

Resume of Dr. Mohammad H. Salah

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Education

- **Ph.D. in Electrical Engineering (Mechatronics Program)**, Aug 2007
Clemson University, USA
Dissertation: “*Nonlinear Control Strategies for Advanced Vehicle Thermal Management Systems*”
- **M.S. in Electrical Engineering**, Dec 2003
University of New Hampshire, USA
Thesis: “*Skill Transfer and Improvement Framework for a Simulated Robot*”
- **B.Sc. in Electrical Engineering (Mechatronics Program)**, Jun 2000
Al Balqa' Applied University – Amman Collage for Engineering Technology, Jordan
Senior Project: “*Design and Control of a Printed Circuit Boards (PCBs) Machine*”

Professional Experience

- **Associate Professor of Mechatronics Engineering Department**
Hashemite University, Jordan, Oct 2012 - present
- **Chair of the Mechatronics Engineering Department**
Hashemite University, Jordan, Sep 2009 – Sep 2011
- **Assistant Professor of Mechatronics Engineering Department**
Hashemite University, Jordan, Sep 2007 – Oct 2012
- **Research Assistant**
Automotive and Hydraulics Research Lab., Clemson University, USA, May 2005 – Aug 2007
Robotics and Vibration Control Lab., University of New Hampshire, USA, Summer 2002 and 2003
- **Teaching Assistant**
Department of Electrical and Computer Engineering, Clemson University, USA, May 2004 – May 2005
Department of Physics, University of New Hampshire, USA, Aug 2003 – Dec 2003
- **Control and Design Engineer**
PIE for Automation and Electronic Control (PALOC Control), Jordan, July 2000 – Jan 2002
- **Engineering Internship**
Industrial Electric and Electronic Arab Center, Jordan, Jun 1999 – Sep 1999

Research Interests

- Nonlinear Control Design for Mechatronics Systems
- Control of MEMS
- Robotic Systems
- Renewable Energy Systems
- Automotive Systems
- Hydraulic and Pneumatic Control Systems
- Applications of PLC in Industrial Automation

Funded Research Projects

- **4D Entertainment Machine**
Funded by Hashemite University with the amount of 17,000 JD – *Pr. Investigator.*
- **Powertrain and Control Design for Hybrid Fuel-Cell/Battery Vehicle**
Funded by the Scientific Research Support Fund with the amount of 95,782 JD – *Co. Investigator.*
- **Advanced Automotive Suspension Test Rig**
Funded by Hashemite University with the amount of 35,500 JD – *Pr. Investigator.*
- **Mechatronics training kit and research tool: Four-Bar Mechanism Driven by a Geared DC Motor (Numerical and Experimental Investigation)**
Funded by Hashemite University with the amount of 3,580 JD – *Co. Investigator.*

Funded Graduation Projects and Collaboration with the Industry

Dr. Mohammad Salah has supervised many funded graduation (senior) projects in the field of robotics and mechatronics such as:

- **PLC-based Automated Iron Tubes Production Line**
Funded by the Industry (Techno Steel, Inc.) for the academic year 2010/2011 with the amount of 1000 JD.
TEAM: Mo'ayyad Jouri, Mohammad Zraiqee, Mu'taz Nayroukh, Amr Okush.
- **Two-Wheeled Human Transportation System (2WHTS)**
Funded by the Applied Scientific Research Fund (ASRF) for the academic year 2011/2012 with the amount of 1000 JD. The project earned the first place in the funded graduation projects competition, first place in the ninth scientific day of engineering college at Hashemite University within the mechatronics theme, April 2012, and first place in the fifth National Technology Parade within the robotics theme at Hashemite University, May 2012.
TEAM: Haneen Abu Arrub, Islam Abu Awadh, Aseel As'ad, and Wafa' Khudruj.
- **Automated Core Cutting Machine (ACCM)**
Funded by the Industry (Digital Labels, Inc.) for the academic year 2012/2013 with the amount of 3500 JD.
TEAM: Mu'taz Tayseer, Abderrahman Zraiqee, Abdelazeez Zain, Aseel Srou, Shayma Alhaj Ali.

Research Activities

- Consultative Research Visit via the DFG Program, Electrical and Computer Engineering Department, University of Kaiserslautern, Germany, June 2012 – August 2012. **Research Topic:** *Thermal Management System for Passengers Comfort in Vehicle Cabins*

Professional Activities

- **Member of the organizing and scientific committees, and chair of control, automation, mechatronics track of IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), 12/2013.**
- **Member of the international editorial board of "International Journal of Advances in Power Systems" (<http://www.ijaps.org/Index/en/>) since 2013.**
- **Head of the judges committee of the Formula 1 in schools 3rd national competition** held at Jubilee Center for Excellence in Education, 5/2013.
- **Member of the organizing committee, chair of control systems track, publication chair, and webmaster of IEEE International Symposium on Mechatronics and its Applications (ISMA), 4/2013.**
- **Member of the steering committee of the Universities Robotics Competition (URC), since 2012.**
- **Co-organizing the workshop titled (LabVIEW: Introduction and Implementation)** at Princess Sumaya University for Technology, 12/2012.
- **Organizing the workshop titled (Invertors: Principles and Practice)** a Hashemite Universities, 11/2012.
- **Head of the judges committee in the preliminary robotics competition for schools** held at Jubilee Center for Excellence in Education, 11/2012.
- **Chairing a session in the First Arab Robotics Conference** held at Landmark Hotel, 10/2012.
- **Chair of the IEEE Robotics and Automation Society Jordan Chapter**, since September 2012.
- **Member of the judges committee of the Formula 1 in schools 2nd national competition** held at Jubilee Center for Excellence in Education, 5/2012.
- **Giving a lecture about the Technological Graduation Projects in the 5th National Technology Parade** held at Hashemite University, 5/2012.
- **Member of the judges committee to the graduation projects submitted to the 5th National Technology Parade in the robotics theme** held at Hashemite University, 5/2012.
- **Member of the organizing committee of the 5th National Technology Parade** held at Hashemite University, 5/2012.
- **Giving a lecture (as IEEE GOLD Chair) about the STEP program in the IEEE Jordanian Student Branch Congress (JSBC)** held at Princess Sumaya University for Technology, 4/2012.
- **Member of the judges committee in the robotics competition for schools** held at Jubilee Center for Excellence in Education, 2/2012.
- **Member of the organizing and scientific committees, treasurer, registration chair, and chair of control systems track of IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), 12/2011.**
- **Member of the organizing committee of the IEEE Professional Activities Summit, 11/2011 and 10/2012.**
- **Chair of the IEEE Gold Affinity Group – Jordan Section**, since June 2011.
- **Member of the judges committee to the graduation projects submitted to the 4th National Technology Parade in the robotics theme** held at Philadelphia University, 5/2011.
- **Member of the technical program committee of Mosharaka International Conference on**
 - ▶ Power Engineering, Control, and Mechatronics (Mechatronics and Embedded Systems track + Control, Robotics and Automation track) – 2011, 2012.
 - ▶ Systems, Modeling, and Design (Systems and Control Engineering track) – 2011, 2012.

- **Member of the international editorial board of "International Review of Applied Sciences and Engineering"** (http://akkrt.hu/72/journals/products/engineering_sciences/international_review_of_applied_sciences_and_engineering) since 2010.

Publications

Books

- **Mohammad Salah**, *Nonlinear Control for Advanced Vehicle Thermal Management Systems*, VDM Verlag Dr. Müller, Feb 2010.
- **Mohammad Salah**, *Imitation-based Skill Learning Simulator for Mobile Robots*, VDM Verlag Dr. Müller, March 2010.

Journal Articles

- Mohammad Abu Mallouh, Eman Abdelhafez, **Mohammad Salah**, Mohammad Hamdan, and Brian Surgenor, "Model development and analysis of a mid size hybrid fuel cell vehicle with a representative driving cycle for Amman city," *Submitted to International Journal of Automotive Technology*, May 2013.
- Asma Al-Tamimi, Ahmad Al-Jarrah, and **Mohammad Salah**, "Intelligent control techniques for electrical actuated automotive cooling systems," *Submitted to Control and Intelligent Systems*, October 2012.
- Erhun Iyasere, **Mohammad Salah**, Darren Dawson, John Wagner, and Enver Tatlicioglu, "Robust Nonlinear Control Strategy to Maximize Energy Capture in a Variable Speed Wind Turbine with an Internal Induction Generator," *Journal of Control Theory and Applications*, vol. 10, no. 2, pp. 184-194, 2012.
- **Mohammad Salah**, Michael McIntyre, Darren Dawson, John Wagner, and Enver Tatlicioglu, "Charge feedback-based robust position tracking control of piezoelectric actuators," *IET Control Theory and Applications*, vol. 6, no. 5, pp. 1-14, 2012.
- Erhun Iyasere, **Mohammad Salah**, Darren Dawson, John Wagner, and Enver Tatlicioglu, "Optimum seeking-based nonlinear controller to maximize energy capture in a variable speed wind turbine," *IET Control Theory and Applications*, vol. 6, no. 4, pp.526-532, 2012.
- Mohammad Ababneh, **Mohammad Salah**, and Khalid Alwidy, "Linearization of nonlinear dynamical system: a comparative study," *Jordan Journal of Mechanical and Industrial Engineering*, vol. 5, no. 6, pp. 657-671, 2011.
- **Mohammad Salah**, Michael McIntyre, Darren Dawson, John Wagner, and Enver Tatlicioglu, "Sensing of the time-varying angular rate for MEMS z-axis gyroscopes," *Mechatronics*, vol. 20, no. 6, pp. 720-727, 2010.
- **Mohammad Salah**, Thomas Mitchell, John Wagner, and Darren Dawson, "A Smart multiple-loop automotive cooling system – model, control, and experimental study," *IEEE/ASME Transactions on Mechatronics*, vol. 15, no. 1, pp. 117-124, 2010.
- **Mohammad Salah**, Peyton Frick, John Wagner, and Darren Dawson, "Hydraulic actuated automotive cooling systems – nonlinear control and test," *Control Engineering Practice*, vol. 17, no. 5, pp. 609-621, 2009.
- Thomas Mitchell, **Mohammad Salah**, John Wagner, and Darren Dawson, "Automotive thermostat valve configurations – enhanced warm-up performance," *ASME Journal of Dynamic Systems, Measurement, and Control*, vol. 131, no. 4, pp. 044501-1 to 044501-7, 2009.
- **Mohammad Salah**, Thomas Mitchell, John Wagner, and Darren Dawson, "Nonlinear control strategy for advanced vehicle thermal management systems," *IEEE Transactions on Vehicular Technology*, vol. 57, no. 1, pp. 127-137, 2008.
- Jian Chen, Darren Dawson, **Mohammad Salah**, and Timothy Burg, "Cooperative control of multiple vehicles with limited sensing," *International Journal of Adaptive Control and Signal Processing*, vol. 21, no. 2-3, pp. 115-131, 2007.

Conference Proceedings (Refereed)

- Ashraf Saleem, **Mohammad Salah**, Naseer Ahmad, and Vadim Silberschmidt, "Component based modelling of piezoelectric ultrasonic actuators for machining applications," *Accepted to appear in Proceedings of the International Symposium on Dynamic Deformation and Fracture of Advanced Materials*, Leicestershire, UK, 9/2013.
- Tarek Tutunji, Ashraf Saleem, **Mohammad Salah**, Naseer Ahmad, "Identification of piezoelectric ultrasonic transducers for machining processes," in *Proceedings of the 9th International Symposium on Mechatronics and Applications*, Amman, Jordan, 2013.
- Ashraf Saleem, **Mohammad Salah**, Naseer Ahmad, and Vadim Silberschmidt, "Control of ultrasonic transducers for machining applications," in *Proceedings of the 9th International Symposium on Mechatronics and Applications*, Amman, Jordan, 2013.
- **Mohammad Salah**, Sa'ed Abed, Ezya Khader, and Shatha Ahmad, "Four-dimensional entertainment machine," in *Proceedings of the 9th International Symposium on Mechatronics and Applications*, Amman, Jordan, 2013.
- **Mohammad Salah**, Mohammad Abu Mallouh, Eman Abdelhafez, and Mohammad Hamdan, "Artificial neural network-based modeling for electrical actuated automotive cooling system," in *Proceedings of the 9th International Symposium on Mechatronics and Applications*, Amman, Jordan, 2013.
- Ahmad Al-Jarrah, **Mohammad Salah**, and Asma Al-Tamimi, "Sliding mode control for hydraulic actuated automotive cooling system," in *Proceedings of the 9th International Symposium on Mechatronics and Applications*, Amman, Jordan, 2013.
- Asma Al-Tamimi, **Mohammad Salah**, and Ahmad Al-Jarrah, "Neural Network-based Optimal Control for Vehicular Thermal Management Systems," *SAE paper 2011-01-2184*.

- Ahmad Al-Jarrah, **Mohammad Salah**, and Asma Al-Tamimi, “Fuzzy Logic Control Design for Advanced Vehicle Thermal Management System,” in *Proceedings of the 13th IASTED International Conference on Control and Applications*, Vancouver, BC, Canada, 2011, pp. 200-204.
- **Mohammad Salah**, Ahmad Al-Jarrah, and Enver Tatlicioglu, “Nonlinear Control Techniques for Parallel Plate Micro Electrostatic Actuators in the Presence of Parasitics and Parametric Uncertainties,” in *Proceedings of the 13th IASTED International Conference on Control and Applications*, Vancouver, BC, Canada, 2011, pp. 36-41.
- **Mohammad Salah**, Alper Bayrak, and Enver Tatlicioglu, “Filter-based Control for Parallel Plate Micro Electrostatic Actuators,” in *Proceedings of the 2011 International Conference on Communications, Computing and Control Applications*, Le Royal Hammamet Hotel, Hammamet, Tunisia, 2011, pp. 1-6.
- Alper Bayrak, **Mohammad Salah**, Nitendra Nath, and Enver Tatlicioglu, “Neural network-based nonlinear control design for twin rotor MIMO systems,” in *Proceedings of the International Symposium of Mechanism and Machine Science (ISMMS)*, Izmir, Turkey, 2010, pp. 172-178.
- Erhun Iyasere, Darren Dawson, John Wagner, **Mohammad Salah**, and Enver Tatlicioglu, “Nonlinear robust control to maximize energy capture in a variable speed wind turbine using an induction generator,” in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, TX, 2009, pp. 4071-4076.
- Erhun Iyasere, **Mohammad Salah**, Darren Dawson, and John Wagner, “Nonlinear robust control to maximize energy capture in a variable speed wind turbine,” in *Proceedings of the American Control Conference*, Seattle, WA, 2008, pp. 1824-1829.
- **Mohammad Salah**, Michael McIntyre, Darren Dawson, and John Wagner, “Robust tracking control for a piezoelectric actuator,” in *Proceedings of the American Control Conference*, New York City, NY, 2007, pp. 106-111.
- **Mohammad Salah**, Michael McIntyre, Darren Dawson, and John Wagner, “Time-varying angular rate sensing of a z-axis gyroscope,” in *Proceedings of the 45th IEEE Conference on Decision and Control*, San Diego, CA, 2006, pp. 2165-2170.
- Jian Chen, Darren Dawson, **Mohammad Salah**, and Timothy Burg, “Multiple UAV navigation with finite sensing zone,” in *Proceedings of the American Control Conference*, Minneapolis, MN, 2006, pp. 4933-4938.
- **Mohammad Salah**, and Andrew Kun, “Transferring skills to a simulated robot,” in *Proceedings of the ANNIE International Conference on Smart Engineering System Design*, Saint Louis, MO, 2004, vol. 14, pp. 119-124.

Posters

- Mohammad Abu Mallouh, and **Mohammad Salah**, “Intelligent control systems for hybrid vehicles,” posters of *The International Conference and Exhibition on Green Energy and Sustainability for Arid Regions and Mediterranean Countries*, Le Royal Hotel, Amman, Jordan, Nov 2009.
- Suleiman Banihani, and **Mohammad Salah**, “Multi-objective fuzzy genetic optimal controller for advanced vehicle thermal-management systems,” posters of *The International Conference and Exhibition on Green Energy and Sustainability for Arid Regions and Mediterranean Countries*, Le Royal Hotel, Amman, Jordan, Nov 2009.
- **Mohammad Salah**, Tom Mitchell, John Wagner, and Darren Dawson, “Advanced thermal management system: design, control, and testing,” posters of *The 12th Annual ARC Conference*, Ann Arbor, MI, May 2006.

Reviewed Publications in

- Springer Books
- Automatica - A Journal of International Federation of Automatic Control
- ASME Journal of Dynamic Systems, Measurement, and Control
- IEEE/ASME Transactions on Mechatronics
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Robotics
- IEEE Transactions on Automatic Control
- International Journal of Control
- International Journal of Systems Science
- International Journal of Robotics Research
- International Journal of Robotics and Automation
- International Journal of Adaptive Control and Signal Processing
- Journal of Optimal Control Applications and Methods
- Journal of Vibration and Control
- Journal of Intelligent and Fuzzy Systems
- Control Engineering Practice
- The European Journal of Control
- Jordan Journal of Mechanical and Industrial Engineering
- Mathematics of Control, Signals, and Systems

- International Mechanical Engineering Congress and Exposition
- International Symposium on Mechatronics and its Applications
- IEEE Conference on Decision and Control
- IEEE Multi-conference on Systems and Control
- 3rd IFAC Symposium on Mechatronic Systems

Teaching Experience

Hashemite University

- Technical Writing
- Automatic Control + its Laboratory
- Digital Control Systems
- Electrical Machines + its Laboratory
- Motor Drive Systems
- Transducers and Interfacing + its Laboratory
- Automation + its Laboratory
- Robotics + its Laboratory
- Design of Mechatronics Systems
- Digital Logic and Digital Electronics Laboratory

German-Jordanian University

- Electrical Machines (Fall 2008)

Applied Science Private University

- Advanced Engineering Mathematics II (Summer 2013)

Institutional Service

Dr. Mohammad Salah has participated in many institutional committees at the Hashemite University such as

- Coordinator of Engineering Collage Budget Committee
- Member of Engineering Collage Graduate Studies Committee
- Member of Engineering Collage Scientific Research Committee
- Member of Engineering Collage Strategic Plan Committee
- Member of Engineering Collage ABET Committee
- Member of Engineering College Laboratories Equipments Committee
- Member of Engineering College Tenders Committee
- Coordinator of Department ABET Committee
- Coordinator of Department Computer and Electronic Learning Committee
- Coordinator of Department Curriculum Committee
- Coordinator of Department Library Committee
- Coordinator of Department Qualification Exam Committee
- Supervisor for Department Practical Training
- Supervisor for many Department Graduation Projects
- Supervisor of Engineering Club in Engineering Collage

Awards

- Fellowship, Hashemite University, Jordan, to pursue graduate studies in the US, Jan 2002 – Jul 2007.
- Best Senior Project, Al Balqa' Applied University, Jordan, 2000.
- Scholarship in Mechatronics Engineering program, Al Balqa' Applied University, Jordan, academic year 1995/1996.

Professional Membership

- Member, IEEE Robotics and Automation Society since 2012.
- Member, Institute of Electrical and Electronic Engineers (IEEE) since 2002.
- Member, Jordanian Engineers Association (JEA) since 2000.

Training Courses and Workshops Taken

- Peer learning workshop on service learning in higher education: concepts and application, *Service Learning Center at the Hashemite University*, six (6) hours, Dec 2011.
- Learning management system, virtual class room capturing tools, and authoring tools, *e-Learning Center at the Hashemite University*, thirty (30) hours, Jan 2009.
- Education technology and academic assessment, *Center of Academic Quality Assurance at the Hashemite University*, ten (10) hours, Nov 2007.
- Solving problems and making decisions, financial analysis, customer services, human resources management, non-verbal communications, oral communications, cost accounting, crises leadership, negotiation skills, change management skills, work management system, feasibility studies, business planning process, outdoor leadership and teambuilding, marketing, total quality management, organization and organizational development, gender, meet management, persuasion skills, e-commerce, ISO 9000, and website development, *Jordan-United States Business Partnership (JUSBP)*, three hundreds and eighty four (384) hours, 2001
- PLCs (Advanced Level), *Engineering Training Center at JEA*, sixteen (16) hours, Jan 2001
- Technical writing, *Engineering Training Center at JEA*, twenty (20) hours, Oct 2000
- PC control using Delphi language, *Computer aided Manufacturing Company*, thirty (30) hours, Jun 1999
- PLCs (Beginners Level), *Engineering Development Center*, twenty (20) hours, Jul 1998
- Electrical panel design, installation, and troubleshooting, *Engineering Development Center*, thirty (30) hours, Jun 1998
- Maintenance of television and video cassette recorder, *Ibn Al-Ameed Center*, sixty four (64) hours, Nov 1996
- Maintenance of radio and audio cassette recorder, *Ibn Al-Ameed Center*, ninety six (96) hours, July 1996

Training Courses Given

- PLC and SCADA for Automation and Process Control, *organized by SOS Center at Millennium Plaza Hotel*, Dubai, UAE, Sixteen (15) hours, May 2013.
- PLC and SCADA for Automation and Process Control, *organized by SOS Center at Monarch Hotel*, Dubai, UAE, Sixteen (15) hours, March 2012.
- Programmable Logic Controllers and SCADA Systems, *organized by SimTech Center at Al-Quds Hotel*, Amman, Jordan, Sixteen (16) hours, October 2008.

References

- Prof. Mohammad Hamdan (mhamdan@ju.edu.jo), ME Dept, University of Jordan, Office: +962 (6) 535-5000
- Prof. Isam Zabalawi (zabalawi@aabfs.org), President of the Arab Academy for Banking and Financial Sciences, Shafa Badran, Amman, Jordan, Office: +962 (6) 550-2900
- Prof. Darren Dawson (ddarren@clermson.edu), 105 Riggs Hall, ECE Dept, Clemson University, Office: (864) 656-5650
- Prof. John Wagner (jwagner@clermson.edu), 212 Fluor Daniel EIB, ME Dept, Clemson University, Office: (864) 656-7376
- Prof. Andrew Kun (andrew.kun@unh.edu), W219 Kingsbury Hall, ECE Dept, University of New Hampshire, Office: (603) 862-4175
- Eng. Radwan Abu-Tubbaneh (rtubbaneh@yahoo.com), Deputy General Manager, PALCO Control, Al-Swaifiyyeh, Amman, Jordan, Office: +962 (6) 582-6602 Ext 17
- Eng. Tayseer Jameel (info@almarjaa-jo.com), General Manager, Al-Marjaa Al-Handasi, Abu Alanda, Amman, Jordan, Office: +962 (6) 416-6363
- Eng. Munthir Fayed (fayed@omega-jordan.com), Deputy General Manager, Omega for Industrial Supplies, Abu Alanda, Amman, Jordan, Office: +962 (6) 477-3770