Curriculum Vitae

Ayman Z. Faza

Contact Information

Electrical Engineering Department
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Education

8/2007–12/2010 PhD in Computer Engineering
Missouri University of Science and Technology (Missouri S&T), Rolla, MO, USA
Research Area: Dependability Modeling for Critical Infrastructures
Advisors: Dr. Sahra Sedigh Sarvestani and Dr. Bruce McMillin
Dissertation: *A Case Study in Quantitative Analysis of Cyber-Physical Systems: Reliability of the Smart Grid*
Graduation date: Dec. 2010
GPA: 4.00

8/2005–05/2007 M.Sc. in Computer Engineering
University of Missouri - Rolla (now Missouri S&T), Rolla, MO, USA
Thesis: *Reliability Modeling for the Advanced Electric Power Grid*
Advisor: Dr. Sahra Sedigh Sarvestani
Graduation date: May 2007
GPA: 4.00

10/1999–9/2003 B.Sc. in Electrical Engineering
University of Jordan, Amman, Jordan
Senior Project: Using GSM Tele-Services for Detection of Heart Abnormalities
GPA: 3.72

Research Interests

Power Systems, Power Systems Planning and Operation, Reliability Modeling, Smart Grids, Renewable Energy Systems, Energy Markets

Administrative Experience

9/2025–present Vice Dean, King Abdullah II School of Engineering
Princess Sumaya University of Technology, Amman, Jordan

Responsibilities as Vice Dean:

In addition to working directly with the Dean of Engineering to ensure proper leadership and operation of the school of engineering, I chair several school level committees, including:

- The Quality Assurance Committee
- The Scientific Research Committee
- The Student Disciplinary Committee
- The Student Affairs Committee

9/2023–9/2025 Department Head, Electrical Engineering Department
Princess Sumaya University of Technology, Amman, Jordan

9/2017–9/2020 Department Head, Electrical Engineering Department
Princess Sumaya University of Technology, Amman, Jordan

Responsibilities as Department Head: I oversaw the operation of the following programs

- The BSc. in Electronics Engineering Program
- The BSc. in Electrical Power and Energy Engineering Program
- The MSc. in Electrical Engineering Program.
- The MSc. in Power Engineering and Sustainable Energy

I was also the program coordinator for the Electrical Power and Energy Engineering program for the ABET accreditation for the 2018/2019 cycle, and the program coordinator for the Electronics Engineering program for the ABET accreditation for the 2024/2025 cycle.

Additional responsibilities include:

- Managing the day-to-day activities of the department
- Setting course schedule and distributing faculty load
- Coordinating the work for ABET accreditation for undergraduate programs
- Chairing department meetings
- Representing the department in higher councils
- Hiring new faculty
- Revising course plans and content

Academic Experience

10/2025–present Professor

Princess Sumaya University of Technology, Amman, Jordan
Electrical Engineering Department

8/2019–10/2025 Associate Professor

Princess Sumaya University of Technology, Amman, Jordan
Electrical Engineering Department

6/2012–8/2019 Assistant Professor

Princess Sumaya University of Technology, Amman, Jordan
Electrical Engineering Department

Responsibilities: I teach several undergraduate and graduate courses in the areas of Electrical Engineering (mainly in Power and Energy Engineering), and I am conducting research in the areas of Power Systems, Renewable Energy, and Smart Grids.

Courses taught:
Circuits Analysis 1
Circuits Analysis 2
Electronics I
Power Systems Analysis
Power Systems and Electrical Machines
Renewable Energy Systems
Power Systems Economics
Power Systems Planning, Operation, and Control
Technical Writing for Engineering and IT students
Optimal Power Systems (Graduate Course)
FACTS Devices and Applications (Graduate Course)
Seminar & Research Methodology (Graduate Course)

3/2014–7/2017 Online Course Instructor
Edraak - The Queen Rania Foundation, Amman, Jordan
Responsibilities: Edraak is the first Arabic based online course platform, in which several university-level online courses are offered free of charge, for Arabic speaking students.
I was the course leader for the course *Circuits and Electronics* in which I was responsible for running the course during the period from May 2014 to July 2014. My responsibilities included presenting the course in Arabic language, following up with the students' questions and technical issues, preparing the exams, and evaluating the students' performance. The course was offered again in March 2015.

In addition, in January and April of 2017, respectively, I was the course leader, and presenter for the course *Circuits Analysis 1 and Circuits Analysis 2*, which was fully implemented in Arabic language. For this course, in addition to the responsibilities of running the course, I prepared and presented all the video lectures and relevant material.

6/2013–9/2013 Postdoctoral Fellow
La Sapienza University of Rome, Rome, Italy
DIAEE - Astronautics, Electrical and Energetics Engineering Dept.

7/2014–10/2014 Postdoctoral Fellow
La Sapienza University of Rome, Rome, Italy
DIAEE - Astronautics, Electrical and Energetics Engineering Dept.

Responsibilities: During the Summer semesters of 2013 and 2014, I worked on developing a communication framework for a local Italian distribution system operator, as part of their expansion towards smart metering infrastructure. I also worked on modeling the behavior of submarine transmission line systems.

1/2012–5/2012 Lecturer
Missouri S&T, Missouri, USA
Department of Electrical and Computer Engineering
Responsibilities: I had the full responsibility for instruction and evaluation of one section (25 students) of the undergraduate course *Introduction to Electronic Devices (EE 121)*, and one section of the undergraduate course *Senior Project (EE/CpE 392)*. In the *Senior Project* class, I was responsible for guiding senior students through their senior design projects in their last semester of college.

1/2011–12/2011 Postdoctoral Fellow - Acoustics and Audio Signal Processing
Missouri S&T, Missouri, USA
Department of Electrical and Computer Engineering
Responsibilities: During my time as a postdoctoral fellow, I was the lead researcher on an Immersive Audio Environment (IAE) project in our research group. In this project, I worked on the hardware and software development of the system, and I designed and implemented experiments to validate the system and evaluate its performance. This includes the design of auditory tests for the system, in addition to visual validation using tracking infra-red cameras. In addition to my work on the IAE project, I also worked on the design, development, and performance evaluation of algorithms for adaptive filtering, in the context of echo cancellation.

8/2005–12/2010 Graduate Research Assistant
Missouri S&T
Department of Electrical and Computer Engineering
Responsibilities: My research was concerned with modeling the dependability of critical infrastructures, such as the *Smart Grid*. This included mathematical modeling of reliability for complex systems with interdependent components, in addition to simulation of failures and analyzing their effects on the

operation of the entire system. This project required expertise in several areas of research; including, power systems analysis, reliability and security, and algorithms.

8/2006–12/2010 Several Graduate Teaching Assistant and Graduate Instructor Positions Missouri S&T
Department of Electrical and Computer Engineering
Responsibilities: During my graduate studies, I was responsible for the teaching and evaluation for several undergraduate lecture and laboratory courses. The courses that I taught during this period are:

Circuits Analysis Lab 1
Circuits Analysis
Introduction to Computer Engineering
Principles of Computer Architecture

10/2003–7/2005 Teaching and Research Assistant
University of Jordan, Amman, Jordan
Department of Computer Engineering
I taught 6 sections (20 students each) of the undergraduate laboratory course *Computer Design Lab (CpE439).* The Laboratory provides a set of experiments that develop a basic microprocessor unit using the Verilog HDL Language. I also taught 2 sections (15 students each) of the undergraduate laboratory course *Computer Organization Lab (CpE219).* The laboratory provides a set of experiments that design hardware for digital circuits using MultiSim.

6/2003–8/2003 Intern
Zain-Jordan Mobile Telephone Services, Amman, Jordan
I performed field tests for mobile network signal strength and carried out repairs on faulty base stations.

Honors and Awards

6/2013–10/2014 Erasmus Mundus Postdoctoral Scholarship at La Sapienza University of Rome, (Expenses paid by the European Union)

9/2009 Best Paper Award, The International Conference on Computer Safety, Reliability and Security (SAFECOMP'09)

8/2009 Student Travel Grant for the International Computer Software and Applications Software (COMPSAC'09), Seattle, WA

1/2008–12/2008 National University Transportation Center (NUTC) Fellowship, US Department of Transportation. (Full tuition, in addition to a monthly stipend)

9/2006 Best Student Paper Award, (COMPSAC'06)

8/2005–7/2007 Fulbright Foreign Student Program Fellowship, US Department of State. (Full tuition, in addition to a monthly stipend)

Publications

Journal Papers

[1] **Ayman Faza**. Estimation of system-level reliability functions for the power grid using probabilistic modeling and monte carlo simulation. *IEEE Access*, 13:71388 – 71407, 2025.

[2] Faris Alsalem and **Ayman Faza**. Static var compensator control using phasor measurement unit feedback signals for voltage stability improvement in power systems. *Energy Science & Engineering*, 2025.

[3] Rawan Abu Zeitawyeh and **Ayman Faza**. Optimal reactive power planning using facts devices for voltage stability enhancement in power transmission systems. *Energy Science & Engineering*, 13(6):2720–2756, 2025.

[4] **Ayman Faza**, Amjed Al-Mousa, and Rajaa Alqudah. Optimal PMU placement for fault classification and localization using enhanced feature selection in machine learning algorithms. *International Journal of Energy Research*, 2024, April 2024.

[5] Rajaa Alqudah, Amjed Al-Mousa, and **Ayman Faza**. Probabilistic modeling and simulation of drivers' behavior using fuzzy-based decision-making on a highway system. *Journal of Intelligent & Fuzzy Systems*, 46(4), April 2024.

[6] Najeh Alsalhi, **Ayman Faza**, Abdallah Qusef, Aras Al-Dawoodi, and Eman Ahmad Shudayfat. A case study of Princess Sumaya University for Technology (PSUT) engineering students' perceptions of utilizing simulation software via online learning. *International Journal of Engineering Pedagogy (iJEP)*, 14(1):96–111, January 2024.

[7] Nadine Al-Khateeb and **Ayman Faza**. Reliability evaluation and improvement of power transmission systems using series compensation. *International Review of Electrical Engineering*, 18(6), December 2023.

[8] Mohammad Abu Hashya and **Ayman Faza**. Stability improvement of power systems using shunt compensation. *International Review of Electrical Engineering*, 18(6), December 2023.

[9] Mohammad Mahmoud and **Ayman Faza**. Reliability improvement of power systems using shunt reactive compensation and distributed generation. *International Journal of Applied Power Engineering (IJAPE)*, 12(3):277–292, September 2023.

[10] Amjed Al-Mousa, Rajaa Alqudah, and **Ayman Faza**. Simtoll: A highway toll, lane selection, and traffic modeling dataset. *International Journal of Intelligent Transportation Systems Research*, July 2023.

[11] **Ayman Faza** and Amjed Al-Mousa. PSO-based optimization toward intelligent dynamic pricing schemes parameterization. *Sustainable Cities and Society*, 51, November 2019.

[12] Amjed Al-Mousa and **Ayman Faza**. A fuzzy-based customer response prediction model for a day-ahead dynamic pricing system. *Sustainable Cities and Society*, 44:265–274, January 2019.

[13] **Ayman Faza**. A probabilistic model for estimating the effects of photovoltaic sources on the power systems reliability. *Reliability Engineering and System Safety*, 171:67–77, March 2018.

[14] Fadi AlAlamat and **Ayman Faza**. Distributed pv hosting capacity estimation and improvement: 33kv distribution system case study. *Jordan Journal of Electrical Engineering*, 3(4):224–234, December 2017.

[15] **Ayman Faza**, Majd Batarseh, and Wejdan Abu-Elhaija. Upgrading power and energy engineering curricula in jordanian universities: A case study at psut. *The International Journal of Electrical Engineering Education*, 54(1):57–81, January 2017.

[16] Pratik Shah, **Ayman Faza**, Raghavendra Nimmala, Steven Grant, William Chapin, and Robert Montgomery. The immersive audio environment - implementation, subjective tests and results. *International Journal of Multimedia Technology*, 3(1):18–26, March 2013.

Refereed Conference Papers

[1] Faris Alsalem and **Ayman Faza**. The effects of single vs multiple voltage feedback signals & reporting rates in the control of static var compensators for voltage stability enhancement (accepted). In *IEEE Kiel PowerTech Conference*, June 2025.

[2] Abdulghani Aljundi and Mustafa Hajjat and **Ayman Faza**. Design of a single-line-to-ground fault detection and location system using phasor measurement units. In *Proceedings of the 2021 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT)*, November 2021.

[3] **Ayman Faza** and Amjed AlMousa. An analysis of profits and savings in generation cost for different dynamic pricing schemes. In *Proceedings of the 2021 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT)*, November 2021.

[4] **Ayman Faza**. Improving power system reliability using distributed wind generation. In *Proceedings of the IEEE Southeastcon Conference, Raleigh, NC, USA*, March 2020.

[5] Fares S. El-Faouri, Munther Sharaiha, Daoud Bargouth, and **Ayman Faza**. A smart street lighting system using solar energy. In *Proceedings of the IEEE PES Innovative Smart Grid Technologies Europe (ISGT Europe), Ljubljana, Slovenia*, 2016.

[6] S. Lauria, M. Maccioni, M. Schembari, A. Codino, and **Ayman Faza**. Optimal power flow application to ehvac interconnections for gw-sized offshore wind farms. In *Proceedings of the 16th International Conference on Environment and Electrical Engineering (EEEIC'16), Florence, Italy*, 2016.

[7] **Ayman Faza**. Analysis of the effects of distributed generation sources on power grid reliability. In *Proceedings of the 4th International Conference on Electric Power and Energy Conversion Systems (EPECS'15), Sharjah, UAE*, 2015.

[8] Mageda El-Moubarak, Mahmoud Hassan, and **Ayman Faza**. Performance of three islanding detection methods for grid-tied multi-inverters. In *Proceedings of the IEEE 15th*

International Conference on Environment and Electrical Engineering (EEEIC'15), Rome, Italy, June 2015.

[9] Ibrahem Totonchi, Hussain Al Akash, Abdelhadi Al Akash, and **Ayman Faza**. Sensitivity analysis for the IEEE 30 bus system using load-flow studies. In *Proceedings of the 3rd International Conference on Electric Power and Energy Conversion Systems (EPECS'13), Istanbul, Turkey*, 2013.

[10] **Ayman Faza**, Steven Grant, and Jacob Benesty. Adaptive regularization in frequency domain nlms filters. In *Proceedings of the 20th European Signal Processing Conference (EUSIPCO'12)*, pages 2625–2628, 2012.

[11] Pratik Shah, **Ayman Faza**, Raghavendra Nimmala, Steven Grant, William Chapin, and Robert Montgomery. On infrared tracking, tests, and results in the immersive audio environment. In *Proceedings of the IEEE International Conference on Multimedia and Expo (ICME2012)*, 2012.

[12] Pratik Shah, **Ayman Faza**, Raghavendra Nimmala, Steven Grant, and William Chapin. The immersive audio environment - implementation, subjective tests and results. In *The 17th International Conference on Auditory Displays (ICAD'11)*, June 2011.

[13] **Ayman Faza**, Sahra Sedigh, and Bruce McMillin. Integrated cyber-physical fault injection for reliability analysis of the smart grid. In *Proc. of the Int'l Conf. on Computer Safety, Reliability and Security (SAFECOMP '10)*, 2010.

[14] **Ayman Faza**, Sahra Sedigh, and Bruce McMillin. Reliability modeling for the advanced electric power grid: A proposal for doctoral research. In *Proc. of the 33rd Annual Int'l Computer Software and Applications Conf. (COMPSAC '09)*, pages 672–675, July 2009.

[15] **Ayman Faza**, Sahra Sedigh, and Bruce McMillin. Reliability analysis for the power grid; from cyber control and communication to physical manifestations of failure. In *The Int'l Conf. on Computer Safety, Reliability and Security (SAFECOMP'09)* **(Winner of Best Paper Award)**, pages 257–269, Sept. 2009.

[16] **Ayman Faza**, Sahra Sedigh, and Bruce McMillin. The advanced electric power grid: Complexity reduction techniques for reliability modeling. In *Proc. of the Int'l Conf. on Computer Safety, Reliability and Security (SAFECOMP'08)*, pages 429–439, Sept. 2008.

[17] **Ayman Faza**, Sahra Sedigh, and Bruce McMillin. Reliability modeling for the advanced electric power grid. In *Proc. of the Int'l Conf. on Computer Safety, Reliability and Security (SAFECOMP'07)*, pages 370–383, Sept. 2007.

[18] **Ayman Faza** and Sahra Sedigh. General purpose framework for wireless sensor network applications. In *Proc. of the 30th Annual Int'l Computer Software and Applications Conf. (COMPSAC '06)***(Winner of Best Student Paper Award)**, pages 356–358, Sept. 2006.

Technical Reports

[1] **Ayman Faza**, Pratik Shah, Steven Grant, and Robert Montgomery. Validation of training enhancement in an immersive audio environment. Technical Report LWI-101-128, Missouri University of Science and Technology, 2011.

[2] Pratik Shah, Steven Grant, William Chapin, Raghavendra Nimmala, **Ayman Faza**, and Raghavendra Raavikumar. Audio immersion for accessible and realistic training to enhance human performance in operational environments. Technical Report 191-078, Missouri University of Science and Technology, 2010.

Funded Projects

PSUT Deanship of Graduate Studies & Scientific Researcj, *"Detection and Classification of Power System Disturbances using Machine Learning Techniques*, JoD 4050 (USD 5700), Dec. 2023

King Abdullah Fund for Development (KAFD), *"Design and implementation of a Power Load Bank with Data Logging Capabilities - Phase I"*, JoD 5000 (USD 7000), Dec. 2016

King Abdullah Fund for Development (KAFD), *"Design and implementation of a Power Load Bank with Data Logging Capabilities - Phase II"*, JoD 3500 (USD 5000), Dec. 2017

MS Theses supervised

Faris ALSalem
Thesis: SVC Control Using PMU Feedback Signals For Voltage Stability Improvement In Power Systems, 2024

Rawan Abu Zeitawyeh
Thesis: Optimal Reactive Power Planning using FACTS Devices for Voltage Stability Enhancement in Power Transmission Systems, 2024

Ata AlQenneh
Thesis: Performance Comparison between UPFC & a Coordinated Operation of Separated STATCOM and SSSC for Stability Improvement, 2023

Yousef Aladem
Thesis: Methods For Mitigating The Effects Of Intermittencies In Renewable Energy On System Voltage, 2023

Mohammad Abu Hashya
Thesis: Stability Improvement of Power Systems Using Shunt Compensation, 2022

Nadine Al-Khateeb
Thesis: Reliability Evaluation and Improvement of Power Transmission Systems using Series Compensation, 2022

Yazan Yassin
Thesis: Optimal Operation of Power Systems Using FACTS Devices, 2022

Amal Hussein
Thesis: SVC-based voltage stability enhancement using an ANN controller, 2021

Lubna Mahasneh
Thesis: Reliability Assessment, Improvement, and Optimization of Power Systems in the Presence of Renewable Energy Sources, 2021

Mohammad Mahmoud
Thesis: Reliability Improvement of Power Systems Using FACTS Devices and Distributed Generation, 2020

Mageda El-Moubarak
Thesis: Islanding Detection Methods for Grid-Tied Inverters, 2014

Professional Service and Affiliations

Faculty advisor or the Association of Energy Engineers (AEE) chapter at PSUT

Member of several academic committees at Princess Sumaya Unversity including:

- School of Engineering Council
- School of Engineering ABET Committee & Program Coordinator for the Electrical Power and Energy Engineering Program
- Electrical Engineering Department Graduate Studies Committee
- Engineering Industrial ABET Advisory Committee
- PSUT Graduate Studies Council

Member of the Scientific Committee for the 2015 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT)

Member of the University Council at Princess Sumaya University for Technology PSUT (2012-2013)

Publicity Co-chair for the 12th IEEE International High Assurance Systems Engineering Symposium (HASE 2010)

Student volunteer for the 48th annual IEEE Global Telecommunications Conference (GLOBECOM 2005)

Professional Affiliations

- Member of IEEE since 2005 (Senior Member since 2019).
- Member of the Engineering Honor Society Eta Kappa Nu since 2005.

Peer Reviewer for Journals and Conferences

- Reliability Engineering and System Safety - Elsevier

- Sustainable Cities and Society - Elsevier
- European Signal Processing Conference (EUSIPCO 2012)
- International Conference on Computers and Their Applications (CATA 2012)
- International High Assurance Systems Engineering Symposium (HASE 2010)
- International Computer Software and Applications Conference (COMPSAC 2006, 2007, 2008, 2009, 2010, 2013)
- IEEE Consumer Communication and Networking Conference (CCNC 2009)
- Second IEEE Conference on Secure System Integration and Reliability Improvement (SSIRI 2008)
- Fourth International Workshop on Wireless Ad hoc and Sensor Networks (WWASN 2007)
- Journal of Zhejiang University - Science A
- 3rd International Conference on Mobile Ad-hoc and Sensor Networks (MSN 2007)

Languages

Arabic	*Native - fluent*
English	*Fluent*
Macedonian	*Second native: reading and speaking*
French	*Basic reading, writing and speaking*

References

Available upon request.