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ZIYAD N MASOUD

Country of Citizenship: **Jordan**
Date of Birth: **October 23, 1969**
Marital Status: **Married** (two children)

EDUCATION

1998 – 2000, **Ph.D.**, Engineering Mechanics, Virginia Tech, Blacksburg, Virginia, USA
1993 – 1995, **M.Sc.**, Mechanical Engineering, University of Jordan, Amman, Jordan
1987 – 1991, **B.Sc.**, Mechanical Engineering, Garyounis University, Benghazi, Libya

PROFESSIONAL EXPERIENCE

1/2011 – present, GERMAN JORDANIAN UNIVERSITY, Amman, Jordan

8/2016 – date	*Professor, Department of Mechanical Engineering, School of Applied Technical Sciences*
3/2016 – 8/2016	*Associate Professor, Department of Mechatronics Engineering, School of Applied Technical Sciences*
3/2012 – 3/2016	*Dean of School of Applied Technical Sciences, & Associate Professor, Department of Mechatronics Engineering*
1/2011 – 3/2012	*Vice Dean of School of Applied Technical Sciences, & Associate Professor, Department of Mechatronics Engineering*

Major Achievements:

- Established a new Applied Mechanical and Maintenance Engineering program (2013)
- Devised new and enhanced plans of study for the Applied Industrial Engineering and Applied Mechatronics Engineering programs at GJU (2014)
- Leading a team of academic and industrial partners in charge of establishing a research center for Robotics Engineering along with a graduate program under the umbrella of the Department of Mechatronics Engineering at GJU (*in progress*)

Research:

- Nontraditional approach to the control of multi-mode under-actuated systems
- Nontraditional control of flexible structures
- Hybrid control systems for cranes

9/2010 – 1/2011, NUR ENERGY, Amman, Jordan

Senior Consultant

Responsibilities:

- Smart Building Technology, consultation and training

9/2006 – 9/2010, THE HASHEMITE UNIVERSITY, Zarqa, Jordan

9/2009 – 9/2010 *Associate Professor & Department Head, Department of Mechanical Engineering*

11/2008 – 9/2009 *Associate Professor, Department of Mechanical Engineering*

9/2006 – 11/2008 *Assistant Professor, Department of Mechanical Engineering*

Research:

- Nontraditional approach to the control of multi-body under-actuated systems
- Nonlinear control of flexible beams
- Heat transfer enhancement using Nanofluids
- Nontraditional control of quay-side container cranes. The work involved computer simulations and experiments

8/2005 – 8/2006, SuperDYN, LLC, Blacksburg, VA, USA

Research & Development Department, Director

Research:

- Development of an Anti-Sway Control System (SSC) for Super Panamax quay-side container cranes, which was installed on a 65-ton quay-side container crane at Jeddah Islamic Port, Kingdom of Saudi Arabia. The system was successfully installed in the summer of 2006 with outstanding performance

1/1998 – 8/2005, VIRGINIA TECH, Blacksburg, VA, USA

8/2001 – 8/2005 *Assistant Professor, Department of Engineering Science and Mechanics*

1/2001 – 7/2001 *Visiting Assistant Professor, Department of Engineering Science and Mechanics*

1/1998 – 12/2000 *Research Assistant, Department of Engineering Science and Mechanics*

Research:

- Design of Infinitely Variable Transmissions for Hybrid Automobiles. The work included computer simulations, fabrication, and tests on a scaled model
- Nontraditional control approach to the problem of payload oscillation control on quay-side container cranes
- Cargo oscillation control of quay-side container cranes using a nonlinear delayed feedback control system. The work involved computer simulations and tests on a 1/10th experimental model of a 65-ton crane at the research facilities of Ishikawajima-Harima Heavy Industries (IHI) in Yokohama, Japan
- Control of ship-mounted cranes. Three-dimensional nonlinear modeling of ship-mounted cranes. Design and construction of a ship-motion simulator. Design and implementation of a nonlinear feedback control system for payload oscillation reduction on ship-mounted cranes

- Control of rotary cranes. Design and construction of a scaled model. Development and testing of a nonlinear feedback control system for payload oscillation reduction

1/1997 – 12/1997, UNIVERSITY OF WISCONSIN, Milwaukee, WI, USA

Teaching Assistant, Department of Mechanical Engineering

1/1994 – 12/1996, TANTOURA DEVELOPMENT CORP, Amman, Jordan

Senior Design Engineer

Responsibilities:

- Design of machinery for pharmaceutical industry
- Engineering solutions for production machines in pharmaceutical industry

HONORS AND AWARDS

- DAAD award for distinguished practical engineering experience, March, 2012
- Named "VT Scholar of the Week" by the Vice President of Research, Virginia Tech, November, 2004
- National Science Foundation (NSF) Award, Summer Institute for Nano-Mechanics and Materials, 2003
- Certificate of Excellence in Teaching, Virginia Tech, 2003
- Certificate of Excellence in Teaching, Virginia Tech, 2002
- Top of the class Award, Class of 1991, College of Engineering, Garyounis University, 1991
- Dean's list, College of Engineering, Garyounis University, 1988, 1989, 1990, and 1991

TEACHING EXPERIENCE

- Undergraduate-level course on ***Statics***, Virginia Tech
- Undergraduate-level course on ***Dynamics***, Virginia Tech
- Graduate-level course on ***Advanced Vibrations***, Virginia Tech
- Undergraduate-level course on ***Statics***, Hashemite University
- Undergraduate-level course on ***Dynamics***, Hashemite University
- Undergraduate-level course on ***Numerical Methods for Engineers***, Hashemite University
- Undergraduate-level course on ***Control Systems***, Hashemite University
- Undergraduate-level course on ***Mechanical Vibrations***, University of Jordan
- Undergraduate-level course on ***Statics and Dynamics***, German Jordanian University
- Undergraduate-level course on ***Dynamics and Vibration***, German Jordanian University
- Undergraduate-level course on ***Automatic Control Systems***, German Jordanian University
- Undergraduate-level course on ***Numerical Analysis***, German Jordanian University
- Undergraduate-level course on ***Building Automation***, German Jordanian University
- Undergraduate-level course on ***Control Systems I***, German Jordanian University

GRADUATE STUDENT ADVISING

Supervisor:

- *Mohammed Daqaq*, Ph.D., Virginia Tech, 2006
- *Nader Nayfeh*, M.Sc., Virginia Tech, 2002

Committee Member:

- *Yasser El-Okda*, Ph.D., Virginia Tech, 2005
- *Mohamed Elsayed*, Ph.D., Virginia Tech, 2005
- *Konda Chevva*, Ph.D., Virginia Tech, 2005
- *Mohammad Younis*, Ph.D., Virginia Tech, 2004
- *Zhongfu Ge*, Ph.D., Virginia Tech, 2004
- *Xiaopeng Zhao*, Ph.D., Virginia Tech, 2004
- *Mohammed Daqaq*, M.Sc., Virginia Tech, 2003
- *Khaled Alhazza*, Ph.D., Virginia Tech, 2002

PRACTICAL EXPERIENCE

- Design and installation of an Anti-Sway Control System (SSC) for Super Panamax quay-side container cranes, 2005 – 2006, Jeddah, KSA
- Setup and programming of a scaled three-dimensional experimental model of gantry crane in the Control laboratory in the Department of Mechanical Engineering, Kuwait University, 2009
- Design and construction of large scale experimental setups
- DSP hardware for data acquisition and control of mechanical systems
- Digital and analog sensors technology
- Design of motion control systems

RESEARCH INTERESTS

- Vibration control of multi-mode systems
- Multi-body dynamics, linear and nonlinear dynamics, mechanical vibrations
- Nontraditional control, digital control, linear and nonlinear control of mechanical systems
- Nonlinear modeling and control of all types of commercial cranes
- Experimental validation of nonlinear mechanical systems models and experimental testing of nonlinear control systems

RESEARCH PROJECTS

1. Demonstrated a Crane Control System, which I developed at Virginia Tech, on a 1/10th scaled model of a 65-ton quay-side container crane, at the research facilities of Ishikawajima-Harima Heavy Industries (IHI). With A. H. Nayfeh and Nader A. Nayfeh, Yokohama, $50,000.00, Japan, June 2002
2. "High Capacity Alongside Sea Base Sustainment (HiCASS)". The project focused on the development of cargo transfer systems between ships under high seas conditions. With A.

H. Nayfeh and E. Abdel-Rahman, Lockheed Martin, $525,000, August 1, 2004 – January 31, 2005

3. Designed and built an anti-sway control system for quay-side container cranes, "Smart Sway Controller (SSC)". Installed the SSC controller on a 65-ton ZPMC quay-side container crane at Jeddah port, KSA. November 1, 2005 – February 1, 2006. The system installation was a success
4. "Effect of Dynamic Stretch of the Hoisting Cables of Container Cranes on the Payload Dynamics and Oscillation Frequency", the Hashemite University, $1,059, December 1, 2006 – November 30, 2007
5. "Nonlinear Modeling and Control of Quay-Side Container Cranes: A Scaled Experimental Model, Theory, and Experiments", the Hashemite University, $27,366, May 1, 2007 – April 30, 2010
6. "Heat Transfer Enhancement Using Nanofluids; Experimental and Computational Investigation", The Hashemite University, $17,655, June 1, 2007 – November 30, 2008
7. "Design of Remotely Operated Underwater Vehicle (ROUV)", German Jordanian University, $2,000, February 1, 2011 – December 31, 2011
8. "Design of an Automated Landing and Takeoff Control System for Quadrotor Aircraft", King Abdullah II Design and Development Bureau (KADDB), $4,000, January 1, 2012 – May 31, 2012
9. "Design of an experimental setup for the control of multimode flexible structures using frequency-modulation input shaping technique newly developed at GJU", German Jordanian University, $36,700, March 1, 2016 – February 28, 2018
10. "Design of Mist-Cooling Green Canpoy Powered by Thermally Regulated Photovoltaic System", German Jordanian University, $67,800, June 1, 2016 – May 31, 2018

PROFESSIONAL MEMBERSHIPS

- Member, of the American Society of Mechanical Engineers, ASME
- Member, of the American Institute of Aeronautics and Astronauts, AIAA
- Member, Society of Experimental Mechanics, SEM

PROFESSIONAL SERVICE

- *Computing Resources Committee*, Department of Engineering Science and Mechanics, Virginia Tech, 2003 – 2005
- *Laboratory Committee*, Department of Engineering Science and Mechanics, Virginia Tech, 2003 – 2005
- *Scientific Research Committee*, Department of Mechanical Engineering, the Hashemite University, 2006 – 2008
- *Examination Committee*, Department of Mechanical Engineering, the Hashemite University, 2006 – 2007
- *Practical Training Committee*, College of Engineering, the Hashemite University, 2006 – 2007
- *E-learning Committee*, College of Engineering, the Hashemite University, 2008 – 2009

- *College of Engineering Development Committee*, College of Engineering, the Hashemite University, 2008 – 2010
- *Central Tenders committee*, The Hashemite University, 2008 – 2009
- *Scholarship committee*, The German Jordanian University, 2012 – 2014
- *Scientific Research Council*, The German Jordanian University, 2012 – 2016

CONFERENCES ORGANIZED

- Member of the Organizing Committee of the "3rd International Conference on Thermal Engineering: Theory and Applications," Amman, Jordan, May 21 – 23, 2007
- Member of the Scientific Committee of the "2011 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies," Amman, Jordan, December 6 – 8, 2011
- Member of the Executive Committee of the "Engineering, Energy, Science & Technology Congress: Together for a Better Research," Amman, Jordan, May 18 – 21, 2015

REVIEWER

- Journal of Sound and Vibrations
- ASME Journal of Dynamic Systems, Measurement and Control
- AIAA Journal
- Journal of Vibration and Control
- Nonlinear Dynamics
- International Journal of Modelling and Simulation
- IET Control Theory and Applications Journal
- Jordan Journal of Mechanical and Industrial Engineering
- Mechatronics
- Journal of Mechanical Systems and Signal Processing
- Mechanisms and Machine Theory
- Journal of Systems and Control Engineering
- Asian Journal of Control
- Advances in Mechanical Engineering

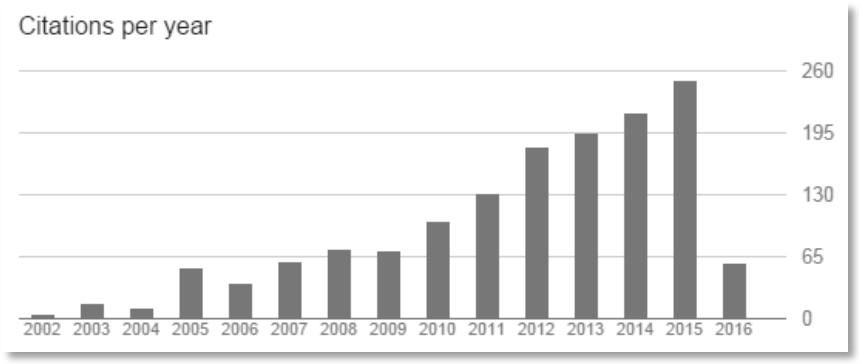
PATENTS

Nonlinear Active Control of Dynamical Systems

- US Patent No. 6,631,300 B1, October 7, 2003
- Japanese Patent 3442-001 PCT/EP-1, 2003
- European Patent No. 1,235,735, March 13, 2005
- Chinese Patent No. ZL 00815340.X, February 15, 2006
- US Patent No. 7,044,314, May 16, 2006

PUBLICATIONS

- *h*-index: 14 (Google Scholar, 2016)
- Google Scholar citations (1617, November 2016)



PUBLICATIONS: BOOK CHAPTERS

1. Control of Structures: Control of Cargo Pendulation for Ship-Mounted Cranes, "Mechanics for a New Millennium," Springer, 2001, pp. TF1, ISBN-10: 0792371569
2. A Delayed-Position Feedback Controller for Cranes, "Proceedings of the Third World Conference on Structural Control," Wiley, 2003, pp. 143 – 155, ISBN 978-0-471-48980-8
3. Control of Ship-Mounted Cranes, "Solid Mechanics and Its Applications: IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures," Springer, 2005, pp. 21 – 35, ISBN 978-1-4020-4160-0
4. A Delayed-Position Feedback Controller for Cranes, "IUTAM Symposium on Chaotic Dynamics and Control of Systems and Processes in Mechanics," Springer, 2005, pp. 385 – 395, ISBN 978-1-4020-3267-7
5. A Smart Sway Controller for Cranes – From Theory to Laboratory to Industry, "Vibration Problems ICOVP 2011 supplement: The 10th International Conference on Vibration Problems," Springer, 2011, pp. 14 – 29, ISBN 978-80-7372-759-8
6. A Novel Optimization Strategy for Command Shaping Control, "Topics in Modal Analysis II," Volume 6, Chapter 58, Springer, 2012, pp. 581 – 588, ISBN 978-1-4614-2418-5

PUBLICATIONS: JOURNAL PAPERS

7. Henry, R., **Masoud, Z.**, Nayfeh, A., and Mook, D., "Cargo Pendulation Reduction on Ship-Mounted Cranes via Boom-Luff Angle Actuation," Journal of Vibration and Control, Vol. 7, No. 8, 2001, pp. 1253 – 1264. [#1 most cited JVC article, October 2008]
8. **Ziyad N. Masoud**, Ali H. Nayfeh, and Amjed Al-Mousa, "Delayed Position-Feedback Controller for the Reduction of Payload Pendulations of Rotary Cranes," Journal of Vibration and Control, Vol. 9(1-2), 2003, pp. 257 – 277. [#3 most cited JVC article, October 2008]
9. E. M. Abdel-Rahman, A. H. Nayfeh, and **Z. N. Masoud**, "Dynamics and Control of Cranes: A Review," Journal of Vibration and Control, Vol. 9, No. 7, 2003, pp. 863 – 908. [#1 most cited JVC article, September 2011]

10. **Z. N. Masoud** and A. H. Nayfeh, "Sway Reduction on Container Cranes Using Delayed Feedback Controller," Nonlinear Dynamics, Vol. 34, No. 3-4, 2003, pp. 347 – 358
11. **Z. N. Masoud**, A. H. Nayfeh, and D. T. Mook, "Cargo Pendulation Reduction of Ship-Mounted Cranes," Nonlinear Dynamics. Vol. 35, No. 3, 2004, pp. 299 – 311
12. **Ziyad N. Masoud**, Mohammed F. Daqaq, and Nader A. Nayfeh, "Pendulation Reduction on Small Ship-Mounted Telescopic Cranes," Journal of Vibration and Control, Vol. 10, No. 8, 2004, pp. 1167 – 1179
13. **Ziyad N. Masoud**, Ali H. Nayfeh, and Nader A. Nayfeh, "Sway Reduction on Quay-Side Container Cranes Using Delayed Feedback Controller: Simulations and Experiments," Journal of Vibration and Control, Vol. 11, No. 8, 2005, pp. 1103 – 1122. [#24 most cited JVC paper, October 2008]
14. Mohammed F. Daqaq and **Ziyad N. Masoud**, "Nonlinear Input-Shaping Controller for Quay-Side Container Cranes," Nonlinear Dynamics, Vol. 45, No. 1-2, 2006, pp. 149 – 170
15. **Ziyad N. Masoud** and Mohammed F. Daqaq, "A Graphical Approach to Input-Shaping Control Design for Container Cranes with Hoist," IEEE Transactions on Control Systems Technology, Vol. 14, Issue 6, 2006, pp. 1070 – 1077
16. **Ziyad N. Masoud**, "Oscillation Control of Quay-Side Container Cranes Using Cable Length Manipulation," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 129, Issue 2, March 2007, pp. 224 – 228
17. **Ziyad N. Masoud** and Mohammed F. Daqaq, "A Graphical Design of an Input-Shaping Controller for Quay-Side Container Cranes with Large Hoist: Theory and Experiments," Jordan Journal of Mechanical and Industrial Engineering, Vol. 1, No. 1, 2007, pp. 57 – 67
18. Khaled A. Alhazza, **Ziyad N. Masoud**, and Mohammed Alajmi, "Nonlinear Free Vibration Control of Beams Using Acceleration Delayed-Feedback Control," Journal of Smart Materials and Structures, Vol. 17, (2008) 015002
19. Eiyad Abu-Nada, **Ziyad Masoud**, and Ala Hijazi, "Natural Convection Heat Transfer Enhancement in Horizontal Concentric Annuli Using Nanofluids," International Communications in Heat and Mass Transfer, Vol. 35, No. 5, 2008, pp. 657 – 665
20. **Ziyad Masoud**, "Effect of Hoisting Cable Elasticity on Anti-Sway Controllers of Quay-Side Container Cranes," Nonlinear Dynamics, Vol. 58, 2009, pp. 129 – 140
21. Eiyad Abu-Nada, **Ziyad Masoud**, Hakan Oztop, and Antonio Campo, "Effect of Nanofluids Variable Properties on Natural Convection in Enclosures," International Journal of Thermal Sciences, Vol. 49, 2010, pp. 479 – 491
22. Khaled A. Alhazza and **Ziyad Masoud**, "A Novel Wave-Form Command Shaper for Overhead Cranes," Journal of Engineering Research, Vol. 1, No. 3, 2013, pp. 181 – 209
23. **Ziyad N. Masoud**, Khaled A. Alhazza, Eiyad A. Abu-Nada, and Majed Majeed, "A Hybrid Command-Shaper for Double-Pendulum Overhead Cranes," Journal of Vibration and Control, Vol. 20, No. 1, 2014, pp. 24 – 37
24. **Ziyad N. Masoud** and Khaled A. Alhazza, "Frequency-Modulation Input Shaping Control of Double-Pendulum Overhead Cranes," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 136, No. 2, 2014, doi:10.1115/1.4025796
25. K. A. Alhazza, A. M. Hassan, K. A. Alghanim, and **Z. N. Masoud**, "An Iterative Learning Control Technique for Point-to-Point Maneuvers Applied on an Overhead

Crane," Journal of Shock and Vibration, vol. 2014, Article ID 261509, 2014. doi:10.1155/2014/261509

26. **Ziyad N. Masoud** and Khaled A. Alhazza, "Frequency-Modulation Input Shaping for Multimode Systems," Journal of Vibration and Control, Vol. 22, No. 15, 2016, pp. 3439 – 3451
27. Khaled A. Alghanim, Khaled A. Alhazza, and **Ziyad N. Masoud**, "Discrete-Time Command Profiles for Simultaneous Travel and Hoist Maneuvers of Overhead Cranes," Journal of Sound and Vibration, Vol. 345, 2015, pp. 47 – 57
28. Khaled Alhazza, **Ziyad Masoud,** and Nehal Alotaibi, "A Smooth Wave-Form Shaped Command with Flexible Maneuvering Time: Analysis and Experiments," Asian Journal of Control, Vol. 18, No. 4, July 2016, pp. 1376 – 1384
29. Khaled A. Alhazza and **Ziyad N. Masoud**, "Waveform Command Shaping Control of Multimode Systems," Journal of Sound and Vibration, Vol. 363, 2016, 126-140
30. **Ziyad Masoud**, Mohammad Nazzal, and Khaled Alhazza, "Multimode input shaping control of flexible structures using frequency-modulation," Jordan Journal of Mechanical and Industrial Engineering, accepted
31. **Ziyad Masoud** and Khaled Alhazza, "A smooth multimode waveform command shaping control with selectable command length," Journal of Sound and Vibration, submitted

PUBLICATIONS: CONFERENCE PAPERS

32. **Z. Masoud**, A. Nayfeh, R. Henry, and D. Mook, "Cargo Pendulation Reduction on Ship-Mounted Cranes via Boom-Luff and Slew Angles Actuation," 41st AIAA Structures, Structural Dynamics, and Materials Conference, AIAA paper no. 2000-1543, Atlanta, Georgia, April, 2000
33. Ali H. Nayfeh and **Ziyad N Masoud**, "Delayed Position-Feedback Controller for the Reduction of Payload Pendulation of Rotary Cranes", 18th Biennial ASME Conference on Mechanical Vibrations and Noise, DETC2001/VIB-21601, Pittsburgh, Pennsylvania, September 9 – 13, 2001
34. **Ziyad N. Masoud** and Ali H. Nayfeh, "Sway Reduction on Container Cranes Using Delayed Feedback Controller," 43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, AIAA paper no. 2002-1279, Denver, Colorado, April, 2002
35. Nayfeh, A.H., **Masoud, Z.N**. "A Supersmart Controller for Commercial Cranes", Newsletter, International Association for Structural Control, Vol. 6, No. 2, 4-6, 2002
36. **Ziyad N. Masoud** and Nader A. Nayfeh, "Pendulation Reduction on Small Ship-Mounted Telescopic Cranes", 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Materials Conference, AIAA paper no. 2003-1687, Norfolk, Virginia, April, 2003
37. **Ziyad N Masoud**, Nader A. Nayfeh, and Ali H. Nayfeh, "Sway Reduction on Container Cranes Using Delayed Feedback Controller: Simulations and Experiments," 19th Biennial ASME Conference on Mechanical Vibrations and Noise, DETC2003/VIB-21601, Chicago, Illinois, September 2 – 6, 2003

38. Day, D. L., Grandrino, R., Nayfeh, A. H., **Masoud, Z. N**., Abdel-Rahman, E. H., McKinney, R. A., 2005, "Overview of HiCASS Cargo Transfer Method", ASNE Joint Sea Basing Conference, Arlington, Virginia, January 27 – 28, 2005
39. Mohammed F. Daqaq, **Ziyad N. Masoud**, and Ali H. Nayfeh, "Nonlinear Modeling and Control of Quay-Side Container Cranes," IMAC XXIII, Paper No. 223, Orlando, Florida, January 31 – February 3, 2005
40. M. Daqaq and **Z. Masoud**, "A Graphical Phase Plane Approach for Controlling Cargo Transfer on Quay-Side Container Cranes with Hoisting," 46th AIAA/ASME/ASCE/AHS/ASC Structural Dynamics and Materials Conference, AIAA paper no. 2005-1841, Austin, Texas, April 18 – 21, 2005
41. **Ziyad N. Masoud**, "Differential Cable Length Manipulation for Oscillation Control of Quay-Side Container Cranes," 20th Biennial ASME Conference on Mechanical Vibration and Noise, DETC2005-85320, Long Beach, California, September 24 – 28, 2005
42. Nader A. Nayfeh, **Ziyad N. Masoud**, and William Baumann, "A Comparison of Three Feedback Controllers for Container Cranes," 20th Biennial ASME Conference on Mechanical Vibration and Noise, DETC2005-85235, Long Beach, California, September 24 – 28, 2005
43. **Z. Masoud**, "Effect of Hoisting Cable Elasticity on the Oscillation Period of Quay-Side Container Cranes," 49th AIAA/ASME/ASCE/AHS/ASC Structural Dynamics and Materials Conference, AIAA paper no. 2008-2269, Schaumburg, Illinois, April 7 – 10, 2008
44. **Ziyad N. Masoud**, Khaled A. Alhazza, Majed A. Majeed, and Eiyad A. Abu-Nada, "A Hybrid Command-Shaping Control System for Highly Accelerated Double-Pendulum Gantry Cranes," ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2009-87501, San Diego, California, August 30 – September 2, 2009
45. Khaled A. Alhazza and **Ziyad N. Masoud**, "A Novel Wave-Form Command-Shaping Control with Application on Overhead Cranes," 2010 ASME Dynamic Systems and Control Conference, DSCC2010-4132, Cambridge, Massachusetts, September 13 – 15, 2010
46. **Ziyad N. Masoud** and Khaled A. Alhazza, "Command-Shaping Control System for Double-Pendulum Gantry Cranes," ASME 2011 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2011-48400, Washington, DC, August 28 – 31, 2011
47. Khaled A. Alhazza, Asmahan Al-Shehaima, and **Ziyad N. Masoud**, "A Continuous Modulated Wave-Form Command-Shaping for Damped Overhead Cranes," ASME 2011 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2011-48336, Washington, DC, August 28 – 31, 2011
48. Khaled A. Alghanim, Khaled A. Alhazza, and **Ziyad N. Masoud**, "A Novel Optimization Strategy for Command Shaping Control," IMAC XXX, Jacksonville, Florida, January 30 – February 2, 2012
49. **Ziyad N. Masoud** and Khaled A. Alhazza, "A Frequency-Modulation Command-Shaping Strategy for Multi-Mode Systems," ASME 2013 International Design

Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2013-13355, Portland, Oregon, August 4 – 7, 2013

50. Khaled A. Alhazza, **Ziyad N. Masoud,** and Nehal Alotaibi, "A Smooth Wave-Form Command Shaping Control," ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2013-12768, Portland, Oregon, August 4 – 7, 2013
51. Khaled A. Alghanim, Khaled A. Alhazza, and **Ziyad N. Masoud**, "A Discretized Optimization Strategy for Rest-to-Rest Maneuvers Considering the effect of Damping," ASME 2015 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2015-46250, Boston, Massachusetts , August 2 – 5, 2015
52. Khaled Alhazza, **Ziyad Masoud,** and Abdulsalam Alhazza, "A Multimode Wave-Form Command Shaping Control Applied on A Double Pendulum," ASME 2015 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2015-46757, Boston, Massachusetts, August 2 – 5, 2015
53. Khaled Alhazza and **Ziyad Masoud**, "A Multi-Mode Smooth Command Shaper with an Adjustable Maneuver Time," ASME 2015 Dynamic Systems and Control Conference, DSCC2015-9700, Columbus, Ohio, October 28 – 30, 2015
54. **Ziyad Masoud** and Khaled Alhazza, "Multimode input shaping control of flexible structures using frequency modulation," International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, IDETC2016-59537, Charlotte, North Carolina, August 21 – 24, 2016

PRESENTATIONS AT PROFESSIONAL MEETINGS

1. W. Lacarbonara, R. Soper, **Z. Masoud**, J. Pratt, and Ali H. Nayfeh, "Towards a hybrid variable-geometry-truss architecture for pendulation control in ship-mounted cranes," MURI on Nonlinear Active Control of Dynamical Systems, Blacksburg, Virginia, 1998
2. **Z. Masoud**, A. Nayfeh, R. Henry, and D. Mook, "Cargo Pendulation Reduction on Ship-Mounted Cranes via Boom-Luff and Slew Angles Actuation," MURI on Nonlinear Active Control of Dynamical Systems, Blacksburg, Virginia, October 1999
3. **Z. Masoud**, A. Nayfeh, and D. Mook, "Cargo Pendulation Reduction on Ship-Mounted Cranes via Boom-Luff and Slew Angles Actuation," MURI on Nonlinear Active Control of Dynamical Systems, Blacksburg, Virginia, March 2000
4. **Z. Masoud** and A. H. Nayfeh, "Cargo Pendulation Reduction on Ship-Mounted Cranes," Invited Lecture, 3rd International Workshop on Structural Control, Paris, France, July 6 – 8, 2000
5. **Z. N. Masoud**, A. H. Nayfeh, and D. T. Mook, "Control of Cargo Pendulation for Ship-mounted Cranes," IUTAM, Chicago, Illinois, August 27 – September 2, 2000
6. **Z. Masoud**, A. Nayfeh, and D. Mook, "Cargo Pendulation Reduction on Ship-Mounted Cranes via Boom-Luff and Slew Angles Actuation," MURI on Nonlinear Active Control of Dynamical Systems, Blacksburg, Virginia, October 2000

7. **Z. Masoud** and A. Nayfeh, "Control of Cargo Pendulation on Ship-Mounted Cranes," MURI on Nonlinear Active Control of Dynamical Systems, Blacksburg, Virginia, July 2001
8. **Z. Masoud** and A. H. Nayfeh, "Control of Crane-Cargo Pendulation," 3rd World Conference on Structural Control, Como, Italy, April 7 – 12, 2002
9. A. H. Nayfeh and **Z. N. Masoud**, "A Supersmart Controller for Commercial Canes," 12th International Workshop on Dynamics and Control, Los Angeles, California, August 19 – 21, 2002
10. A. H. Nayfeh, **Z. N. Masoud**, and N. A. Nayfeh, "A Supersmart Controller for Commercial Cranes," International Advisory Committee of the MDP-8 Conference, Cairo, Egypt, January 4 – 6, 2003
11. A. H. Nayfeh, **Z. N. Masoud**, and N. A. Nayfeh, "A Delayed-Position Feedback Controller for Cranes," IUTAM Symposium on Chaotic Dynamics and Control of Systems and Processes in Mechanics, Universita di Roma La Sapienza, Roma, Italy, June 8 – 13, 2003
12. A. H. Nayfeh, **Z. N. Masoud**, N. A. Nayfeh, and E. Abdel-Rahman, "Control of Ship-Mounted Cranes," IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures, Munich, Germany, July 18 – 22, 2005
13. **Z. N. Masoud**, "Smart Sway Control," Invited seminar, Department of Mechanical Engineering, Kuwait University, January, 2009
14. **Z. N. Masoud**, "Frequency-Modulation Command-Shaping Control System for Highly Accelerated Double-Pendulums," Invited seminar, Department of Mechanical Engineering, Kuwait University, June, 2010