-present
- Organizing Committee of JUST's 3rd Capture The Flag (CTF) Competition, 2021.
- Member of "Cybersecurity Program establishment" Committee, 2021.
- Member of "Industry Engagement" Committee, 2019 - 2020.
- Member of "Innovation and Creativity" Committee, 2018-2019.

DEPARTMENT SERVICE

- Served on MS thesis defense committees of:
 - Asmaa Bataineh, Blockchain based voting system for Jordan parliament elections, June, 2020..
 - Obadah Shatnawi, A Parameterized Approach For Analyzing Source Code Variability In Cloned Java Software Variants, June, 2020.
 - Toqa Abu-Zaitoun, improvment of auto signature verification using projection and line features method, February, 2021.
 - Fatima Abu-Akleek, E-Voting System using Distributed Blockchain Network, October, 2021.
 - Rasha Awawdeh, Macular Edema Detection from OCT images using Machine Learning Classifiers, January, 2022.
 - Reema Al-Senjalawi, A Study Of Document Based Memory Forensics, February, 2022.
- Member, Quality Assurance and Accreditation Committee, 2019-present.
- Chair, Undergraduate Curriculum Committee, 2018 - 2020.
- Chair, Senior Design Projects Committee, 2018 - 2020.
- Chair, Graduate Curriculum Committee, 2018 - 2019.

TRAINING AND WORKSHOPS

- HCIA-Security, Huawei, 2021.
- Cybersecurity Masters Programme at Staffordshire University and how it meets the market expectations workshop, online, 2020.
- Autopsy Basics and Hands On, online, 2020.

- ICSI | CNSS Certified Network Security Specialist, online, 2020.
- Basics of Distance Education, workshop, Academic Development Center, JUST, 2020.
- Cybersecurity Infrastructure Configuration - Train The Trainer, Palo Alto Networks, Amman–Jordan, 2019.
- Statistical Analysis of Examinations & Research workshop, Academic Development Center, JUST, 2019.

TEACHING ACTIVITIES

I have been teaching two graduate and four undergraduate level courses while at JUST:

1. Web Applications Security (NES 755).
2. Advanced Network Security (NES 750).
3. Software Security (SE 431).
4. Cryptography and Network Security (NES 452).
5. Software Engineering for Web Applications (SE 432).
6. Special Topics in Computer Engineering (CPE 595).

In addition, from 2014 until 2017 I have taught or helped in six courses while at UWM:

1. Introductory Computer Programming (CS 250).
2. Intermediate Computer Programming (CS 251).
3. Data Structures and Algorithms (CS 351).
4. Introduction to Computer Security (CS 469).
5. Text Retrieval and Its Applications in Biomedicine (CS 744).
6. Introduction to Database Systems (CS 557).