

## CURRICULUM VITAE

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Dept. of Mechanical Engineering,  
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Born: Tehran, Iran, November 13 , 1964  
Citizenship: Iranian

## Education

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| <b>Ph.D.</b> , Mechanical Engineering 1997 | University of Toronto, Toronto, Canada |
| <b>M.Eng.</b> Mechanical Engineering 1993  | McGill University, Canada              |
| <b>B.Sc.</b> , Mechanical Engineering 1989 | Sharif University of Technology, Iran  |

## Current Position

**Associate Professor:** Applied Design Group, Department of Mechanical Engineering, Tarbiat Modares University (Fully Accredited Graduate University), Tehran, Iran

## Research Interests

**Rehabilitation Robotics,**

**Haptic Robotics,**  
**Inspection Robotics,**  
**Robust  $H_\infty$  Control**  
**Flexible Robots**

## Administrative Experience

Head of Applied Design Group: 2016-Continues

Industry Liason Chair, 4<sup>th</sup> International Conference on Robotics and Mechatronics (ICROM2016,  
<http://icrom.ir/icrom-history/icrom-2016>)

Program Chair, 3th International Conference on Robotics and Mechatronics (ICROM2015,  
<http://icrom.modares.ac.ir>), to be organized.

Industry Liason Chair, 2<sup>nd</sup> International Conference on Robotics and Mechatronics (ICROM2014,  
<http://icrom.kntu.ac.ir>)

Program Chair, Associate Editor, 1<sup>st</sup> International Conference on Robotics and Mechatronics (ICROM2013,  
<http://icrom.sharif.ir/cnf/organization>)

Head of Applied Design Group: 2009-2011

Head, Department of Mechanical Engineering, Tarbiat Modares University, 2006-2008

Director, International Office Affairs, Tarbiat Modares University, 2004-2006

Group Leader, Applied Design, Tarbiat Modares University, 1998-2000

Session Organizer and Program Committee, 2002 International Conference on Mechanical Engineering

Session Organizer and Program Committee, 2005 Tehran International Congress on Manufacturing Engineering

## Courses Taught

Course on "Robust  $H_\infty$  Optimal Control Systems," Tarbiat Modares University, Iran.

Course on "Advanced Robotics Systems," Tarbiat Modares University, 1998-2008, Iran.

Course on "Special Topics in Robotics," Tarbiat Modares University, 2002-2004, Iran.

Course on "Advanced Control Systems," Tarbiat Modares University, 2000-2014, Iran.

Course on "Advanced Digital Control," Tarbiat Modares University, 2000-2006, Iran.

Course on "Advanced Engineering Mathematics," Tarbiat Modares University, 2000-2006, Iran.

## Honors and Awards

Khwarizmi Young Awards, 2<sup>nd</sup> Place in Applied Research, Design and Manufacturing of a Leg Rehabilitation Robots, 2014, Tehran, Iran.

AmirKabir Medical Robotics Competition, 1<sup>st</sup> place in International Robotic Competition, AUTCUP, 2013.

Khwarizmi Young Awards, 2<sup>nd</sup> place in Applied Research, Design and Manufacturing of a 6DOF haptic Robot for Bone Machining Surgery Education, 2008, Tehran, Iran.

Ministry of Culture and Higher Education, two consecutive Scholarships for continuing education towards M.Eng. degree at McGill University and Ph.D. degree at the University of Toronto

Charles Bertram Pitt Endowment Fund, University of Toronto

University of Toronto Open Doctoral Fellowship University of Toronto

## Related Professional Activities

Tarbiat Modares University 1997- continues

-Associate Professor of Mechanical Engineering, Tehran, Iran

National Elite Foundation 2007-continues

-Associate referee of project evaluation

Engineering Services Inc. Toronto, Canada 2009

-Design and Simulation of a 5DOF Robotic Manipulator

Carleton University 2008- 2009

-Visiting Research Scholar of Mechanical & Aero Engineering, Carleton, Canada

Iranian Development and Research Organization 2001-2006

-Associate Consultant of Engineering Department, Tehran, Iran

Engineering Services Inc. Toronto, Canada 2000-2001

-Design and Implementation of a Cable Rewind/Winding System for a Mobile Robot

-Design and Implementation of a 3-DOF Wrist of a Waste-Disposal Robot

Advanced Manufacturing Research Center, Tehran, Iran

1996-1997

-Head of Robotics Engineering Group -Design and Implementation of a 6-DOF Welding Robot

Robotics and Automation Laboratory (RAL) University of Toronto

1993-1996

-Analyzed, designed, and synthesized new robust  $H_{\infty}$  –based control algorithms on a flexible joint robot with harmonic drive transmission.

Ambulatory Robotic Laboratory (ARL) McGill University

1991-1993

- Responsible for analysis, design, construction, and testing of a one degree of freedom virtual motion system to simulate the environment for a hopping robot.

Sharif University of Technology Tehran, Iran

1986-1989

- Analyzed different measurement techniques for wave, tide, and water level in ocean applications.
- Consulted the Sea and Harbor Institute of Iran to purchase four high-capacity ship-unloading-systems
- Designed and simulated a pneumatic launcher for Remotely Piloted Vehicles (RPV).
- Improved the design of a high-flow-pass pneumatic valve used for the launcher to decrease the vibration of the valve body.
- Designed and implemented a two degree of freedom vibrating table, driven by computer-controlled stepper motors.

## Chapter in Book

Majid M. Moghaddam and Mojtaba Ahmadi, "Climbing Robots," Bioinspiration and Robotics: *Walking and Climbing Robots*, Editor: Aleksandar Lazinica, Advanced Robotic Systems International, 2007

## Patents

**Majid M. Moghaddam, A. A. Mirzaei, A. Dashkhaneh, S. M. Davoodi** , Design and Manufacturing of an Eight-DOF Rehabilitation Robot, Iranian Patents Registration department, 2012

**Majid M. Moghaddam, Alireza Hadi, G. Mohammadi**, Deep Water Supply Well Inspection Equipped with Chemical Measurement Sensors, Iranian Patents Registration department, 2011

**Majid M. Moghaddam, Alireza Hadi,** Design and Manufacturing of an Inspection Robot with an automatic Adjusting Height Camera: Iranian Patents Registration department, 2010

**Majid M. Moghaddam, Alireza Hadi, Moosa Daryanavard,** Design and manufacturing of a rough terrain and climbing steps Mobile Robot: Iranian Patents Registration department, 2010

**Majid M. Moghaddam, Alireza Hadi, G. Mohammadi,** Design and manufacturing of a Sewer Inspection Robot: Iranian Patents Registration department, 2009

**Majid M. Moghaddam, Mohsend M. Dalvand,** Design and manufacturing of a novel stair climbing robot: Iranian Patents Registration department, no. 28707, 2003

## Awarded Research Projects

**DESIGN, MANUFACTURING AND CONTROL OF A CRANIOTOMY ROBOT,** Ministry of Industries and Mines, 2016-continues

**DESIGN AND MANUFACTURING OF A REHABILITATION ROBOT,** Ministry of Industries and Mines, 2012-2014

**DESIGN AND IMPLEMENTATION OF A VIRTUAL BONE SURGERY HAPTIC SYSTEM,** Ministry of Industries and Mines, 2008-2010

**DESIGN AND MANUFACTURING OF A ROUGH TERRAIN MOBILE ROBOT,** Ministry of Industries and Mines, 2006-2008

**DESIGN AND MANUFACTURING OF A SEWER INSPECTION ROBOT,** Tarbiat Modares University Research Office, 2006-2007

**DESIGN AND MANUFACTURING OF A WASHING MACHINE AUTOMATIC BALL BALANCER,** Industrial Development and Renovation Organization of Iran (IDRO), 2005-2007

**RESEARCH AND STUDY OF A 3-LAYER COATING SYSTEM FOR SPIRAL WELDED TUBES,** Said Industrial Group, Iran, 2004-2005

## Journal Articles

[31]

[30] B. Behzadpour, Majid M. Moghaddam, M. Arbabtafti, Design, Simulation and Implementation of Admittance and Impedance Control Methods on a Haptic Interface Device, Sharif Journal of Mechanical Engineering, to appear, 2015

- [29] A. Mirzaie Saba, Majid M. Moghaddam, Design and Manufacturing of a Gait Rehabilitation Robot with Cooperative Control Functionality, Sharif Journal of Mechanical Engineering, 2015
- [28] D. Hasankola, Majid M. Moghaddam, A. Mirzaei, Abbas Dashkhaneh, Analysis, modeling, manufacturing & control of an elastic actuator for rehabilitation robots, Scientia Iranica Journal. to appear 2015
- [27] Abbas Dashkhaneh, Majid M. Moghaddam, Mohammad Hadian, Force and Visual Feedbacks in Robotic Gait Rehabilitation of Patients with Walking Disorders, to appear in Modares Mechanical Journal, 2014.
- [26] Ahmad Mashayekhi, Ali Nahvi and Mojtaba Yazdani, Majid Mohammadi Moghadam, Mohammadreza Arbabtafti, Mohsen Norouzi, VirSense: a novel haptic device with fixed-base motors and a gravity compensation system, Industrial Robot: An International Journal, 41/1 (2014) 37–49.
- [25] Hamed Kazemi<sup>†</sup>, Vahid Johari Majd<sup>†\*</sup> and Majid M. Moghaddam<sup>‡</sup>, Modeling and robust backstepping control of an underactuated quadruped robot in bounding motion, Robotica (2013) volume 31, pp. 423–439. © Cambridge University Press 2012.
- [24] Mohammad R Fazel, Majid M Moghaddam<sup>1</sup> and Javad Poshtan, Application of GDQ method in nonlinear analysis of a flexible manipulator undergoing large deformation, Proc IMechE Part C: J Mechanical Engineering Science ,2013, 227(12) 2671–2685.
- [23] Mahdi Fatehi, Majid Moghaddam, Mohammad Rahim, (2012),"Robust flutter analysis and control of a wing", Aircraft Engineering and Aerospace Technology, Vol. 84 Iss: 6 pp. 423 - 438
- [22] Majid M. Moghaddam , Amin touhidi , Alireza Hadi , and Mohammad Elahinia, Design Modeling and Prototyping of a Simple Semi-Modular Biped Actuated by Shape Memory Alloys, Journal of Intelligent Material Systems and Structures, Journal of Intelligent Material Systems and Structures, 2011.
- [21] Amin touhidi, Majid M. Moghaddam, and Alireza Hadi, On the design and test of a prototype of biped actuated by shape memory, International Journal of Robotics, Vol. 2, No. 1, pp12-17, 2011.
- [20] Majid M. Moghaddam, M. Arbabtafti, Alireza Hadi, In-pipe inspection crawler adaptable to the pipe interior diameter", will be published in Issue 2, 2011 of the International Journal of Robotics and Automation.
- [19]M. Arbabtafti, M. Moghaddam, A. Nahvi, M. Mahvash and, B. Richardson,Virtual Bone Surgery Using a Haptic Robot, International Journal of Robotics (Theory and Applications), Vol. 1, No. 1 , 2009.
- [18] Alireza Hadi, Aghil Yousefi-Koma, Majid M. Moghaddam, Mohammad Elahinia, Asadollah Ghazavi, Developing a novel SMA-actuated robotic module, Sensors and Actuators A: Physical, Volume 162, Issue 1, July 2010, Pages 72-81, ISSN 0924-4247, DOI: 10.1016/j.sna.2010.06.014.

- [17] Shahram Shahriari, Shahram Azadi and Majid M. Moghaddam, An Accurate and Simple Model of Flexible Satellite for Three Dimensional Studies, *Journal of Mechanical engineering science*, 24 (6) (2010) 1319~1327
- [16] S Shahriari, M M Moghaddam, S Azadi' Dynamic and Vibration Analysis of a Satellite with Flexible Panels Equipped with Variable Speed Control Moment Gyros, *Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics*, Vol. 224, Number 2 / 2010 Pages157-166
- [15] Mohammadreza Arbabtafti, Majid M. Moghaddam, Ali Nahvi, Mohsen Mahvash, Barry Richardson, Physics-Based Haptic Simulation of Bone Machining, to appear at *IEEE Transactions on Haptics*, 2008
- [14] Ehyaei, Majid M. Moghaddam, Dynamic response and stability analysis of an unbalanced flexible rotating shaft equipped with n automatic ball-balancers, *Journal of Sound and Vibration*, Volume 321, Issues 3-5, 10 April 2009, Pages 554-571, ISSN 0022-460X, DOI: 10.1016/j.jsv.2008.10.019.
- [13] Majid M. Moghaddam, Abolhasan Salimi, Satellite Attitude Control by Magnetic Torquers with Variable Magnetic Intensity for Optimization of Power Consumption, to appear in the *Journal of Space Science and Technology of Iran*. 2008
- [12] Majid M. Moghaddam, H.R. Ghazizadeh, A. Mansouri, Homotopy analysis solution of free convection flow on a horizontal impermeable surface embedded in a saturated porous medium, *Communications in Nonlinear Science and Numerical Simulation*, Volume 14, Issue 11, November 2009, Pages 3833-3843, ISSN 1007-5704, DOI: 10.1016/j.cnsns.2008.09.004.
- [11] Majid M. Moghaddam, Mohammad R. Tafti, Alireza Hadi, In-pipe inspection crawler adaptable to the pipe interior diameter, paper under review, *International Journal of Robotics and Automation*, ACTA Press, 2008
- [10] Majid M. Moghaddam, Mehdi Agagani, Design and Manufacturing of a Single Plane Dynamic Balancer, to appear in the *Modares Technical and Engineering, Scientific Research Journal*, Iran, 2007
- [9] Yousef Hojjat, Majid M. Moghadam, Mohamad M. Sheikhi, Finite Element and experimental Analysis of an Active Magnetic Bearing System with PID control, to appear in the *Modares Technical and Engineering, Scientific Research Journal*, 2007
- [8] Majid M. Moghaddam, and Mohsen M. Dalvand, Design, Manufacturing and Control of Stairs and Obstacle Traversing Robot (MSRox), *Modares Technical and Engineering, Scientific Research Journal* No. 24: 13-30, 2006.
- [7] Mohsen M. Dalvand and Majid M. Moghaddam, Stair Climber Smart Mobile Robot (MSRox). *Autonomous Robots Journal*, 20:3-14, 2006.
- [6] Jafar Massah, M.R. Ghazavi, S. Minaee and Majid M. Moghaddam. Effect of Force Control System on Power and Time Consumption in Robotic Pruning Machine. *Journal of Agricultural Sciences, Islamic Azad University*, Vol. 11, No. 3:245-232-244, 2005.

- [5] Jafar Massah, M.R. Ghazavi, Majid M. Moghaddam and S. Minaee. Design and Development of Robotic Pruning Machine with Force Control System. *Modares Technical and Engineering, Scientific Research Journal*, No. 20: 45-62, 2005.
- [4] Majid M. Moghaddam and Fazlollah Moosavi. Robust maneuvering control design of an airplane via dynamic inversion and  $\mu$ -synthesis. *The Journal of Aerospace Engineering*, 219:11-18. Jan 2005.
- [3] Majid M. Moghaddam and Yousef Abbasi, System identification in  $H_{\infty}$ , *Journal of Science and Technology of Sharif*, Issue Focus: Mechanical Engineering pages 51–57, May 2004.
- [2] Majid M. Moghaddam and Andrew Goldenberg, An actuator-level robust joint torque control of robot with harmonic drive transmission. *International Journal of Science and Technology, Scientia Iranica*, 10(2):194–202, March 2003.
- [1] Majid M. Moghaddam and Andrew A. Goldenberg, On robust control of flexible joint robots using describing function and sector bounded nonlinearity description. *Journal of Intelligent and Robotic Systems*, 20:333–348, 1997.

## Conference Papers

- [68] Nastaran Taefi Aghdama, Majid Mohamadi moghadam, Double Quaternions Inverse Kinematic of a 6-DOF Serial Robot (PUMA560), *The 23rd Annual International Conference on Mechanical Engineering-ISME2015* 12-14 May, 2015, Mech. Eng. Dept., Amirkabir University of Technology, Tehran, Iran.
- [67] Nastaran Taefi Aghdama, Majid Mohamadi moghadam, Study on the Effect of Sinkage and Torsion Suspension on Dynamic Behaviour of tracked vehicle Using Universal Mechanism Software, *Fourth International Conference on Acoustics and Vibration (ISAV2014)*. Tehran, Iran.
- [66] F. Sayyad, Majid M. Moghaddam, F. Najafi, On a Haptic Dental Bone Removing Simulator, *IT and Compute Engineering Conference*, Tehran, Iran, 2014.
- [65] S. M. Davoodi, M. Majid M. Moghaddam, A. Dashkhaneh, M. Mirzaei, Design of a Rotary Elastic Actuator for Use as Torque-Actuator in Rehabilitation Robots, *The First RSI/ISM International Conference on Robotics and Mechatronics, ICROM2013*.
- [64] Majid M. Moghaddam, R. Mardani, M. Daryanavard, Simple Modeling of Approximate Turning Characteristics of Tracked Mobile Vehicles in Steady State Condition, *The First RSI/ISM International Conference on Robotics and Mechatronics, ICROM2013*.
- [63] M. Mirzaei, Majid M. Moghaddam, A. Dashkhaneh, S. M. Davoodi, Design and Manufacturing of a Gait Rehabilitation Robot, *The First RSI/ISM International Conference on Robotics and Mechatronics, ICROM2013*.
- [62] Ehsan Sadraei, Majid M. Moghaddam, On a Moving Base Robotic Manipulator Dynamics, *The First RSI/ISM International Conference on Robotics and Mechatronics, ICROM2013*.



- [61] Ehsan Sadraei, Majid M. Moghaddam, Akbar A. Beigloo, H. Batmanglich, MODELING OF SOFT TISSUE CUTTING BY USING LINEAR FINITE ELEMENT METHOD, 2nd International Scientific Conference on Engineering "Manufacturing and Advanced Technologies", 2012.
- [60] Ehsan Sadraei, Majid M. Moghaddam, R. Fotorchi, H. Batmanglich, NONLINEAR MODELLING OF NEEDLE INSERTION INTO SOFT TISSUE CONSIDERING THE EFFECT OF NEEDLE GEOMETRY and INSERTION VELOCITY, 2nd International Scientific Conference on Engineering "Manufacturing and Advanced Technologies", 2012.
- [59] ] B. Behzadpour, M. Moghaddam, Simulation of the Admittance Control Based Haptic Interface Device, 3rd International Conference on Manufacturing Engineering ,ICME2011.
- [58] B. Behzadpour, M. Moghaddam, and M. Arbabtafti, Dynamic Modeling and Control simulation of a Haptic Device, Proceedings of the 2011 IEEE International Conference on Robotics and Biomimetics, December 7-11, 2011, Phuket, Thailand
- [57] Mohammad R. Fazel, Majid M. Moghaddam, Javad Poshtan, Application of GDQ method in nonlinear analysis of a flexible manipulator undergoing large deformation, Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science December 2013 vol. 227 no. 12 2671-2685.
- [56] mohammad reza ghzavi , ghader rezazadeh , majid mohammadi moghadam, saber azizi , Study On the Dynamic and Static Pull in Instability of a Fully Clamped Micro Plate Considering Self Stretching and Residual Stress effects, 17th Annual Conference of Mechanical Engineering, 2009.
- [55] Hadi, A.a, Elahinia, M.b, Ghazavi, A.a, Moghadam, M.M.c, Design, modeling and control of a new robotic module actuated by shape memory alloy springs, Proceedings of the ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Volume 1, 2009, Pages 451-456.
- [54] M. Arbabtafti<sup>1</sup>, M. Moghaddam, A. Nahvi, M. Mahvash, A. Rahimi, Haptic and Visual Rendering of Virtual Bone Surgery: A Physically Realistic Voxel-Based Approach, HAVE'2008-IEEE International Workshop on Haptic Audio Visual Environments and Games, Ottawa, Canada, 18-19 October 2008
- [53] Majid Moghaddam, Ali Nahvi, Mohamadreza Arbabtafti, and Mohsen Mahvash, A Physically Realistic Voxel-Based Method for Haptic Simulation of Bone Machining, Proceeding of EuroHaptics 2008, Madrid, Spain, 2008.
- [52] Majid M. Moghaddam, Hamed Khakpour, Design, Simulation and Manufacturing of a Six DOF Haptic Robot, Proceeding of the 16th. Annual (International) Conference on Mechanical Engineering-ISME2008, May 14-16, 2008, Shahid Bahonar University of Kerman, Iran
- [51] Majid M. Moghaddam, Ali Hajnayeb, Hossein B. Shirin, Dynamic Analysis, Simulation of a Moving Based Robotic Platform Equipped with Flexible Tracks, Proceeding of the 16th. Annual (International) Conference on Mechanical Engineering-ISME2008, May 14-16, 2008, Shahid Bahonar University of Kerman, Iran
- [50] Mohammad R. Fazel, Majid M. Moghaddam, Javad Poshtan, Robust Linear (Nonlinear) Identification

of a 3DOF Robot, Proceeding of the 16th. Annual (International) Conference on Mechanical Engineering-ISME2008, May 14-16, 2008, Shahid Bahonar University of Kerman, Iran

[49] Majid M. Moghaddam, Shahram Azadi, Shahram Shahriari, Dynamic Simulation of a Satellite Equipped with Flexible Solar Panels, Proceeding of the 16th. Annual (International) Conference on Mechanical Engineering-ISME2008, May 14-16, 2008, Shahid Bahonar University of Kerman, Iran

[48] Majid M. Moghaddam, Shahram Azadi, Shahram Shahriari, Dynamic Modeling of a Satellite Equipped with Variable Speed Control Moment Gyros, Proceeding of the 16th. Annual (International) Conference on Mechanical Engineering-ISME2008

May 14-16, 2008, Shahid Bahonar University of Kerman, Iran

[47] Majid M. Moghaddam, A. Magnetically Actuated Satellite Attitude Control Through Orbital Path Division, Proceedings of the 7th International Aerospace Conference, Iran, 2008.

[46] Majid M. Moghaddam and Fazlollah Moosavi. Robust control design of a longitudinal mode of an Unmanned Air Vehicle. Proceedings of the 7th International Aerospace Conference, Iran, 2008.

[45] Majid. M. Moghaddam, M. Daryanavard, Optimal Design of a 4 DOF Mobile Manipulator with Dexterity Index, Proceeding of The Second Tehran International Congress on Manufacturing Engineering (TICME2007), Iran, 2007.

[44] Majid M. Moghaddam, Saied. Jerban, Normal Force Regulation of an In-pipe Inspection Robot to Reduce Energy, Proceeding of The Second Tehran International Congress on Manufacturing Engineering (TICME2007), Iran, 2007.

[43] M.M. Moghaddam ,H. Khakpour, On The Workspace, Assembly Configurations and Singularity Curves of the PRRRR-type Planar Manipulator, Proceeding of The Second Tehran International Congress on Manufacturing Engineering (TICME2007), Iran, 2007.

[42] Majid M. Moghaddam, M. Tafti, S. Shahriari, S. Hosseini, Closed-loop calibration of a Mitsubishi 5-DOF robot, Proceedings of the First Regional Conference of Mechanical Engineering Islamic Azad University, Majlessi New Town Branch, Iran, 2006

[41] Majid M. Moghaddam, M. Tafti, Design of an  $H^{\infty}$  controller for an active suspension system subjected to multiplicative uncertainty, Proceedings of the National Conference on Trends and Advances in Mechanical Engineering, YMCA Institute of Engineering, Faridabad, Haryana., Dec 9-10, 2006.pp1-6

[40] Majid M. Moghaddam, A. Salimi, Optimal Power Consumption of a Magnetic Attitude Control of a Small Satellite, Proceedings of the sixth regional Aerospace Conference, Iran, Feb. 2006.

[39] Majid M. Moghaddam, A. Hashemi, Design of a Gravity Gradient Boom of a Low-Earth Orbit Satellite, Proceedings of the sixth regional Aerospace Conference, Iran, Feb. 2006.

[38] Jafar Massah, M.R. Ghazavi, S. Minaee and Majid M. Moghaddam. Effect of Force Control System on Power and Time Consumption in Robotic Pruning Machine. Tehran International Congress on

Manufacturing Engineering (TICME2005), 2005.

[37] Majid M. Moghaddam, M. Tafti, Alireza Hadi, Design and Manufacturing of a Pipe Inspection Crawler (PIC), Tehran International Congress on Manufacturing Engineering (TICME2005), 2005.

[36] Majid M. Moghaddam, Mohsen M. Dalvand, Stair Climbing Mechanism for Mobile Robots, Tehran International Congress on Manufacturing Engineering (TICME2005), 2005.

[35] Majid M. Moghaddam, M. Tafti, Design, modeling and prototyping of a pipe inspection robot, 22nd International Symposium on Automation and Robotics in Construction, ISARC 2005

[34] Majid M. Moghaddam, Alireza Hadi Control and Guidance of a Pipe Inspection robot, 22nd International Symposium on Automation and Robotics in Construction, ISARC 2005

[33] Majid M. Moghaddam, M. Tafti, S. Shahriari, Analysis of Tendon-Driven Robotic Systems, Proceeding of the 13th International Mechanical Engineering Conference, Isfahan, Iran, 2005

[32] Majid M. Moghaddam, S. Khodam, H. Yadegari, Modeling and Simulation of a Gravity Gradient Low-Earth Orbit Satellite, Proceedings of the 13th International Mechanical Engineering Conference, Isfahan, Iran, 2005.

[31] Majid M. Moghaddam, M. Tafti, Design and modeling of a pipe inspection robot (PIC), Proceedings of the 13th International Mechanical Engineering Conference, Isfahan, Iran, 2005.

[30] Majid M. Moghaddam and Fazlolah Moosavi. Robust control design of a High Maneuvering Unmanned Air Vehicle. Proceedings of the 13th International Mechanical Engineering Conference, Isfahan, Iran, 2005.

[29] Mohsen F. Jegarkandi, Majid M. Moghaddam, and Hassan Haddadpour. On aeroelastic behavior of satellite. The 5th International Conference on Iranian Aerospace, June 2004.

[28] Majid M. Moghaddam and Kheirolah

Abbaspour, Design of robust orientation control of leo satellite utilizing  $\mu$ -synthesis method. Proceedings of the 5th International Conference on Iranian Aerospace, June 2004.

[27] Hossein Vafaeian and Majid M. Moghaddam. Robust QFT Based Controller design of a symmetric Vehicle. Proceedings of the 5th International Conference on Iranian Aerospace, June 2004.

[26] Samad M. Barmas and Majid M. Moghaddam. Direct calibration of industrial robots. Proceedings of the 12th International Mechanical Engineering Conference, Tehran, Iran, 2004.

[25] Majid M. Moghaddam and M. Sarfaraz, Design and Manufacturing of a Palletizing 3-DOF Gantry Robot Including Weight Control Sensor. Proceedings of the 12th International Mechanical Engineering Conference, Tehran, Iran, 2004.

[24] Mohsen F. Jegarkandi, Majid M. Moghaddam and H. Hadadpour, On Control System Design and Trajectory Planning of a Flexible Body Satellite. Proceedings of the 5th International Conference on Iranian Aerospace, June 2004.

- [23] Majid M. Moghaddam, Hojat Izadi, and Mehrdad Pakmehr. Intelligent Autolanding controller using Neural Network. The 5th International Conference of Aerospace Engineering of Iran, 2004.
- [22] Majid M. Moghaddam and Ali Bazaei, on approximate feedback linearization of robot manipulators, the fourth international conference on control and automation, pp178-182, Montreal, Candan, 2003.
- [21] Majid M. Moghaddam, Mohsen F. Jegarkandi, and Hassan Haddadpour. On aeroelastic behavior considering longitudes rotation period. The 4<sup>th</sup> International Conference of Aerospace Engineering of Iran, 1(1):583–593, Jan 2003.
- [20] Mohsen M. Dalvand and Majid M. Moghaddam. Design and modeling of a stair climber smart mobile robot –MSROX, The 11th International Conference on Advanced Robotics, pp1062-1067, June 30 - July 3, 2003 University of Coimbra, Portugal.
- [19] Reza Zeinali and Majid M. Moghaddam. Design, manufacturing and automation of position and orientation of radar antenna. The Firth Iranian Conference of Mechatronics Engineering, 1(1):74–84, June 2003.
- [18] Fazlolah Moosavi, Majid M. Moghaddam, R. Dashti, and Y. Abbasi. Robust control of airplane lateral channel during landing. The 11th International Conference of Mechanical Engineering of Iran, 1(1):1915–1922, May 2003.
- [17] Majid M. Moghaddam, Yousef Abbasi, and Fazlolah Moosavi. Nonlinear vibration control of elastic deflection wing section with nonlinear torsional stiffness. The 4th International Conference of Aerospace Engineering of Iran, 1(1):552–561, Jan 2003.
- [16] Majid M. Moghaddam, Hojat Izadi, and Mehrdad Pakmehr. Neural-based autolanding controller design of a commercial aircraft. The 4th International Conference of Aerospace Engineering of Iran, 4(1):321–326, Jan 2003.
- [15] Majid M. Moghaddam and Fazlolah Moosavi. Robust control of the rotational rate of the roll, pitch and yaw axes via  $\mu$ -synthesis. The 10th International Conference of Mechanical Engineering of Iran, 4(1):103–105, May 2002.
- [14] Majid M. Moghaddam, Yousef Abbasi, and Fazlolah Moosavi. Nonlinear control of wing section with nonlinear torsional stiffness. The 10th International Conference of Mechanical Engineering of Iran, 1(1):1270–1276, May 2002.
- [13] Majid M. Moghaddam, Hamid R. Sadeghi, and Kiumars Mazaheri. Robust control of fuel/air ratio in internal combustion engines. The Second International Conference on Internal Combustion Engines, 1(1):224–232, Feb 2002.
- [12] Majid M. Moghaddam and Yousef Abbasi. System identification in  $H_{\infty}$ . 5<sup>th</sup> International Conference of Mechanical Engineering (ISME2001), pages 595–601, May 2001.
- [11] Majid M. Moghaddam H.D. Rad and S. Bozorgmehri. Dynamic and control of position/force of

- walking robots. 5th International Conference of Mechanical Engineering (ISME2001), 3:587–593, May 2001.
- [10] Majid M. Moghaddam and S. F. Moosavi. Robust control design of flight maneuvering system using  $\mu$ . 5th International Conference of Mechanical Engineering (ISME2001), 3:627–633, May 2001.
- [9] H. Nazeri A.H. Behraves and Majid M. Moghaddam. Design of an algorithm and software for geometric tolerancing. 5th International Conference of Mechanical Engineering (ISME2001), 2:435–441, May 2001.
- [8] Majid M. Moghaddam A. H. Behraves, H. Jaani. Properties evaluation of polyurethane sandwich panels with plastic and aluminum skins: Thermal insulation. ANTEC 2000, 2000.
- [7] Majid M. Moghaddam and Amir H. Behraves. An approach to robust  $H_{\infty}$  control of flexible joint robots. 31st International Symposium on Robotics (ISR2000), (2):138–142, May 2000.
- [6] Majid M. Moghaddam and Andrew A. Goldenberg. Nonlinear modeling and robust  $H_{\infty}$ -based control of flexible joint robots with harmonic drives. The IEEE International Conference on Robotics and Automation, April 1997.
- [5] Majid M. Moghaddam and Andrew A. Goldenberg. Robustness and performance trade-offs in torque control of robots with harmonic drive transmission. The IEEE International Conference on Robotics and Automation, April 1997.
- [4] Majid M. Moghaddam and Andrew A. Goldenberg. An approach to robust  $H_{\infty}$  control of flexible joint robots. to be published in ECPD International Conference on Advanced Robotics, Intelligent Automation and Active Systems, September 1996.
- [3] Majid M. Moghaddam. On robust  $H_{\infty}$  -based control design for flexible joint robots. The IEEE International Conference on Control Applications, September 1996.
- [2] Majid M. Moghaddam. A robust  $H_{\infty}$  -controller for robotic manipulators. Hong Kong International Workshop on New Directions of Control and Manufacturing, November 1994.
- [1] Majid M. Moghaddam and Martin Buehler. Control of virtual motion systems. IROS, 1:63–67, July 1993.

## PhD Students Under Supervision

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## Editorial Experience

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Editor, Modares Technical and Engineering, Scientific Research Journal, 1997-continues.

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