

Mariam Wajdi Ibrahim, IEEE member
Dept. of Mechatronics Engineering, German Jordanian University
E-mail: mariam.wajdi@gju.edu.jo

Educational Background

- Ph.D. in Electrical Engineering, Iowa State University, Department of Electrical and Computer Engineering, Iowa, USA, August/2016 (GPA: 3.93/4.0), Excellent.
- Master Degree in Mechatronics Engineering, Al Balq'a Applied University, Faculty of Engineering Technology, Amman, Jordan, July/2011 (GPA: 3.82/4.0), Excellent.
- Bachelor Degree in Electrical and Computer Engineering, Hashemite University, Zarqa, Jordan, June/2008 (GPA: 3.51/4.0), Excellent. The 10th among the country for the Jordanian Universities Achievements Test.
- The General Secondary Education Certificate Examination, North Latin School, Jordan, June/2004 (91.2%).

Work Experience

- Associate Professor, Department of Mechatronics Engineering, German Jordanian University, July/2021- Present
- Assistant Professor, Department of Mechatronics Engineering, German Jordanian University, October/2016- June/2021.
- Research and Teaching Assistant, Department of Mechatronics Engineering, German Jordanian University, August/2011- August/2012.
- Laboratory Supervisor, Electrical Engineering Department, Hashemite University, June/2008- August/ 2011.
- Trainee at Jordan Telecom Group in Amman, February/2008 – April/2008.

Skills and Programming

Architecture Analysis and Design Language (AADL), AADL Annex AGREE (Assume Guarantee Reasoning Environment) plug-in, OPNET, NuSMV, Spin, Encase, FTK, Cisco Certified Network Associate (CCNA) Exploration, Embedded System Design Using PIC MCUs. Microbasik (C-Sharp), Cisco Packet tracer, Mplab, MATLAB, MULTISIM, Auto Cad (2D), LaTeX, ICDL, Computer Maintenance, the Successful Skills from Junior Achievement (Injaz/ Hashimaite university).

Journal Publications

- Soumyabrata Talukder, **Mariam Ibrahim**, and Ratnesh Kumar, "Resilience Indices for Power/Cyberphysical Systems", *IEEE Transactions on Systems, Man, and Cybernetics: Systems*. (Early Access), pp. 1-14, doi: 10.1109/TSMC.2020.3018706 (2020).
- **Mariam Ibrahim**, Ahmad Alsheikh, Qays Al-Hindawi, Sameer Al-Dahidi and Hisham ElMoaqet, "Short-Time Wind Speed Forecast Using Artificial learning-based Algorithms", *Computational Intelligence and Neuroscience*, Hindawi, Volume 2020, Article ID 8439719 (2020).
- **Mariam Ibrahim**, Asma Alkhraibat, "Resiliency Assessment of Microgrid Systems", *Applied Sciences*, 10 no. 5, pp.1824-1839 (2020).
- **Mariam Ibrahim**, Ahmad Alsheikh, and Aseel Matar, "Attack Graph Modeling for Implantable Pacemaker." *Biosensors* 10, no. 2, pp.14-25 (2020).

- **Mariam Ibrahim**, Qays Al-Hindawi, Ruba Elhafiz, Ahmad Alsheikh, and Omar Alquq. "Attack Graph Implementation and Visualization for Cyber Physical Systems." *Processes* 8, no. 1, pp.12-33 (2020).
- **Mariam Ibrahim**, Ahmad Alsheikh, and Qays Al-Hindawi. "Automatic Attack Graph Generation for Industrial Controlled Systems." In *Recent Developments on Industrial Control Systems Resilience*, pp. 99-116. Springer, Cham, 2020.
- **Mariam Ibrahim**, and Ahmad Alsheikh. "Determining Resiliency Using Attack Graphs." In *Recent Developments on Industrial Control Systems Resilience*, pp. 117-133. Springer, Cham, 2020.
- Emil Pricop, Jaouhar Fattahi, Nitul Dutta, and **Mariam Ibrahim**. *Recent Developments on Industrial Control Systems Resilience*. Springer, 2020.
- **Mariam Ibrahim**, and Ahmad Alsheikh. "Automatic Hybrid Attack Graph (AHAG) Generation for Complex Engineering Systems." *Processes* 7, no. 11, pp.787-801 (2019).
- Hani Muhsen, **Mariam Ibrahim**, Ahmad Alsheikh, Mohammed Qanadilo, and Abdallah Karadsheh. "Turbine Design and Its Impact on Energy Harvesting from In-Pipe Hydro Systems." *International Journal of Mechanical Engineering and Robotics Research* 8, no. 5, pp. 685-690 (2019).
- Alaa Al Ghazo, **Mariam Ibrahim**, Hao Ren, and Ratnesh Kumar. "A2G2V: Automatic Attack Graph Generation and Visualization and Its Applications to Computer and SCADA Networks." *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, Volume. 50, no. 10, pp. 3488-3498, doi: 10.1109/TSMC.2019.2915940 (2020).
- **Mariam Ibrahim**, "Level of Resilience Measure for Communication Networks", *Journal of Information and Communication Technology (JICT)* 17, no. 1, pp. 115-139, (2020).
- **Mariam Ibrahim**, Jun Chen and Ratnesh Kumar, "Quantification of Centralized/Distributed Secrecy in Stochastic Discrete Event Systems", In *Recent Advances in Systems Safety and Security*, Editors Emil Pricop, and Grigore Stamatescu, Volume 62, Chapter 2, ISBN : 978-3-319-32523-1, Springer International Publishing, 2016.
- Jun Chen, **Mariam Ibrahim**, and Ratnesh Kumar, "Quantification of Secrecy in Partially Observed Stochastic Discrete Event Systems", *IEEE Transactions on Automation Science and Engineering*, Volume. 14, no. 1, pp. 185-195, doi: 10.1109/TASE.2016.2604222 (2017).

Conferences

- **Mariam Ibrahim** and Intisar Nabulsi, "Security Analysis of Smart Home Systems Applying Attack Graph", 2021 Fifth World Conference on Smart Trends in Systems Security and Sustainability (WorldS4), London, United Kingdom, 2021, pp. 230-234, doi:10.1109/WorldS451998.2021.9514050.
- **Mariam Ibrahim** and Qays Al-Hindawi, "Attack Graph Modeling For Nuclear Power Plant", 10th International Conference on Electronics, Computers and Artificial Intelligence (ECAI), Iasi, Romania, (June 2018).
- **Mariam Ibrahim** and Ahmad Al-Sheikh, "Assessing Level of Resilience Using Attack Graphs", 10th International Conference on Electronics, Computers and Artificial Intelligence (ECAI), pages: Iasi, Romania, (June 2018).
- Alaa Al-Ghazo, **Mariam Ibrahim**, Hao Ren, and Ratnesh Kumar, "A2G2V: Automated Attack Graph Generator and Visualizer", ACM MobiHoc Workshop on Mobile IoT Sensing, Security, and Privacy, Los Angeles, CA, (June 2018).
- Hani Muhsen, **Mariam Ibrahim**, Ahmad Alsheikh, Mohammed Qandadilo and Abdallah Karadsheh, "Turbine Design and Its Impact on Energy Harvesting from In-Pipe Hydro Systems", 2018 International Conference on New Energy and Environment Engineering (ICNEE), Singapore, (May 2018).
- **Mariam Ibrahim**, "A Resiliency Measure for Communication Networks", IEEE 8th International Conference on Information Technology, Amman, Jordan, (May 2017).

- **Mariam Ibrahim**, Jun Chen and Ratnesh Kumar, “A Resiliency Measure for Electrical Power Systems”, IEEE International Workshop on Discrete Event Systems, pages: 385 - 390, Xi'an, China, (May 2016).
- **Mariam Ibrahim**, Jun Chen and Ratnesh Kumar, “Quantification of Distributed Secrecy Loss in Stochastic Discrete Event Systems under Bounded-Delay Communications”, IEEE International Workshop on Discrete Event Systems, pages: 373 - 378, Xi'an, China, (May 2016).
- **Mariam Ibrahim**, Jun Chen and Ratnesh Kumar, “An Information Theoretic Measure for Secrecy Loss in Stochastic Discrete Event Systems”, 7th International Conference on Electronics, Computers and Artificial Intelligence (ECAI), pages: 1 – 6, Bucharest, Romania, (Jun 2015).
- **Mariam Ibrahim**, Jun Chen, and Ratnesh Kumar, “Secrecy in Stochastic Discrete Event Systems”, IEEE International Conference on Networking, Sensing and Control, pages 48-53, Miami, FL, (April 2014).

Professional Activities

- Scientific Reviewer for IEEE Access Journal, 2020.
- Scientific Reviewer for journal of Intelligent & Fuzzy Systems, 2020.
- Scientific Reviewer in the International Conference on Electronics, Computers and Artificial Intelligence, 2020.
- Scientific Reviewer in the international scientific committee of the international workshop on Systems Safety and Security (IWSSS), 2017-present.
- Scientific Reviewer for journal IET Cyber-Physical Systems: Theory & Application, 2018.
- Scientific Reviewer for IEEE Network Magazine, 2018.
- Member of Iowa Section IEEE Control Systems Society Technical Chapter, 2016-present.
- Co-editor of the book Recent Advances in Systems Safety & Security, Springer, 2020.
- Organizing Committee Member/Session Co-Chair on “Emergent Methods, Techniques and Tools for Cyber-Security (EMTTCS)” for the International Conference on Control, Decision and Information Technologies (CODIT'20), Prague, Czech Republic, June 29 - July 2, 2020.
- Participated in a workshop on "Proposal Writing for H2020 EU Funding Opportunities", Amman 17-19 January 2017.
- S2ERC (NSF's Research Center) meetings in Fall 2014, Spring 2015, Fall 2015, Spring 2016, Summer 2016.
- Poster Presentation in “4th Midwest Workshop on Control and Game Theory”, Iowa State University, Ames, Iowa, (Apr. 25-26 2015).
- Graduate Seminar and graduate poster on Fall 2015.

Prizes:

- Bronze Medal, EUROINVENT BOOK SALON, 12 Edition of European Exhibition of Creativity and Innovation 2020, IASI-Romania.
- Nomination to the Final Assessment stage for Abdul Hameed Shoman Arab Researchers Award 2020.
- Best paper award according to the paper contents and presentation on-site in the International Conference on New Energy and Environmental Engineering ICNEE 2018.
- Best Project Poster Award, Open day of Faculty of Applied technical sciences, German Jordanian University, 2018.
- Invitation to join the Iowa State University Chapter of The Honor Society of Phi Kappa Phi, In recognition of hard work and superior scholarship, 2015.
- A recognition letter for achieving **the 10th place** among the country for the Jordanian Universities Achievements Test, 2008.