Prof. Dr. Eng. Anas N. Al-Rabadi

Professor of Computer and Electrical Engineering
First Professor of Computer Engineering at The University of Jordan

E-mail: alrabadi@yahoo.com
Mobile: + 962 79 644 5364, +962 79 560 9193

Education

- Ph.D. in Electrical and Computer Engineering from Portland State University – USA in Fall 2002 in Advanced Logic Synthesis and Spectral Methods for Computer-Aided Design, Optimization Methods of Binary and Multiple-Valued Reversible Circuits and Systems, and Quantum Computing.
- M.Sc. in Electrical and Computer Engineering from Portland State University – USA in Winter 1998 in Control Systems Design and Power Electronic Systems Design.
- B.Sc. in Electrical Engineering from Jordan University of Science and Technology in Spring 1995 in Communication Systems Design and Electronic Systems Design.

Positions and Appointments

- Isra University: Visiting Professor in the Department of Renewable Energy Engineering, **Dean of the Faculty of Engineering, and Chairman of the Department of Renewable Energy Engineering,** 2019 – 2020.
- Philadelphia University: Visiting Professor in the Electrical Engineering Department, Faculty of Engineering, 2015 – 2016.
- The University of Jordan: **Exceptional Promotion**, Professor in the Computer Engineering Department, Faculty of Engineering & Technology, 2012 – Present.
- The University of Jordan: Associate Professor in the Computer Engineering Department, Faculty of Engineering & Technology, 2007 – 2012.
- The University of Jordan: Assistant Professor in the Computer Engineering Department, Faculty of Engineering & Technology, 2004 – 2007.
- **Director – JU Outreach Consultation Unit**, 2012.
- **Assistant Dean for Computer and IT Affairs, JU Faculty of Graduate Studies**, 2006.
- **Head of the JU Computer Engineering Department**, JU School of Engineering, 2005.

Editorial

- Journal of Universal Computer Science, **Graz University of Technology**, 2008 – Present.
- Jordan Journal of Electrical Engineering, **Tafila Technical University**, 2014 – 2021.
- Facta Universitatis – Series Electronics and Energetics, **University of Nis**, 2009 – 2014.
- Journal of Computers and Electrical Engineering, **Elsevier**, 2009 – 2013.
- Journal of Engineering and Computer Innovations, **Academic Journals**, 2009 – Present.
- International Journal of Electronics and Computers, **Serials Publications**, 2008 – Present.
- Journal of Electrical and Electronics Engineering Research, **Academic Journals**, 2009 – Present.

Research Interests and Publications

Computer Architecture, Memory Design, Computer-Aided Design, Advanced Logic Synthesis, Parallel Computing, Decision Diagrams, Systolic Array Architectures, Reversible Logic, Quantum Computation, Multiple-Valued Logic, Spectral Methods, Decomposition Methods, Residue Arithmetic, Computer Arithmetic, Cube Calculus, 3D Lattice Circuits, Fast Transforms, Galois Logic, GFSOP Minimization, Testing and Design for Test, Neural Networks, Genetic Algorithms, Fuzzy Logic, Cellular Automata, Soft Computing, Heuristics, Reconstructability Analysis, Artificial Intelligence, Machine Learning, Data Mining, Artificial Life, Signal Processing, Image and Video Processing, Pattern Recognition, Field Electron Emission, Low-Power VLSI Circuit Design, Field Programmable Gate Arrays, Application-Specific IC Design, Carbon Nanotubes, Nanotechnology, Intelligent Robotics, Intelligent Control, Linear Matrix Inequality, Order Model Reduction, Switching Mode Power Supplies, Error-Control Coding, Viterbi Algorithms, Petri Nets, Optical Computing, Game Theory, Group Theory, Cryptography, Chaotic Dynamics, Fractals, Fractional Calculus, Gender Studies, Philosophy.

Patents

P1. A. N. Al-Rabadi, *Carbon NanoTube (CNT) Multiplexers, Circuits, and Actuators*, **United States Patent and Trademark Office (USPTO)**, Patent No. US 7,508,039 B2, 24 March 2009.

Publications

▪ *Ph.D. Dissertation*

Anas N. Al-Rabadi, *Novel Methods for Reversible Logic Synthesis and their Application to Quantum Computing*, **Electrical and Computer Engineering Department**, Portland State University, USA, Fall 2002.

▪ *M.Sc. Thesis*

Anas N. Al-Rabadi, *An Approach to Exact Modeling of the PWM Switch*, **Electrical and Computer Engineering Department**, Portland State University, USA, Winter 1998.

▪ *Books*

B2. Anas N. Al-Rabadi, *Parallel Computing Using Reversible Quantum Systolic Networks and Their Super-Fast Array Entanglement*, **Nova Science Publishers**, New York, 2010.
B1. Anas N. Al-Rabadi, *Reversible Logic Synthesis: From Fundamentals to Quantum Computing*, **Springer-Verlag**, New York, First Edition, 2004, (427 pages, 213 Figures, and hardcover), ISBN: 3-540-00935-3. (This book is the first comprehensive graduate-level book and the first published title on the topic of Reversible Logic Synthesis.)

▪ *Book Chapters*

BC10. A. N. Al-Rabadi, "High-Performance Reversible and Quantum Systolic Parallel Processing, Part I: Two-Valued Implementations," *Nova Science Publishers*, In: New Developments in Computer Research, Editors: Nikos E. Mastorakis, New York, U.S.A., 2012.
BC9. A. N. Al-Rabadi, "High-Performance Reversible and Quantum Systolic Parallel Processing, Part II: Generalized Multiple-Valued Realizations," *Nova Science Publishers*, In: New Developments in Computer Research, Editors: Nikos E. Mastorakis, New York, U.S.A., 2012.

BC8. A. N. Al-Rabadi, "Robust Control Using LMI Transformation and Neural-Based Identification for Regulating Singularly-Perturbed Reduced Order Eigenvalue-Preserved Systems," *InTech Publishers*, In: Robust Control, 2011.

BC7. A. N. Al-Rabadi, "Global-Connection Quantum Entanglement and its Ultra High-Performance Computational Applications in the Reversible Quantum Systolic Systems," *Nova Science Publishers*, In: Quantum Entanglement, Editors: Annalynn M. Moran, New York, U.S.A., 2011.

BC6. A. N. Al-Rabadi, "Conservative Reversible Elementary Cellular Automata and their Quantum Computations," *InTech Publishers*, In: Cellular Automata, 2011.

BC5. A. N. Al-Rabadi, "Intelligent Control of Reduced-Order Closed Quantum Computation Systems Using Neural Estimation and LMI Transformation," *Springer-Verlag*, In: *Intelligent Control and Computer Engineering*, *Special Edition of the International MultiConference of Engineers and Computer Scientists* 2010, Editors: Xu Huang, Oscar Castillo, and Sio-Iong Ao, 2010.

BC4. A. N. Al-Rabadi, "Artificial Neural Identification and LMI Transformation for Model Reduction-Based Control of the Buck Switch-Mode Regulator," *American Institute of Physics (AIP)*, In: *IAENG Transactions on Engineering Technologies*, *Special Edition of the International MultiConference of Engineers and Computer Scientists* 2009, AIP Conference Proceedings 1174, Editors: Sio-Iong Ao, Alan Hoi-Shou Chan, Hideki Katagiri and Li Xu, Vol. 3, pp. 202 – 216, New York, U.S.A., 2009, ISBN: 978-0-7354-0713-8.

BC3. A. N. Al-Rabadi, "Reversible Error Correction in Decision Communication Within Quantum Game-Theoretic Bijectivity," *Nova Science Publishers*, In: *Game Theory*: *Strategies*, *Equilibria and Theorems*, Editors: Ingrid N. Haugen et al, Chapter 2, pp. 41 – 82, New York, U.S.A., 2008, ISBN: 978-1-60456-844-8.

BC2. A. N. Al-Rabadi, "Bijective Digital Error-Control Coding, Part I: The Reversible Viterbi Algorithm," *Springer-Verlag*, Book Series: Lecture Notes in Computer Science (LNCS), In: *Advanced Intelligent Computing Theories and Applications with Aspects of Theoretical and Methodological Issues*, Editors: D.-S. Huang et al., Vol. 5226/2008, pp. 15-22, Berlin/Heidelberg, 2008, ISBN: 978-3-540-87440-9, ISSN: 0302-9743 (Print) 1611-3349 (Online).

BC1. A. N. Al-Rabadi, "Bijective Digital Error-Control Coding, Part II: Quantum Viterbi Circuit Synthesis," *Springer-Verlag*, Book Series: Lecture Notes in Computer Science (LNCS), In: *Advanced Intelligent Computing Theories and Applications with Aspects of Theoretical and Methodological Issues*, Editors: D.-S. Huang et al., Vol. 5226/2008, pp. 23-30, Berlin/Heidelberg, 2008, ISBN: 978-3-540-87440-9, ISSN: 0302-9743 (Print) 1611-3349 (Online).

▪ *Journal Papers*

J57. A. N. Al-Rabadi, "Concurrent Ternary Galois-based Computation using Nano-Apex Multiplexing Nibs of Regular Three-dimensional Networks, Part III: Layout Congestion-Free Effectuation," *International Journal of VLSI Design & Communication Systems*, Vol. 11, No. 6, pp. 21-37, December 2020.

J56. A. N. Al-Rabadi, "Concurrent Ternary Galois-based Computation using Nano-Apex Multiplexing Nibs of Regular Three-dimensional Networks, Part II: Formalistic Architecture Realization," *International Journal of VLSI Design & Communication Systems*, Vol. 11, No. 6, pp. 1-19, December 2020.

J55. A. N. Al-Rabadi, "Concurrent Ternary Galois-based Computation using Nano-Apex Multiplexing Nibs of Regular Three-dimensional Networks, Part I: Basics," *International Journal of VLSI Design & Communication Systems*, Vol. 11, No. 1, pp. 1-24, October 2020.

J54. A. N. Al-Rabadi, "Concurrency Within Ternary Galois Processing of Highly-Regular 3D Networks via Controlled Nano Switching," *International Journal of Computer Science & Information Technology*, Vol 12, No. 1, pp. 1-23, February 2020.

J53. R.F. Al-Rabadi and A.N. Al-Rabadi, "Inequality Analyses of Gendering Jordanian Citizenship and Legislative Rights," JIWS, Vol. 19, No. 6, pp. 359-373, 2018.

J52. A. N. Al-Rabadi, "An Extended Green-Sasao Hierarchy of Canonical Ternary Galois Forms and Universal Logic Modules," *Facta Universitatis – Electronics and Energetics*, Vol. 30, No. 1, pp. 49-66, 2017.

J51. A. N. Al-Rabadi, "Parallel Processing via Carbon Field Emission – Based Controlled Switching of Regular Bijective Nano Systolic Networks, Part I: Basics," *International Journal of Intelligent Computing and Cybernetics (IJICC)*, Emerald, United Kingdom, Vol. 9, No. 3, pp. 1-26, 2016.

J50. A. N. Al-Rabadi, "Parallel Processing via Carbon Field Emission – Based Controlled Switching of Regular Bijective Nano Systolic Networks, Part II: Architectural Implementation," *International Journal of Intelligent Computing and Cybernetics (IJICC)*, Emerald, United Kingdom, Vol. 9, No. 4, pp. 1-27, 2016.

J49. A.N. Al-Rabadi, M.S. Mousa, R.F. Al-Rabadi, S. Alnawasreh, B. Altrabsheh, and M.A. Madanat, "Parallel Bijective Processing of Regular Nano Systolic Grids via Carbon Field Emission Controlled-Switching," *International Journal of Computer Science & Information Technology (IJCSIT)*, AIRCC Publishing Corporation, Vol. 8, No. 3, pp. 77-101, 2016.

J48. A. N. Al-Rabadi, "Multi-Valued Galois Shannon-Davio Trees and their Complexity," *Facta Universitatis – Electronics and Energetics*, Vol. 29, No. 4, pp. 701-720, 2016.

J47. R.F. Al-Rabadi and A.N. Al-Rabadi, "A Comparative Study in the MENA Region within Gender Equality Perspective," JIWS, Vol. 18, No. 2, pp. 198-218, 2017.

J46. R.F. Al-Rabadi and A.N. Al-Rabadi, "Oriental Family Law: Case Study within a Gendered-Citizenship/Inequality Perspective: From Concept to Analytical Status," JIWS, Vol. 17, No. 4, pp. 245-262, 2016.

J45. M. S. Mousa, S. Alnawasreh, M. A. Madanat, and A. N. Al-Rabadi, "Investigating of the Field Emission Performance on Nano-Apex Carbon Fiber and Tungsten Tips," IOP Publishing, IOP Conference Series: Materials Science and Engineering, 92 (2015) 012022, doi: 10.1088/1757-899X/92/1/012022, 2015.

J44. S. Alnawasreh, M. S. Mousa, and A. N. Al-Rabadi, "Investigating the Effects of Sample Conditioning on Nano-Apex Carbon Fiber Tips for Efficient Field Electron Emission," Jordan Journal of Physics (JJP), Vol. 8, No. 1, pp. 51-57, 2015.

J43. M. A. Madanat, M. S. Mousa, A. N. Al-Rabadi, and A. Fischer, "Electron Microscopy-Based Performance Evaluation of Various Tungsten Field-Emitter Tips Apex Radii," Jordan Journal of Physics (JJP), Vol. 8, No. 1, pp. 43-49, 2015.

J42. I. M. Abu-Alshaikh, A. N. Al-Rabadi, and H. S. Alkhaldi, "Dynamic Response of Beam with Multi-Attached Oscillators and Moving Mass: Fractional Calculus Approach," Jordan Journal of Mechanical and Industrial Engineering (JJMIE), Vol. 8, No. 5, pp. 275 – 288, 2014.

J41. H. S. Alkhaldi, I. M. Abu-Alshaikh, and A. N. Al-Rabadi, "Vibration Control of Fractionally-Damped Beam Subjected to a Moving Vehicle and Attached to Fractionally-Damped Multiabsorbers," Advances in Mathematical Physics, Vol. 2013, Article ID 232160, 12 pages, Hindawi Publishing, U.S.A., 2013.

J40. A. N. Al-Rabadi, "Soft Computation Using Artificial Neural Estimation and Linear Matrix Inequality Transmutation for Controlling Singularly-Perturbed Closed Time-Independent Quantum Computation Systems, Part A: Basics and Approach," *Intelligent Automation and Soft Computing (IASC)*, AutoSoft, TSI Press, U.S.A., Vol. 18, No. 1, pp. 75-95, 2012.

J39. A. N. Al-Rabadi, "Soft Computation Using Artificial Neural Estimation and Linear Matrix Inequality Transmutation for Controlling Singularly-Perturbed Closed Time-Independent Quantum Computation Systems, Part B: Hierarchical Regulation Implementation," *Intelligent Automation and Soft Computing (IASC)*, AutoSoft, TSI Press, U.S.A., Vol. 18, No. 1, pp. 97-115, 2012.

J38. A. N. Al-Rabadi and M. S. Mousa, "Field Emission – Based Many-Valued Processing Using Carbon Nanotube Controlled Switches, Part 1: Fundamentals," *Facta Universitatis – Electronics and Energetics*, Vol. 25, No. 1, pp. 1 – 14, 2012.

J37. A. N. Al-Rabadi and M. S. Mousa, "Field Emission – Based Many-Valued Processing Using Carbon Nanotube Controlled Switches, Part 2: Architecture Effectuation," *Facta Universitatis – Electronics and Energetics*, Vol. 25, No. 1, pp. 15 – 30, 2012.

J36. A. N. Al-Rabadi and M. A. Barghash, "Fuzzy-PID Control via Genetic Algorithm-Based Settings for the Intelligent DC-to-DC Step-Down Buck Regulation," *IAENG Engineering Letters*, International Association of Engineers, Vol. 20, No. 2, pp. 176 – 195, 2012.

J35. A. N. Al-Rabadi, M. A. Barghash, and O. M. Abuzeid, "Intelligent Regulation Using Genetic Algorithm-Based Tuning for the Fuzzy Control of the Power Electronic Switching-Mode Buck Converter," *IAENG International Journal of Computer Science (IJCS)*, International Association of Engineers, Vol. 38, No. 4, 2011.

J34. M. A. Barghash, O. M. Abuzeid, A. N. Al-Rabadi, and A. M. Jaradat, **"**Petri Nets and Ladder Logic for Fully-Automating and Programmable Logic Control of Semi-Automatic Machines and Systems," *American Journal of Engineering and Applied Sciences*, Science Publications, Vol. 4, Issue 2**,** pp. 252-264, doi:10.3844/ajeassp.2011.252.264, 2011.

J33. O. M. Abuzeid, A. N. Al-Rabadi, and H. S. Alkhaldi, "Recent Advancements in Fractal Geometric-Based Nonlinear Time Series Solutions to the Micro-Quasistatic Thermoviscoelastic Creep for Rough Surfaces in Contact," *Mathematical Problems in Engineering (MPE)*, U.S.A., Volume 2011 (2011), Article ID 691270, 29 pages, doi:10.1155/2011/691270.

J32. A. N. Al-Rabadi and O. M.K. Alsmadi, "Supervised Neural Computing and LMI Optimization for Order Model Reduction-Based Control of the Buck Switching-Mode Power Supply," *Int. Journal of Systems Science (IJSS)*, Taylor & Francis, U.S.A., Vol. 42, Issue 1, pp. 91-106, 2011.

J31. A. N. Al-Rabadi, "High-Performance Reversible and Quantum Systolic Parallel Processing, Part I: Two-Valued Implementations," *International Journal of Computer Research (IJCR)*, Nova Science Publishers, U.S.A., Vol. 18, Issue 2, 2010.

J30. A. N. Al-Rabadi, "High-Performance Reversible and Quantum Systolic Parallel Processing, Part II: Generalized Multiple-Valued Realizations," *International Journal of Computer Research (IJCR)*, Nova Science Publishers, U.S.A., Vol. 18, Issue 2, 2010.

J29. A. N. Al-Rabadi, "Intelligent Control of Singularly-Perturbed Reduced Order Eigenvalue-Preserved Quantum Computing Systems via Artificial Neural Identification and Linear Matrix Inequality Transformation," *IAENG Int. Journal of Computer Science (IJCS)*, International Association of Engineers, Vol. 37, No. 3, 2010.

J28. O. M. AbuZeid, A. N. Al-Rabadi, and H. S. Al-Khaldi, "Fractal Geometry-Based Hypergeometric Time Series Solution to the Hereditary Thermal Creep Model for the Contact of Rough Surfaces Using the Kelvin-Voigt Medium," *Mathematical Problems in Engineering (MPE)*, Volume 2010, Article ID 652306, 22 pages, 2010.

J27. A. N. Al-Rabadi, "Reversible Viterbi Algorithm and its Closed-System Q-Domain Circuit Design and Computation," *Journal of Circuits, Systems, and Computers (JCSC)*, World Scientific, Singapore, Vol. 18, No. 8, pp. 1627 – 1649, 2009.

J26. A. N. Al-Rabadi, "New Dimensions in Non-Classical Neural Computing, Part II: Quantum, Nano, and Optical," *International Journal of Intelligent Computing and Cybernetics (IJICC)*, Emerald, United Kingdom, Vol. 2, No. 3, pp. 513 – 573, 2009.

J25. A. N. Al-Rabadi, "New Dimensions in Non-Classical Neural Computing, Part I: Three-Dimensionality, Invertibility, and Reversibility," *Int. Journal of Intelligent Computing and Cybernetics (IJICC)*, Emerald, United Kingdom, Vol. 2, No. 2, pp. 348 – 385, 2009.

J24. A. N. Al-Rabadi and O. M.K. Alsmadi, "Soft Computing Using Neural Estimation with LMI-Based Model Transformation for OMR-Based Control of the Buck Converter," *IAENG Engineering Letters*, International Association of Engineers, Vol. 17, No. 2, pp. 101 – 120, 2009.

J23. A. N. Al-Rabadi, "Closed-System Quantum Logic Network Implementation of the Viterbi Algorithm" *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 22, No. 1, pp. 1 - 33, 2009.

J22. A. N. Al-Rabadi, "Circuits for *m*-Valued Classical, Reversible and Quantum Optical Computing with Application to Regular Logic Design," *Int. Journal of Intelligent Computing and Cybernetics (IJICC)*, Emerald, United Kingdom, Vol. 2, No. 1, pp. 52 – 101, 2009.

J21. A. N. Al-Rabadi, "Game Reversibility in Decision Space and Error-Control Coding," *International Journal of Mathematics, Game Theory and Algebra*, Nova Science Publishers, New York, U.S.A., Vol. 18, No. 2, 2008.

J20. A. N. Al-Rabadi, "Neural Network Paradigm Reversibility," *Int. Journal of Electronics and Computers (IJEC)*, Serials Publications, Vol. 1, No. 1, pp. 89 – 101, 2008.

J19. A. N. Al-Rabadi, "Reversible Systolic Arrays: *m*-ary Bijective Single-Instruction Multiple-Data (SIMD) Architectures and their Quantum Circuits," *Journal of Circuits, Systems, and Computers (JCSC)*, World Scientific, Singapore, Vol. 17, No. 4, pp. 729 - 771, 2008.

J18. A. N. Al-Rabadi, "Modeling and Processing Using Reversible Conservative Noisy Elementary Cellular Automata Circuits and their *m*-ary Quantum Computing," *International Journal of Intelligent Automation and Soft Computing (IASC)*, AutoSoft Press, U.S.A., Vol. 14, No. 2, pp. 177 - 206, 2008.

J17. A. N. Al-Rabadi, "Quantum Logic Circuit Design of Many-Valued Galois Reversible Expansions and Fast Transforms," *Journal of Circuits, Systems, and Computers (JCSC)*, World Scientific, Singapore, Vol. 16, No. 5, pp. 641 - 671, 2007.

J16. A. N. Al-Rabadi, "Representations, Operations, and Applications of Switching Circuits in the Reversible and Quantum Spaces," *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 20, No. 3, pp. 507 – 539, 2007.

J15. A. N. Al-Rabadi, "Carbon Nano Tube (CNT) Multiplexers for Multiple-Valued Computing," *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 20, No. 2, pp. 175 - 186, 2007.

J14. A. N. Al-Rabadi, "Game-Theoretic Reversibility and *m*-Valued Quantum Computation," *Dirasat – Engineering Sciences*, Deanship of Academic Research (DAR), The University of Jordan (JU), Vol. 34, No. 1, pp. 93 - 105, 2007.

J13. A. N. Al-Rabadi, "Multiple-Level Circuit Solutions to the Circuit Non-Decomposability Problem of the Set-Theoretic Modified Reconstructability Analysis (MRA)," *International Journal of General Systems (IJGS)*, Taylor & Francis, U.S.A., Vol. 35, No. 2, pp. 169 - 189, 2006.

J12. A. N. Al-Rabadi, "Qudits Representations and Computations of *N*-Player Many-Valued Quantum Games," *Applied Mathematics and Computation (AMC)*, Elsevier, Vol. 175, No. 1, pp. 691 - 714, 2006.

J11. A. N. Al-Rabadi, "Three-Dimensional Lattice Logic Circuits, Part I: Fundamentals," *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 18, No. 1, pp. 1 - 13, 2005.

J10. A. N. Al-Rabadi, "Three-Dimensional Lattice Logic Circuits, Part II: Formal Methods," *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 18, No. 1, pp. 15 - 28, 2005.

J9. A. N. Al-Rabadi, "Three-Dimensional Lattice Logic Circuits, Part III: Solving 3D Volume Congestion Problem," *Facta Universitatis (FU) – Electronics and Energetics*, Vol. 18, No. 1, pp. 29 - 43, 2005.

J8. A. N. Al-Rabadi and M. Perkowski, "New Families of Reversible Expansions and their Regular Lattice Circuits," *Journal of Multiple-Valued Logic and Soft Computing (MVLSC)*, Old City Publishing, U.S.A., Vol. 11, No. 3-4, pp. 213 - 238, 2005.

J7. A. N. Al-Rabadi and M. Zwick, "Modified Reconstructability Analysis for Many-Valued Functions and Relations," *Kybernetes*, Emerald, United Kingdom, Vol. 33, No. 5/6, pp. 906 - 920, 2004.

J6. A. N. Al-Rabadi and M. Zwick, "Reversible Modified Reconstructability Analysis of Boolean Circuits and its Quantum Computation," *Kybernetes*, Emerald, United Kingdom, Vol. 33, No. 5/6, pp. 921 - 932, 2004.

J5. A. N. Al-Rabadi, M. Perkowski, and M. Zwick, "A Comparison of Modified Reconstructability Analysis and Ashenhurst-Curtis Decomposition of Boolean Functions," *Kybernetes*, Emerald, United Kingdom, Vol. 33, No. 5/6, pp. 933 - 947, 2004.

J4. A. N. Al-Rabadi and M. Zwick, "Enhancements to Crisp Possibilistic Reconstructability Analysis," *International Journal of General Systems (IJGS)*, Taylor & Francis, U.S.A., Vol. 33, No. 4, pp. 361 - 382, 2004.

J3. M. Perkowski, D. Foote, Q. Chen, A. N. Al-Rabadi, and L. Jozwiak, "Learning Hardware Using Multiple-Valued Logic, Part 1: Introduction and Approach," *IEEE Micro Magazine*, U.S.A., 22(3), pp. 41 - 51, May/June 2002.

J2. M. Perkowski, D. Foote, Q. Chen, A. N. Al-Rabadi, and L. Jozwiak, "Learning Hardware Using Multiple-Valued Logic, Part 2: Cube Calculus and Architecture," *IEEE Micro Magazine*, U.S.A., 22(3), pp. 52 - 61, May/June 2002.

J1. A. N. Al-Rabadi, L. Casperson, and M. Perkowski, "Multiple-Valued Quantum Logic," *Quantum Computers and Computing (QCC)*, Moscow State University and Russian Academy of Sciences, Institute of Computer Science, Russia, Vol. 3, No. 1, pp. 63 - 91, 2002.

▪ *Conference Papers*

C56. M. Mdanat, M. Mousa, A. N. Al-Rabadi, and A. Fischer, "Characterization of Tungsten Tips Employing Microscopy Techniques," The International Conference <<Humboldt Kolleg>>: Building International Networks for Enhancement of Research in Jordan, Book of Abstracts, Amman - Jordan, 3-5 April 2014.

C55. M. Mdanat, A. Fischer, A. N. Al-Rabadi, and M. Mousa, "Using FN Plots to Characterize Tungsten Microemitters," The International Conference <<Humboldt Kolleg>>: Building International Networks for Enhancement of Research in Jordan, Poster, Amman - Jordan, 3-5 April 2014.

C54. M. Mdanat, A. Fischer, A. N. Al-Rabadi, and M. Mousa, "Effects of Thermal Treatment and Relaxation Processes on Field electron Emission Characteristics," The International Conference <<Humboldt Kolleg>>: Building International Networks for Enhancement of Research in Jordan, Poster, Amman - Jordan, 3-5 April 2014.

C53. S. Al-Nawasreh, A. Fischer, A. N. Al-Rabadi, and M. S. Mousa, "Study of the Sample Conditioning Effects on the Carbon Fiber Tips," The International Conference <<Humboldt Kolleg>>: Building International Networks for Enhancement of Research in Jordan, Poster, Amman - Jordan, 3-5 April 2014.

C52. S. Alnawasreh, M. Mousa, A. N. Al-Rabadi, and A. Fischer, "Study of Sample Conditioning Effects on Carbon Fiber Tips," The International Conference <<Humboldt Kolleg>>: Building International Networks for Enhancement of Research in Jordan, Book of Abstracts, Amman - Jordan, 3-5 April 2014.

C51. R. F. Al-Rabadi and A. N. Al-Rabadi, "Gender-Based Empowerment: Endorsing Legislations to Support Equal Opportunities for Education in the Practice," Where Do We Go From Here? Perspectives on Equal Opportunity Policies at Egyption and German Universities, Cairo – Egypt, 1 – 3 November 2014.

C50. A. N. Al-Rabadi, "Gender Aspects in Curricula Development Within Jordanian Higher Education Institutions," International Summer School and Workshop on Gender in Teaching, El-Gouna, Egypt, 15 - 19 June 2014.

C49. A. N. Al-Rabadi, M. A. Barghash, and O. M. Abuzeid, "Fuzzy Regulation for the Intelligent Control of Switching-Mode Buck Power-Electronic Converter Using Genetic Algorithm-Based Tuning," *Proceedings of the International MultiConference of Engineers and Computer Scientists*, Hong Kong, Vol. II, 14 – 16 March 2012.

C48. I. Abu-Alshaikh, A. N. Al-Rabadi, and H. Alkhaldi, "Dynamic Response of a Beam with Absorber Exposed to a Running Force: Fractional Calculus Approach," *ASME International Mechanical Engineering Congress & Exposition (IMECE)*, Houston, Texas, U.S.A., 9-15 November 2012.

C47. H. Alkhaldi, I. Abu-Alshaikh, and A. N. Al-Rabadi, "Vibration of a Beam-Oscillator System Subjected to a Moving Vehicle: Fractional Derivative Approach," *ASME International Mechanical Engineering Congress & Exposition (IMECE)*, Houston, Texas, U.S.A., 9-15 November 2012.

C46. A. N. Al-Rabadi, "Recurrent Supervised Neural Computation and LMI Model Transformation for Order Reduction-Based Control of Linear Time-Independent Closed Quantum Computing Systems," *Proceedings of the International MultiConference of Engineers and Computer Scientists*, pp. 911-923, 2010.

C45. A. N. Al-Rabadi and M. S. Mousa, "Multiple-Valued Computing Using Field Emission - Based Carbon Nanotube Controlled Switching," *Proceedings of the International MultiConference of Engineers and Computer Scientists*, pp. 1176-1187, 2010.

C44. A. Fischer, M. S. Mousa, A. N. Al-Rabadi, R. G. Forbes, "Influence of Tip Curvature on Field Electron Emission Characteristics," *23rd International Vacuum Nanoelectronics Conference (IVNC)*, Palo Alto, California, U.S.A., p. 78, 26-30 July 2010.

C43. A. Fischer, M. S. Mousa, A. N. Al-Rabadi, R. G. Forbes, "Influence of Tip Curvature on Field Electron Emission Characteristics," *High-Field and Nanoscience Workshop (HFNS)*, Wroclaw, Poland, 26 – 27 May 2010.

C42. A. N. Al-Rabadi and O. M.K. Alsmadi, "Transformation Using Neural-Based Identification for Controlling Singularly-Perturbed Eigenvalue-Preserved Reduced Order Systems," *Proc. of the International MultiConference of Engineers and Computer Scientists*, pp. 1136-1147, 2009.

C41. A. N. Al-Rabadi and O. M.K. Alsmadi, "Model Reduction-Based Control of the Buck Converter Using Linear Matrix Inequality and Neural Networks," *Proceedings of the International MultiConference of Engineers and Computer Scientists*, pp. 1367-1377, 2009.

C40. A. N. Al-Rabadi, "Bijective Digital Error-Control Coding, Part I: The Reversible Viterbi Algorithm," *Proceedings of the International Conference on Intelligent Computing (ICIC)*, LNCS 5226, pp. 15-22, Shanghai, China, September 15-18, 2008.

C39. A. N. Al-Rabadi, "Bijective Digital Error-Control Coding, Part II: Quantum Viterbi Circuit Synthesis," *Proceedings of the International Conference on Intelligent Computing (ICIC)*, LNCS 5226, pp. 23-30, Shanghai, China, September 15-18, 2008.

C38. A. N. Al-Rabadi, "Reversible Systolic Arrays, Part I: Two-Valued Bijective Single-Instruction Multiple-Data (SIMD) Architectures and their Quantum Extensions," *CD Proceedings of the International Workshop on Spectral Methods and Multirate Signal Processing (SMMSP)*, Paper No. 1, pp. 1-12, Moscow, Russia, September 1 - 2, 2007.

C37. A. N. Al-Rabadi, "Reversible Systolic Arrays, Part II: *m*-ary Equipollent SIMD Circuits and their Quantum Realizations," *CD Proceedings of the International Workshop on Spectral Methods and Multirate Signal Processing (SMMSP)*, Paper No. 2, pp. 1-11, Moscow, Russia, September 1 - 2, 2007.

C36. A. N. Al-Rabadi, "*m*-Valued Quantum Representations and Operations of Elementary Cellular Automata," *CD Proceedings of the 11th International Symposium on Robotics and Applications (ISORA) in the World Automation Congress (WAC)*, Paper No. 33, pp. 1–9, Budapest, Hungary, July 2006.

C35. A. N. Al-Rabadi, "Three-Dimensional Inverted Threshold Logic Circuits," *Proceedings of the International Workshop on Spectral Methods and Multirate Signal Processing (SMMSP)*, pp. 67-73, Riga, Latvia, June 20-22, 2005.

C34. A. N. Al-Rabadi, "New Classes of Reversible Butterfly Diagrams and their Quantum Circuits," *Proceedings of the International Workshop on Spectral Methods and Multirate Signal   Processing (SMMSP)*, pp. 117-121, Riga, Latvia, June 20-22, 2005.

C33. A. N. Al-Rabadi, "New Classes of Kronecker-Based Reversible Decision Trees and their Group-Theoretic Representations," *Proceedings of the International Workshop on Spectral Methods and Multirate Signal Processing (SMMSP)*, pp. 233-243, Vienna, Austria, September 11-12, 2004.

C32. A. N. Al-Rabadi, "Spectral Techniques in the Reversible Logic Circuit Synthesis of Switching Functions," *Proceedings of the International Workshop on Spectral Methods and Multirate Signal Processing (SMMSP)*, pp. 271-279, Vienna, Austria, September 11-12, 2004.

C31. A. N. Al-Rabadi, "N-Player Many-Valued Quantum Games," *Proceedings of the International Conference on Game Theory and Mathematical Economics (GTME)*, Warsaw, Poland, September 6-10, 2004.

C30. A. N. Al-Rabadi and W. Feyerherm, "Game Theoretic Reversibility and Multiple-Valued Quantum Computation," *Proceedings of the Second World Congress of the Game Theory Society (GTS)*, Marseille, France, July 5-9, 2004.

C29. A. N. Al-Rabadi and W. Feyerherm, "Reversible Conservative Noisy Elementary Cellular Automata (ECA) Circuits and their Quantum Computation," *Proceedings of the IEEE/ACM International Workshop on Logic and Synthesis (IWLS)*, pp. 273-279, Temecula, California, June 2-4, 2004.

C28. A. N. Al-Rabadi, "Reversible Logic Neural Networks," *Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN)*, pp. 2677-2682, Budapest, Hungary, July 25-29, 2004.

C27. A. N. Al-Rabadi, "Reversible Fast Permutation Transforms for Quantum Circuit Synthesis," *Proceedings of the IEEE International Symposium on Multiple-Valued Logic (ISMVL)*, pp. 81-86, Toronto, Canada, May 19-22, 2004.

C26. A. N. Al-Rabadi, "Quantum Circuit Synthesis Using Classes of GF(3) Reversible Fast Spectral Transforms," *Proceedings of the IEEE International Symposium on Multiple-Valued Logic (ISMVL)*, pp. 87-93, Toronto, Canada, May 19-22, 2004.

C25. A. N. Al-Rabadi, "Carbon Nano Tube (CNT) Circuits," *Booklet of the Post-Binary Ultra Large Scale Integration (ULSI) Workshop*, pp. 44-49, Toronto, Canada, May 19, 2004.

C24. A. N. Al-Rabadi, "Multi-Output Multi-Dimensional Boolean Circuit Synthesis Using Variable-Augmented Modified Reconstructability Analysis," *Proceedings of the 7th World Multi- Conference on Systemics, Cybernetics, and Informatics (SCI)*, Volume VIII, pp. 97-104, Orlando, Florida, July 27-30, 2003.

C23. A. N. Al-Rabadi, "A Novel Multi-Level Multi-Output Galois Synthesis Using Multiple-Valued Modified Reconstructability Analysis," *Proceedings of the 7th World Multi-Conference on Systemics, Cybernetics, and Informatics (SCI)*, Volume VIII, pp. 105-110, Orlando, Florida, July 27-30, 2003.

C22. A. N. Al-Rabadi, "Synthesis of Memory/Look-Up-Table Array Using Multiple-Valued Quantum Computing," *Proceedings of the 7th World Multi-Conference on Systemics, Cybernetics, and Informatics (SCI)*, Volume XIII, pp. 367-371, Orlando, Florida, July 27-30, 2003.

C21. A. N. Al-Rabadi and G. G. Lendaris, "Artificial Neural Network Implementation Using Many-Valued Quantum Computing," *Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN)*, pp. 3112-3117, Jantzen Beach, Portland, Oregon, July 20-24, 2003.

C20. A. N. Al-Rabadi, "Modified Reconstructability Analysis to Implement a Novel Multi-Level Boolean Circuit Decomposition," *Proceedings of the IEEE/ACM International Workshop on Logic and Synthesis (IWLS)*, pp. 179-186, Laguna Beach, California, May 28-30, 2003.

C19. A. N. Al-Rabadi, "Iterative Symmetry Indices Decomposition for Ternary Logic Synthesis in Three-Dimensional Space," *Proceedings of the IEEE International Symposium on Multiple- Valued Logic (ISMVL)*, pp. 139-145, Tokyo, Japan, May 16-19, 2003.

C18. A. N. Al-Rabadi, "Reversible Logic Synthesis Using Iterative Symmetry Indices Decomposition," *Proc. of the International Symposium on Representations and Methodology of Future Computing Technology (RM)*, pp. 104-112, Trier, Germany, March 10-11, 2003.

C17. A. N. Al-Rabadi, "New Multiple-Valued Galois Field Sum-Of-Product Cascades and Lattices for Multiple-Valued Quantum Logic Synthesis," *Proceedings of the International Symposium on Representations and Methodology of Future Computing Technology (RM)*, pp. 171-182, Trier, Germany, March 10-11, 2003.

C16. M. Perkowski, A. N. Al-Rabadi, and P. Kerntopf, "Multiple-Valued Quantum Logic Synthesis," *Proceedings of the International Symposium on New Paradigms VLSI Computing*, pp. 41- 47, Sendai, Japan, December 12-14, 2002.

C15. A. N. Al-Rabadi, L. W. Casperson, M. Perkowski, and X. Song, "Canonical Representations for Two-Valued Quantum Computing," *Proceedings of the International Workshop on Boolean Problems (WBP)*, pp. 23-32, Freiberg, Germany, September 19-20, 2002.

C14. A. N. Al-Rabadi and L. W. Casperson, "Optical Realizations of Reversible Logic," *Proceedings of the IEEE/ACM International Workshop on Logic and Synthesis (IWLS)*, pp. 21-26, New Orleans, Louisiana, June 4-7, 2002.

C13. A. N. Al-Rabadi, "Symmetry as a Base for a New Decomposition of Boolean Logic," *Proceedings of the IEEE/ACM International Workshop on Logic and Synthesis (IWLS)*, pp. 273-278, New Orleans, Louisiana, June 4-7, 2002.

C12. A. N. Al-Rabadi, L. W. Casperson, M. Perkowski, and X. Song, "Multiple-Valued Quantum Logic," *Booklet of the Post-Binary Ultra Large Scale Integration (ULSI) Workshop*, pp. 35-45, Boston, Massachusetts, May 15, 2002.

C11. A. N. Al-Rabadi, M. Zwick, and M. Perkowski, "A Comparison of Enhanced Reconstructability Analysis and Ashenhurst-Curtis Decomposition of Boolean Functions," *Book of Abstracts of the 12th International World Organization for Systems and Cybernetics (WOSC) Congress and the 4th International Institute for General Systems Studies (IIGSS) Workshop*, Pittsburgh, Pennsylvania, p.12, March 24-26, 2002.

C10. A. N. Al-Rabadi and M. Zwick, "Modified Reconstructability Analysis for Many-Valued Logic Functions," *Book of Abstracts of the 12th International World Organization for Systems and Cybernetics (WOSC) Congress and the 4th International Institute for General Systems Studies (IIGSS) workshop*, Pittsburgh, Pennsylvania, p. 90, March 24-26, 2002.

C9. A. N. Al-Rabadi and M. Zwick, "Reversible Modified Reconstructability Analysis of Boolean Circuits and its Quantum Computation," *Book of Abstracts of the 12th International World Organization for Systems and Cybernetics (WOSC) Congress and the 4th International Institute for General Systems Studies (IIGSS) workshop*, Pittsburgh, Pennsylvania, p. 90, March 24-26, 2002.

C8. M. Perkowski, P. Kerntopf, A. Buller, M. Chrzanowska-Jeske, A. Mishchenko, X. Song, A. N. Al-Rabadi, L. Jozwiak, A. Coppola, and Bart Massey, "Regular Realization of Symmetric Functions using Reversible Logic," *Proceedings of Euro-Micro*, pp. 245-252, Warsaw, Poland, September 2001.

C7. A. N. Al-Rabadi and M. Perkowski, "Families of New Multi-Valued Reed-Muller-Based Spectral Transforms," *Proceedings of Reed-Muller Workshop*, pp. 226-241, Starkville, Mississippi, August 10-11, 2001.

C6. A. N. Al-Rabadi and M. Perkowski, "Shannon and Davio Sets of New Lattice Structures for Logic Synthesis in Three-Dimensional Space," *Proceedings of Reed-Muller Workshop*, pp. 165-184, Starkville, Mississippi, August 10-11, 2001.

C5. A. N. Al-Rabadi and M. Perkowski, "New Classes of Multi-Valued Reversible Decompositions for Three-Dimensional Layout," *Proceedings of Reed-Muller Workshop*, pp. 185-204, Starkville, Mississippi, August 10-11, 2001.

C4. M. Perkowski, L. Jozwiak, P. Kerntopf, A. Mishchenko, A. N. Al-Rabadi, A. Coppola, A. Buller, X.Song, M. Khan, S. Yanushkevich, V. Shmerko, and M. Chrzanowska-Jeske, "A General Decomposition for Reversible Logic," *Proceedings of Reed-Muller Workshop*, pp. 119-138, Starkville, Mississippi, August 10-11, 2001.

C3. M. Perkowski, P. Kerntopf, A. Buller, M. Chrzanowska-Jeske, A. Mishchenko, X. Song, A. N. Al-Rabadi, L. Jozwiak, and A. Coppola, "Regularity and Symmetry as a Base for Efficient Realization of Reversible Logic Circuits," *Proceedings of the IEEE/ACM International Workshop on Logic and Synthesis (IWLS)*, pp. 90-95, Lake Tahoe, California, June 12-15, 2001.

C2. A. N. Al-Rabadi and M. Perkowski, "Multiple-Valued Galois Field S/D Trees for GFSOP Minimization and their Complexity," *Proceedings of the IEEE International Symposium on Multiple-Valued Logic (ISMVL)*, pp. 159-166, Warsaw, Poland, May 22-24, 2001.

C1. M. Perkowski, A. N. Al-Rabadi, P. Kerntopf, A. Mishchenko, and M. Chrzanowska-Jeske, "Three-Dimensional Realization of Multiple-Valued Functions using Reversible Logic," *Booklet of the Post-Binary Ultra Large Scale Integration (ULSI) Workshop*, pp. 47-53, Warsaw, Poland, May 21, 2001.

- ### *Book Review*

BR1. Review of the following book: Lee Spector, *Automatic Quantum Computer Programming: A Genetic Programming Approach*, Kluwer Academic Publishers, 2004. This review is published in the *Computer Journal (CJ)* of the British Computer Society which is published by the Oxford University Press, 49(1): 129-130, 2006.

- ### *Seminars, Invited Talks and Tutorials*

S14. A. N. Al-Rabadi, "Engineering Book Publishing and Translation," *Invited talk given in the Faculty of Engineering and Technology at The University of Jordan*, March 29, 2006.

S13. A. N. Al-Rabadi, "Carbon NanoTube Circuits," *Invited talk given in the Oregon Nanoscience and Microtechnologies Institute (ONAMI) Meeting in Physics Department at PSU*, May 6, 2004.

S12. A. N. Al-Rabadi, "Designing Reversible Circuits as Means of Designing a Quantum Computer," *Invited talk given at Intel Corporation*, Ronler Acres Campus, Hillsboro, Oregon, January 15, 2004.

S11. A. N. Al-Rabadi, "New Directions in Computer Design and Advanced Logic Synthesis: Reversible Logic Synthesis and Quantum Computing," *Invited talk given in the School of Engineering at the University of Guelph*, Guelph, Canada, August 13, 2003.

S10. A. N. Al-Rabadi, "Reversible Logic Synthesis and Quantum Computing: Applications to Optical Computing and Quantum Neural Networks," *Invited talk given in the Electrical Engineering Department at the College of Staten Island (CSI)/City University of New York (CUNY)*, Staten Island, New York, April 28, 2003.

S9. A. N. Al-Rabadi, "New Techniques for Reversible Logic Synthesis and their Application to Quantum Computing," *Invited talk given in the Electrical and Computer Engineering Department at Worcester Polytechnic Institute (WPI)*, Worcester, Massachusetts, January 8, 2003.

S8. A. N. Al-Rabadi, "New Multi-Valued Bell-Einstein-Podolsky-Rosen Basis States, Generalized Quantum Inverters, and Quantum Butterflies," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, September 10, 2001.

S7. A. N. Al-Rabadi, "On the Characterization of Reversible Multi-Valued Galois Logic Primitives," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, August 29-30, 2001.

S6. A. N. Al-Rabadi, "Creating Benchmark Solutions for Reversible Logic Synthesis Programs," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, August 29-30, 2001.

S5. A. N. Al-Rabadi, "Synthesis and Canonical Representations for Binary and Multi-Valued Galois Field Quantum Logic," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, August 29-30, 2001.

S4. A. N. Al-Rabadi, "New Innovations in Logic Synthesis: Spectral Transforms, Reversible Decompositions, and Three-Dimensional Lattice Structures," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, August 7, 2001.

S3. A. N. Al-Rabadi, "The Philosophy of Al-Gazali," *Invited talk in Philosophy 410/510 Maimonides*, organized by the Oregon School of Judaic Studies at Portland State University, July 11, 2001.

S2. A. N. Al-Rabadi, "Reversible and Quantum Computing," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, May 25, 2001.

S1. A. N. Al-Rabadi, "New Three-Dimensional Lattice Structures," *Invited talk in Logic, Design, and Learning (LDL) Seminar*, Portland State University, March 2, 2001.

Graduate Programs Supervised

▪ *Master of Science*

M1. S. Abu Eisha, "Optimization of Managing Construction Project Activities via the Application of Genetic Algorithm," Isra University, 2019.

M2. S. S. Al-Nawasreh, "Carbon Nano Tips - Based Field Electron Emission Characterization for Low-Power High-Speed Multiplexing Applications," Mutah University, May 2014.

M3. M. A. Madanat, "Advanced Tip Shape Analysis for Tungsten Microemitters," Mutah University, May 2014.

List of Taught Courses and Labs (Classified by Content)

Computer Engineering Courses
- CPE 231 Digital Logic
- CPE 232, 335 Computer Organization
- CPE 233 Microcontrollers and Embedded Systems
- CPE 235, 331 Assembly Language and Microprocessors
- CPE 332 Microprocessor Systems Design
- CPE 333 Embedded Systems
- CPE 422 Computer Networks
- CPE 432 Computer Design
- CPE 434 Digital System Design
- CPE 521 Parallel and Distributed Systems
- CPE 524 Wireless Networks
- CPE 531 Wireless Mobile Computer Networks
- CPE 531 Selected Topics in Computer Engineering
- CPE 552 Advanced Topics in Machine Learning
- CPE 741 Distributed Systems (JU M.Sc. Course)
- CPE 721 Network Systems Design (JU M.Sc. Course)
- CPE 731 Advanced Computer Architecture (JU M.Sc. Course)

- CPE 733 Parallel Computers (JU M.Sc. Course)
- CPE 734 Advanced Parallel Processing (JU M.Sc. Course)
- CPE 750 Advanced Distributed Systems (JU M.Sc. Course)
- CPE 751 Advanced Topics in Networks and Computer Engineering (JU M.Sc. Course)
- ECE 589/689 Computer Networks (PSU M.Sc. Course)
- ECE 590/690 Digital Design using Hardware Description Languages (PSU M.Sc. Course)

Computer Science Courses

- CPE 341 Software Engineering and Ethics
- CPE 441 Software Engineering

Computational Intelligence / Soft Computing Courses

- CPE 443 Pattern Recognition
- CPE 451, 551 Neural Networks and Fuzzy Logic

Signal Processing Courses

- ECE 222 Signals and Systems (PSU Course)
- ECE 538/638 Advanced Statistical Signal Processing (PSU M.Sc. Course)
- ECE 610/568/668 Introductory Image and Video Processing (PSU M.Sc. Course)
- ECE 610/569/669 Advanced Image and Video Processing (PSU M.Sc. Course)

Electrical and Electronics Courses

- ELECTR 116 Digital Electronics Principles (Heald College Course)
- ECE 221 Electric Circuits (PSU Course)
- 610212 Circuits II (PU Course)
- 610213 Electromagnetics I (PU Course)
- 0408483 Power Electronics (IU Course)
- ECE 445/545 Power Electronic Systems Design I (M.Sc. Course)
- ECE 446/546 Power Electronic Systems Design II (M.Sc. Course)

Control Systems and Automation Courses

- ECE 223 Feedback and Control (PSU Course)
- 0408441 Control Systems (IU Course)
- ECE 478/578 Intelligent Robotics I (M.Sc. Course)
- ECE 479/579 Intelligent Robotics II (M.Sc. Course)

Future and Emerging Computing Technologies Courses

- PH 410/510 QC Quantum Computing (PSU Course)

JU University Courses

- 3400105 Campus Life and Ethics
- Campus Life Ethics and Skills

Graduation Project Courses

- CPE 598 Capstone Project I
- CPE 599 Capstone Project II

Computer Engineering Labs

- CPE 234 Digital Logic Laboratory
- CPE 239 Logic and Microcontrollers Laboratory
- CPE 334 Embedded Systems Laboratory
- CPE 337 Microprocessors Laboratory
- CPE 338 Microprocessor Systems Design Laboratory
- CPE 339 Assembly Language Laboratory
- CPE 439 Computer Design Laboratory

Electrical and Electronics Labs

- ECE 201 Electrical Engineering Laboratory I (PSU Lab.)
- ECE 202 Electrical Engineering Laboratory II (PSU Lab.)

- ECE 203 Electrical Engineering Laboratory III (PSU Lab.)
- ECE 301 Electrical Engineering Laboratory IV (PSU Lab.)
- ECE 302 Electrical Engineering Laboratory V (PSU Lab.)
- ECE 303 Electrical Engineering Laboratory VI (PSU Lab.)
- 610316 Electric Machines I Laboratory (PU Lab.)

Reviews

▪ *Paper Reviewer*

- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Computers (TC)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- IEEE Transactions on Systems, Man, and Cybernetics (SMC) – Part B: Cybernetics
- IEE Proceedings on Vision, Image, and Signal Processing (VIS)
- ACM Journal of Emerging Technologies in Computing (JETC)
- Journal of Multiple-Valued Logic and Soft Computing (MVLSC)
- International Journal of Intelligent Automation and Soft Computing (IASC)
- International Journal of Computers and Electrical Engineering (C&EE)
- The Journal of Universal Computer Science (J.UCS)
- International Journal of Computer Science & Information Technology (IJCSIT)
- International Journal of Systems Science (IJSS)
- International Journal of Computer Communications (COMCOM)
- International Journal of Intelligent Computing and Cybernetics (IJICC)
- American Mathematical Society (AMS) Mathematical Reviews (MR)
- Applied Mathematics and Computation (AMC)
- Energy Conversion and Management
- Control Engineering Practice
- Mathematical Problems in Engineering (MPE)
- Journal of Mechanical Engineering Research (JMER)
- Dirasat – Engineering Sciences, Deanship of Academic Research, The University of Jordan
- The Jordan Journal of Earth and Environmental Sciences, The Hashemieh University
- Jordan Journal of Electrical Engineering (JJEE)
- IEEE International Symposium on Multiple-Valued Logic (ISMVL)
- IEEE International Joint Conference on Neural Networks (IJCNN)
- IEEE International Symposium on Circuits and Systems (ISCAS)
- IEEE World Congress on Computational Intelligence (WCCI)'2008 that joined IJCNN 2008, FUZZ - IEEE 2008 and CEC 2008.
- International Workshop on Boolean Problems (WBP)
- World Multi-Conference on Systemics, Cybernetics, and Informatics (WMSCI)
- International Symposium on Representations and Methodology of Future Computing Technology (R-M)
- Global Conference on Renewable Energy in Desert Regions (GCREEDER)
- The International Conference on Materials in Jordan (ICMJ)
- Reed-Muller Workshop (RM)
- Logic, Design, and Learning Symposium (LDL)
- American Society for Engineering Education Conference (ASEE)

- ### *Book Reviewer*

Review of the following book: Lee Spector, *Automatic Quantum Computer Programming: A Genetic Programming Approach*, Kluwer Academic Publishers, 2004. This review is published in the Computer Journal (CJ) of the British Computer Society which is published by the Oxford University Press (OUP), 49(1): 129-130, 2006.

- ### *Promotion Reviewer*

Frequent referee of faculty promotions for several local and international universities and institutions in the fields of computer engineering, electrical engineering and computer science.

Committees

Involved in numerous committees in all levels of Departmental, College, University, Higher Education, Local and International Conferences, Local and International Journals, and local NGOs.

Memberships

- ❑ IEEE Institute of Electrical and Electronics Engineers
- ❑ ACM Association for Computing Machinery
- ❑ INNS International Neural Network Society
- ❑ SIAM Society for Industrial and Applied Mathematics
- ❑ SX Sigma Xi: The Scientific Research Honor Society
- ❑ TBP Tau Beta Pi: The Engineering Honor Society
- ❑ HKN Eta Kappa Nu: The Electrical and Computer Engineering Honor Society
- ❑ OSA Optical Society of America
- ❑ APS American Physical Society
- ❑ SPIE The International Society for Optical Engineering
- ❑ IIIS International Institute of Informatics and Systemics
- ❑ ASEE American Society for Engineering Education
- ❑ JEA Jordan Engineers Association