

CURRICULUM VITAE

October 2016



Title: Associate Professor

First Name: Ahmad

Surname: Fakharian

Date of Birth: December 19, 1975

Address (Home): 4th Floor, No. 22, 10th Alley, Shahid Khiabani Street, End of Niayesh Highway, 1st Shahransquare, Tehran, Iran. Postal Code: 1478735564

Telephone (Mobile): +98912-2370337

Email: 1- Islamic Azad University-Qazvin Branch: ahmad.fakharian@qiau.ac.ir

2- IEEE Email: ahmad.fakharian.ir@ieee.org

3- Gmail: ahmad.fakharian@gmail.com

EDUCATION

- 1- PostDoc:** Control Engineering Group, Department of Computer Science and Electrical Engineering, Luleå University of Technology, Luleå, Sweden, September 2010- August 2011
Research Topic: “*Optimization and Control of Complex Industrial Systems*”
Supervisor: Professor Thomas Gustafsson
- 2- PhD:** Control Engineering Group, , Faculty of Electrical Engineering, Tarbiat Modares University, Tehran, Iran, 2003-2010
Thesis Title: “*Multiobjective Control of Singular Perturbation Systems*” with Grade A (18.55/20)
Supervisor: Professor Mohammad Taghi Hamidi Beheshti
- 3- M.Sc.:** Control Engineering Group, Electrical and Computer Dept., Faculty of Engineering, University of Tehran, Tehran, Iran, 1999-2002
GPA: 17.23/20 (2nd Student in Control Eng. Group)
Thesis Title: “*Modeling, Simulating and Design of Nonlinear Optimal Controller for Active Suspension System in Order to Vertical Motion Control of Automotive*” with grade 19/20.
Supervisor: Dr. Reza Kazemi
- 4- B.S.:** Control Engineering Group, Electrical and Computer Dept., Faculty of Engineering, University of Tehran, Tehran, Iran, 1994-1999
GPA: 15.38/20 (6TH Student in Control Eng. Group)
Project Title: “*Automation of Hormozgan Cement Industry’s 2nd Production Line Using Siemens S5 PLC*” with grade 18/20.
Supervisor: Dr. Farshid Forouz Bakhsh
- 5- Diploma:** Alborz High School (American College), Mathematics & Physics, Tehran, Iran, 1990-1994
GPA: 19.18/20(First Student in Class and 5th student in High school)

RESEARCH INTERESTS

- Smart Grids Modeling and Control
- Large Scale Systems Modeling and Control
- Biologic System Modeling and Control
- Convex Optimization
- Singular Perturbation Systems Analysis and Control
- Robust and Optimal Control
- Multi-objective Control
- Linear Matrix Inequalities in Control
- Numerical Methods for Solving PDE's
- Mechatronics (Automotive Active Suspension, Robotics...)
- Industrial Automation

HONORS and AWARDS

- Ranked *1st* among high school education in American College with GPA 19.18/20
- Ranked *2nd* among M.Sc. students of control engineering group with GPA 17.23/20 in Department of Electrical and Computer Engineering, University of Tehran
- Ranked *1st* in Entrance PhD Exam of Control Engineering, Tarbiat Modares University
- Ranked *1st* among PhD students of control engineering group with GPA 18/20 in Faculty of Engineering, Electrical and Computer Dept., Tarbiat Modares University
- Postdoctoral research program *Award* from Lulea University of Technology, 2010
- Best Researcher *Award*, Qazvin Azad University-2011
- ELEC Spring School *Award* from the VUB-2012
- Best Researcher *Award*, Qazvin Azad University-2012
- Postdoctoral research program *Award from University of West Bohemia (EXLIZ Program: <https://exliz.zcu.cz/en/node/49>)- 2013*
- Ranked *3rd* in Iran open 2013 Robocup Competition (Senior Demo League)-2013
- Best Researcher *Award*, Qazvin Azad University-2013
- Ranked *2nd* in Iran open 2014 Robocup Competition (Quadrotor League)-2014
- Ranked *2nd* in Robocup 2014 Competition (Rescue League)-2014
- Best Researcher *Award*, Qazvin Azad University-2014

MEMBERSHIPS

- Member of IEEE (#93780053)- 2016 up to now
- Member of IEEE Control System Society

ACADEMIC EXPERIENCE

- Associate Professor, Faculty of Electrical, Biomedical and Mechatronics Engineering, Qazvin Branch, Islamic Azad University (QIAU), Qazvin, Iran, October 2001- current
- Adjunct Lecturer, Faculty of Engineering, Shahed University, Tehran, Iran, January 2015- current
- Adjunct Lecturer, Faculty of Engineering, Alzahra University, Tehran, Iran, August 2015- current
- Adjunct Lecturer, Faculty of Engineering, Islamic Azad University, E-Campus, Tehran, Iran, August 2015- current
- Adjunct Lecturer, Faculty of Engineering, South Tehran Azad University, Tehran, Iran, September 2012- current

- Adjunct Lecturer, Hamadan University of Technology, Hamadan, Iran, 2009-2010
- Adjunct Lecturer, Technical Instructor Training Center, Karaj Branch, Karaj, Iran, 2004-2005
- Head of Control and Power Engineering Dept. with more than 600 PhD, M.Sc. and B.S students, Qazvin Branch, Islamic Azad University, September 2012- current
- Member of Board of Directors of Control System Group, IEEE Iran Section, September 2013-current
- Member of Qazvin Branch, Islamic Azad University's Incubator Center Council, September 2012- current
- Head of IEEE Iran Section Student Branch, Qazvin Islamic Azad University, January 2016- current
- Head of Quadrotor Research Group-MRL Laboratory, Qazvin Branch, Islamic Azad University, September 2013-September 2015
- Head of Advance Control Systems Research Group, Qazvin Branch, Islamic Azad University, May 2013-current
- Head of Control Engineering Dept. with more than 600 students, Qazvin Branch, Islamic Azad University, 2008- 2010
- Research Manager, Faculty of Electrical and Computer Engineering, Qazvin Branch, Islamic Azad University, 2005- 2008
- Member of Research Council, Qazvin Branch, Islamic Azad University, 2005- 2007
- Head of Control Engineering Dept. with more than 400 students, Qazvin Branch, Islamic Azad University, September 2002- November 2006
- Supervisor of more than 100 B.S Projects and 30 M.Sc. and 4 PhD thesis, Qazvin Branch, Islamic Azad University
- Member of Editorial Board of American Journal of Computation, Communication and Control, American Journal of Science and Technology, International Journal of Wireless Communications, Networking and Mobile Computing, International Journal of Computer Engineering and Information Technology (IJCEIT), International Journal of Electrical Components and Energy Conversion
- Review Board Member of Journals such as Engineering and Technology, American Journal of Computation, Communication and Control, International Journal of Electrical and Electronic Science, Advances in Civil and Environmental Engineering, Asian Journal of Fuzzy and Applied Mathematics (AJFAM), Asian Journal of Engineering and Technology (AJET), Asian Journal of Computer and Information Systems (AJCIS), Universal Journal of Electrical and Electronic Engineering,
- Reviewer of Journals such as IEEE Transaction on Industrial Electronics, IEEE Transactions on Cybernetics, IEEE Transactions on Systems, Man, and Cybernetics, Asian Journal of Control, IET Control Theory and Applications, IET Power Electronics, International Journal of Control, International Journal of Nonlinear Mechanics (Elsevier), Transactions of the Institute of Measurement and Control (SAGE), International Journal of Electrical Power and Energy Systems (Elsevier), Computers and Electronics in Agriculture (Elsevier), Recent Advances in Electrical & Electronic Engineering, Electric Power Components and Systems Journal (Taylor and Francis), Applied Computational Electromagnetic Society (ACES), Neural Computing & Applications (Springer), Journal of Biomedical Engineering (BME), Journal of Nonlinear Analysis: Hybrid Systems (Elsevier), International Journal of Systems Science, Engineering Science and Technology (Elsevier), Journal of Control and Systems Engineering (JCSE), Journal of Business and Economic Management, scientific research and Essay, Journal of computer and robotic, World Applied Science Journal, Journal of Operation and Automation in Power Engineering, American Journal of Science and Technology, International Journal of Wireless Communications, Networking and Mobile Computing, Modares Journal of Electrical Engineering, Advances in Mechanical Engineering (SAGE), Amirkabir International Journal of Modeling, Identification, Simulation & Control, Amirkabir International Journal of Electrical & Electronics Engineering, Iranian Journal of Fuzzy Systems, Open Mechanical Engineering Journal, Journal of Optimization in Industrial

- Engineering, Iranian Journal of Electrical and Computer Engineering (IJECE), Applied Mathematics (AM), Information Technology Research Journal (ITRJ)
- Reviewer of IEEE conferences such as ACC2007, SSST2010, CCECE2011, MED2011, ICCA2011, CIS-RAM2011, ICECS2011, ACC2012, ICIT2012, CDC2012, ACC2012, ICCSII2012, RIOS2012, ACC2013, ICCA2013, ICROM2013, ICEE2013, RIOS2013, CDC2013, ICSC2013, IFSC2013, ACC2014, ICCA2014, RIOS2014, SAI2014, IROS2014, CDC2014, ICARCV2014, ICROM2014, ACC2015, ECC2015, ICIEA2015, ICEE2015, RIOS2015, ICSC2015, FSDM2015, AUCC2015, ICCIA2016, ISAV2015, CECNET2015, ACC2016, ECC2016, ICEE2016, ICCA2016, MED2016, MOCAS2016, SICE2016, CDC2016, FTC2016, ICRoM2016, MCE2016, ICEE2017, CECNet2016, FSDM2015, ICOSST2016, ACC2017
 - Member of Technical Program Committee RIOS2012, RIOS2013, CSAIT2013, MIC-PCM 2013, IFSC2013, CECNET2013, Science and Information Conference (SAI2014), RIOS2014, SAI2015, RIOS2015, SCET 2016, EMSE2015, EETA2015, CMA2016, MICT-2015, ICCIA2016, The 6th joint Conference on Artificial Intelligence & Robotics and the 8th RoboCup Iran Open International Symposium 2016, MOCAS2016, MIC-SigProc 2016, ECME2016, FTC2016, CMA2017, New Research Achievements in Electrical and Computer Engineering 2016, ICMAE2016, CACE2016, ICC2016, SCET2017, MCE2016, ICOSST2016, ICEE2017, ESD2017, MDCE2017, ISCAM2017, EIA2017
 - Member of Executive Committee IFSC2013, ICCIA2016, The 6th joint Conference on Artificial Intelligence & Robotics and the 8th RoboCup Iran Open International Symposium 2016, CFIS2017
 - Executive Secretary of IEEE conferences such as ICCIA2016, CFIS2017
 - Chair of IEEE conferences such as ICCA2010, ICCA2011, RIOS2013, IFSC2013, RIOS2014, RIOS2015, ICIEA2015, ICCIA2016
 - Member of organization committee of IEEE CCECE2012, Montreal, Canada, SCET 2016
 - Member of IPC in ICCAS2012, ICEMIE2016
 - Member of referee committee, 4th and 5th Iranian Student Conference on Electrical Engineering,
 - Research Assistant, Linear Control Systems laboratory, University of Tehran, Faculty of Engineering, Electrical and Computer Dept., 2000-2001

ACADEMIC TEACHING EXPERIENCE

- **Postgraduate Course:**
 - o Multivariable Control Systems
 - o Robust Control
 - o Optimal Control
 - o Advanced Industrial Control Systems
 - o System Identification
 - o Estimation Theory
 - o Advanced Automatic Control Systems
 - o Linear Matrix Inequalities In Control (LMI)
 - o Automation Systems
 - o Mechatronics I
 - o Advanced Instrumentation
- **Undergraduate Course:**
 - o Linear Control Systems
 - o Modern Control Systems
 - o Industrial Control Systems

- Instrumentation
- Signal And Systems
- Linear Algebra
- Electrical Circuits
- Computer Aided Design
- Control and Protection Systems in Power Plants
- Programmable Logic Controllers

PUBLICATIONS

BOOKS:

- 1- **Ahmad Fakharian**, M. H. Movahedi, M. T. Gankhaki and A. Keshavarz, Professional Reference of Instrumentation, 2013, Soha Danesh Publishing Company (in Persian).

BOOK CHAPTER:

- 1- **Ahmad Fakharian**, Morteza Nazari Monfared, Seyedeh Marzieh Hosseini Dolatabadi, Leila Sedghi and Masoud Emam, , **Chaotic Nonlinear Circuits: Definition and Control** in Book Title: **New Research Trends in Nonlinear Circuits: Design, Chaotic Phenomena and Applications**, NOVA Science Publishers, 2014, ISBN: 978-1-63321-408-8.

JOURNAL PAPERS:

- 1- **A. Fakharian**, M.T. Hamidi Beheshti, M. Najafi, "Adomian Decomposition Method Approach for Solving Riccati Differential Equation", WSEAS Transactions on Signal Processing, vol. 2, pp. 732-738, 2006.
- 2- **A. Fakharian** and M.T Hamidi Beheshti, "Solving Linear and Nonlinear Optimal Problem Using Modified Adomian Decomposition Method", Journal of Computer and Robotic, vol. 1, pp. 1-8, 2008.
- 3- **A. Fakharian**, M.T. Hamidi Beheshti and A. Davari, "Solving the Hamilton-Jacobi-Bellman equation Using Adomian Decomposition Method", International Journal of Comp. Mathematics, vol. 87, issue 12, pp. 2769-2785, 2010.
- 4- F. Jamshidi, **A. Fakharian** and M. T. Hamidi Beheshti, "Fuzzy supervisor approach on logic-based switching H_2/H_∞ ", Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering, vol. 224, pp. 11-19, 2009.
- 5- **A. Fakharian**, F. Jamshidi and M.T. Hamidi Beheshti, " Logic Based Switching H_2/H_∞ Control of Linear Singular Perturbation Systems: A Fuzzy Supervisor Approach", Journal of Control, vol. 3, no. 3, pp. 64-72, 2009.
- 6- **A. Fakharian**, F. Jamshidi and T. Hamidi Beheshti, "Switching H_2/H_∞ control of singular perturbation systems", Australian Journal of Basic and Applied Sciences, vol. 3 (4), pp. 4243-4252, 2009.
- 7- **Ahmad Fakharian**, "Design of Switching Multi-Objective Controller: A New Approach", Journal of Mathematical Problem in Engineering, pp. 1-12, 2011.
- 8- **Ahmad Fakharian** and George Nikolakopolous, "A New Approach to the Multi Objective Control of Linear Singular perturbation Systems", Journal of Computer and Robotics, vol. 4, no. 1, pp. 33-38, 2011.
- 9- Vahid Azimi, Mohammad Ali Nekoui and **Ahmad Fakharian**, "Robust Multi-Objective H_2/H_∞ Tracking Control Based On T-S Fuzzy Model for a Class of Nonlinear Uncertain Drive Systems", Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering, pp. 1107-1118, 2012.
- 10- M. Khoeiniha, H. Zarabadipour and **A. Fakharian**, "Nonlinear Electrical Circuit Oscillator Control Based on Backstepping Method: A Genetic Algorithm Approach", Journal of Mathematical Problem in Engineering, Special Issue on Bifurcation and Chaos Theory in Electrical Power Systems: Analysis and Control (BCTE), 2012.

- 11- Zinat Asadi and **Ahmad Fakharian**, “Control of a Hyperchaotic System Via Generalized Backstepping Method”, Journal of Computer and Robotics, vol. 5, issue 2, pp. 27-32, summer and autumn 2012.
- 12- Fatemeh Tohfeh and **Ahmad Fakharian**, “Polynomial Optimal Trajectory Planning and Obstacle Avoidance for Omni-directional Mobile Robots in Dynamic Environments”, Modares Journal of Electrical Engineering, Special Issue on Control, Automation and Instrumentation, vol. 12, no. 3, pp. 13-19, Fall 2012.
- 13- Vahid Azimi, **Ahmad Fakharian** and Mohammad Bagher Menhaj, “Position and Current Control of an IPMSM by Using Loop-Shaping Methodology: Blending of H_∞ Mixed-Sensitivity Problem And T-S Fuzzy Model Scheme”, ASME Journal of Dynamic Systems, Measurement and Control, vol. 135, pp. 051006-1/051006-11, 2013.
- 14- Vahid Azimi, Mohammad Bagher Menhaj and **Ahmad Fakharian**, “Robust Fuzzy Gain-Scheduled Control of The 3-Phase IPMSM”, Amirkabir International Journal of Modeling, Identification, Simulation & Control, vol. 45, no. 1, pp. 1-14, spring 2013.
- 15- Arash Sheikhlar, Mehdi Zarghami, **Ahmad Fakharian** and Mohammad Bagher Menhaj, “Delay Compensation on Fuzzy Trajectory Tracking Control of Omni-Directional Mobile Robots”, Amirkabir International Journal of Electrical and Electronics Engineering, vol. 45, no. 2, pp. 57-64, Autumn 2013.
- 16- Reza Rahmani and **Ahmad Fakharian**, “New Control Method of Islanded Microgrid System: A GA & ICA based optimization approach”, Modares Journal of Electrical Engineering, special issue on power electronics and power systems, vol. 12, issue 4, pp. 43-52, winter 2013.
- 17- Mehdi Golestani and **Ahmad Fakharian**, “Integral Backstepping Sliding Mode Guidance Law with Finite Time Convergence”, International Journal of Control and Automation, vol. 7, no. 8, pp.19-30, 2014.
- 18- Vahid Azimi, Mohammad Bagher Menhaj and **Ahmad Fakharian**, “Fuzzy Mixed-Sensitivity Control of Uncertain Nonlinear Induction Motor”, Majlesi Journal of Electrical Engineering, vol. 8, no. 2, pp. 45-53, 2014.
- 19- **Ahmad Fakharian**, Ramtin Mosaferin and Mohammad Bagher Menhaj, “A New Recurrent Fuzzy Neural Network Controller Design for Speed and Exhaust Temperature of a Gas Turbine Power Plant”, Amirkabir International Journal of Modeling, Identification, Simulation & Control, vol. 46, no. 2, pp. 23-30, Autumn 2014.
- 20- **Ahmad Fakharian** and Amir Abbasi, “Design of H_∞ Congestion Controller for TCP Networks Based on LMI Formulation”, Journal of Optimization in Industrial Engineering, vol. 17, pp. 51-56, 2015.
- 21- Vahid Azimi, M. B. Menhaj and **Ahmad Fakharian**, “Tool Position Tracking Control of a Nonlinear Uncertain Flexible Robot Manipulator by Using Robust H_2/H_∞ Controller via T-S Fuzzy Model”, SADHANA-Academy proceedings in engineering sciences, vol. 40, pp. 307-333, 2015.
- 22- **Ahmad Fakharian** and Reza Rahmani, “An Optimal Controlling Approach for Voltage Regulation and Frequency Stabilization in Islanded Microgrid System”, Journal of Control Engineering and Applied Informatics, in press.
- 23- Arash Sheikhlar, **Ahmad Fakharian**, H. Beik-Mohammadi and Aras Adhami Mirhosseini, “Design and Implementation of Self-Adaptive PD Controller Based on Fuzzy Logic Algorithm for OMNI-Directional Fast Robots in Presence of Model Uncertainties”, International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, vol. 24, no. 5 (2016), pp. 761-780, 2016.
- 24- Reza Rahmani and **Ahmad Fakharian**, “An Intelligent Control Architecture for Autonomous Operation of a Hybrid AC/DC Microgrid System Based on Distributed Methods”, Amirkabir International Journal of Electrical and Electronics Engineering, in press.
- 25- Arash Sheikhlar and **Ahmad Fakharian**, “Online Policy-Iteration Reinforcement Learning Algorithm for Adaptive Optimal Control of Four Wheeled Omni-Directional Robots”, Amirkabir International Journal of Modeling, Identification, Simulation & Control, in press.

- 26- Naser Azim Mohseni and **Ahmad Fakharian**, “*Direct Optimal Motion Planning for Omni-directional Mobile Robots under Limitation on Velocity and Acceleration*”, Journal of Optimization in Industrial Engineering, under review.
- 27- Naser Azim Mohseni, Fatemeh Tohfeh and **Ahmad Fakharian**, “*Practical Direct Optimal Motion planning and Obstacle Avoidance for Omni-directional Robots Based on B-Spline*”, Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering, under review.
- 28- Leila Sedghi and **Ahmad Fakharian**, “*Design a Robust mixed H_2/H_∞ controller with Linear Matrix Inequalities approach for an islanded microgrid*”, Journal of Control, under review.
- 29- Reza Rahmani and **Ahmad Fakharian**, “*An Optimal Power Management System for Automatic Connection of DC and AC resources of Hybrid-Microgrid Systems*”, Energy Conversion and Management, under review.

CONFERENCE PAPERS:

- 1- **Ahmad Fakharian**, M. Farshad and M.J. Yazdan Panah, “*Robust Identification of Nonlinear Systems Using Neural Network Models*” in the Proceedings of 9th Iranian Conference on Electrical Engineering (ICEE), Tehran, Iran, May 2001, Vol. 3, pp. (31-1)–(31-12).
- 2- **Ahmad Fakharian**, M.J. Yazdan Panah and R. Kazemi, “*Design of Active Suspension System for Automotive Vertical Motion Control Using Nonlinear Optimal Control with Taylor Approximation*” in the Proceedings of 10th Iranian Conference on Electrical Engineering (ICEE), Tabriz, Iran, May 2002, Vol. 3, pp. 341-348.
- 3- **Ahmad Fakharian** and M.J. Yazdan Panah, “*Design of Nonlinear Optimal Controller for Automotive Active Suspension*” in the Proceedings of 1st Iranian Conference Mechatronics Engineering (ICME), Qazvin, Iran, June 2003.
- 4- **Ahmad Fakharian**, M.J. Yazdan panah and A. Akhbardeh, “*Design of a Nonlinear Optimal Controller for Active Suspension System in Order to Vertical Motion Control of Automotive*” in the Proceedings of 5th International Workshop on Research and Education in Mechatronics (REM2004), Kielce-Cedzyna, Poland, October 2004, pp. 143-147.
- 5- A. Akhbardeh, M. Farrokhi and **Ahmad Fakharian**, “*Voluntary and Involuntary Eye Blinks Extraction Using Neuro-Fuzzy Systems and Shift-Invariant Wavelet Transforms for Man-Machine Interaction*” in the Proceedings of 5th International Workshop on Research and Education in Mechatronics (REM2004), Kielce-Cedzyna, Poland, October 2004, pp. 23-28.
- 6- **Ahmad Fakharian**, M.T. Hamidi Beheshti, M. Najafi, “*A New Algorithm for Solving Riccati Equation Using Adomian Decomposition Method*”, Proceeding of the 9th WSEAS International Conference on Applied Mathematics, May 2006, Istanbul, Turkey, pp. 74-77.
- 7- **Ahmad Fakharian**, M.T. Hamidi Beheshti, “*A New Algorithm Based on The Adomian Decomposition method for Solving Riccati Equation in Linear Optimal Control*”, Proceeding of 15th Iranian Conference on Electrical Engineering (ICEE2007), Tehran, Iran.
- 8- **Ahmad Fakharian** and M.T. Hamidi Beheshti, “*Linear and Nonlinear Optimal Problem Solution Using Modified Adomian Decomposition Method*”, Proceeding of 16th Iranian Conference on Electrical Engineering (ICEE2008), Tehran, Iran.
- 9- B. Jozi, **Ahmad Fakharian**, M. Nademi and M. Yousefi Azar Khanian, “*Harmonic Opponent Modeling and Behavior Structure for 3D Soccer Simulation Agent*”, 2009 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA2009), Daejeon, Korea, pp. 394-397.
- 10- M. Yousefi Azar, **Ahmad Fakharian**, M. Godarzvand Chegini and B. Jozi, “*An Intelligent Fuzzy Controller Based on Genetic Algorithm*”, 2009 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA2009), Daejeon, Korea, pp. 486-491.
- 11- **Ahmad Fakharian**, F. Jamshidi and M.T. Hamidi Beheshti, “*Logic Based Switching H_2/H_∞ Controller Design for Linear Singular Perturbation Systems: A Fuzzy Supervisor Approach*”,

- 8th IEEE International Conference on Control and Automation (ICCA2010), June 9-11, Xiamen, China, pp. 1311-1315, 2010.
- 12- **Ahmad Fakharian**, F. Jamshidi and M.T. Hamidi Beheshti, "*Logic Based Switching H_2/H_∞ Controller Design: an Intelligent Supervisor Approach*", 8th IEEE International Conference on Control and Automation (ICCA2010), June 9-11, Xiamen, China, pp. 446-449, 2010.
 - 13- B. Jozi, **Ahmad Fakharian** and A. Karachi, "*Hierarchical Behavior Structure for NAO robot utilizing Fuzzy Inference Systems*", IEEE international conference on Electrical and Control Engineering (ICECE2010), June 26-28, Wuhan, China, pp. 3799-3802, 2010.
 - 14- **Ahmad Fakharian**, Thomas Gustafsson and M. Mehrfam, "*Adaptive Kalman Filtering Based Navigation: An IMU/GPS Integration Approach*", the 8th IEEE Conference on Networking, Sensing and Control (ICNSC2011), April 11-13, Delft, Netherlands, pp. 181-185, 2011.
 - 15- Ensieh Taghimohammadi, **Ahmad Fakharian** and M. T. Hamidi Beheshti, "*Simulation and assessment of Wireless Fieldbus Networks Over IEEE802.11*", The 24 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE2011), May 8-11, Niagara Falls, Ontario, Canada, pp. 1054-1059, 2011.
 - 16- **Ahmad Fakharian** and Thomas Gustafsson, " *H_2 static state Feedback Control of Linear Singular perturbation systems: A new Approach*", The 24 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE2011), May 8-11, Niagara Falls, Ontario, Canada, pp. 1-6, 2011.
 - 17- **Ahmad Fakharian**, Saman Hosseini and Thomas Gustafsson, "*Precise Hybrid Motion Detection And tracking in Dynamic Background*", The 19th Mediterranean Conference on Control and Automation (MED2011), June 20-23, Corfu, Greece, pp. 1398-1402, 2011.
 - 18- **Ahmad Fakharian** and Thomas Gustafsson, "*An Iterative-LMI Based H_2 Control of Singular perturbation Systems*", The 2011 IEEE Multi-Conference on Systems and Control (MSC2011), September 28-30 2011, Denver, CO, USA, pp. 1505-1509, 2011.
 - 19- **Ahmad Fakharian** and Thomas Gustafsson, "*A New Approach on H_∞ Control of Linear Singular Perturbation Systems*", 9th IEEE International Conference on Control and Automation (ICCA2011), December 19-21 2011, Santiago, Chile, pp. 969-973, 2011.
 - 20- Mahdi Yousefi Azar khania and **Ahmad Fakharian**, "*A New Prediction Algorithm to Improve Training The Neural Networks and Its Application in Mobile Robot Control System*", 9th IEEE International Conference on Control and Automation (ICCA2011), December 19-21 2011, Santiago, Chile, pp. 429-433, 2011.
 - 21- A. Karambakhsh, M. Yousefi Azar Khania, M. R. Meybodi and **Ahmad Fakharian**, "*Robot Navigation Algorithm to Wall Following Using Fuzzy Kalman Filter*", 9th IEEE International Conference on Control and Automation (ICCA2011), December 19-21 2011, Santiago, Chile, pp. 440-443, 2011.
 - 22- **Ahmad Fakharian** and Saman Hosseini, "*Hybrid Object Detection Using Improved Gaussian Mixture Model*", 11th International Conference on Control, Automation and Systems (ICCAS2011), October 26-29 2011, Kintex, Gyeonggi-do, Korea, pp. 1475-1479, 2011.
 - 23- Vahid Azimi, Mohammad Ali Nekoui and **Ahmad Fakharian**, "*Speed and Torque Control of Induction Motor by Using Robust H_∞ Mixed-Sensitivity Problem Via T-S Fuzzy Model*", ICEE2012, May 15-17 2012, Tehran, Iran, pp. 957-962, 2012.
 - 24- **Ahmad Fakharian** and Vahid Azimi, "*Robust Mixed-Sensitivity H_∞ Control for a Class of MIMO Uncertain Nonlinear IPM Synchronous Motor via T-S Fuzzy Model*", 17th International Conference on Methods & Models in Automation & Robotics (MMAR2012), August 27-30 2012, Miedzyzdroje, Poland, pp. 546-551, 2012.
 - 25- Vahid Azimi and **Ahmad Fakharian**, "*Robust Mixed-Sensitivity Gain-Scheduled H_∞ Tracking Control of a Nonlinear Time-Varying IPMSM via a T-S Fuzzy Model*", 13th International Workshop on Research and Education in Mechatronics (REM2012), November 21-23 2012, Paris, France, pp. 345-352, 2012.
 - 26- Shervin Tashakori, Mahdi Alinaghizadeh Ardestani and **Ahmad Fakharian**, "*Robust H_∞ Attitude Controller Design of a Quadrotor for Disturbance Attenuation*", 2012 19th International Conference on Mechatronics and Machine Vision in Practice (M2VIP), November 27-30 2012, Auckland, New Zealand, pp. 86-90, 2012.

- 27- **Ahmad Fakharian**, Siavash Boroumand, Aria Saboury and Ali Ravari, “*Design of PID Controller by Using an Optimal State Feedback for Path Tracking of PUMA 560 Robot*”, International Conference on Robotics and Mechatronics (ICRoM), February 13-15 2013, Tehran, Iran, 2013.
- 28- Vahid Azimi, **Ahmad Fakharian** and Mohammad Bagher Menhaj, “*Robust H_2/H_∞ Control of a Nonlinear Uncertain Flexible Robot Manipulator*”, International Conference on Robotics and Mechatronics (ICRoM), February 13-15 2013, Tehran, Iran, 2013.
- 29- Aria Saboury, Siavash Boroumand, Ali Ravari, Mahdi Tale Masouleh and **Ahmad Fakharian**, “*MRTQ, a Robot for Research and Education Based on Programmable Logical Array System*”, RIOS2013, April 8 2013, Qazvin, Iran.
- 30- Arash Sheikhlari, **Ahmad Fakharian** and A. Mirhosseini Adhami, “*Fuzzy Adaptive PI Control of Omni Directional Mobile Robot*”, IFSC2013, August 27-29 2013, pp. 1-4, Qazvin, Iran.
- 31- Farahnaz Javidi, **Ahmad Fakharian** and Mahjabin Sadat Seyedsajadi, “*Fuzzy Integral Backstepping Control Approach in Attitude Stabilization of a Quadrotor UAV*”, IFSC2013, August 27-29 2013, pp. 1-6, Qazvin, Iran.
- 32- Ramtin Mosaferin and **Ahmad Fakharian**, “*Fuzzy Control for Rotor Speed of Power Plant Gas Turbine*”, IFSC2013, August 27-29 2013, pp. 1-4, Qazvin, Iran.
- 33- Marzieh Hosseini Dolatabadi, M. Nazari Monfared and **Ahmad Fakharian**, “*Robust H_∞ Control for the pH Neutralization Process based on Fuzzy Models*”, IFSC2013, August 27-29 2013, pp. 1-6, Qazvin, Iran.
- 34- Siavash Boroumand, Arya Saboury, Ali Ravari, Mehdi Tale Masouleh and **Ahmad Fakharian**, “*Path Tracking and Obstacle Avoidance of a FPGA-based Mobile Robot (MRTQ) Via Fuzzy Algorithm*”, IFSC2013, August 27-29 2013, pp. 1-5, Qazvin, Iran.
- 35- Vahid Azimi, Mohammad Bagher Menhaj and **Ahmad Fakharian**, “*Fuzzy Robust Control of MIMO Nonlinear Uncertain Systems*”, IFSC2013, August 27-29 2013, pp. 1-6, Qazvin, Iran.
- 36- Vahid Azimi, Mohammad Bagher Menhaj and **Ahmad Fakharian**, “*Robust H_2/H_∞ Control for a Robot Manipulator Fuzzy System*”, IFSC2013, August 27-29 2013, pp. 1-6, Qazvin, Iran.
- 37- Vahid Azimi, Mohammad Bagher Menhaj and **Ahmad Fakharian**, “*Adaptive Control of A Wind Turbine Based on Neural Networks*”, IFSC2013, August 27-29 2013, pp. 1-6, Qazvin, Iran.
- 38- Hasan Samadi, Mehdi Karimi and **Ahmad Fakharian**, “*Movement Control of a Wheeled Robot Based on EEG Signals of Human Group*”, IFSC2013, August 27-29 2013, Qazvin, Iran.
- 39- Mahdi Alinaghizadeh Ardestani and **Ahmad Fakharian**, “*Consensus in Multi-Agent Networked Systems using Adaptive Neuro-Fuzzy Inference Systems*”, IFSC2013, August 27-29 2013, pp. 1-5, Qazvin, Iran.
- 40- Shima Parsian Mehr, **Ahmad Fakharian** and S. Sepehr Tabatabaei, “*An Experimental LTI Model for Open Loop Nao Navigation*”, IEEE INDICON 2013, Impact of Engineering on Global Sustainability, 13-15 December 2013, pp. 1-6, IIT Bombay, Mumbai, India.
- 41- Morteza Nazari Monfared, Marzeieh Hosseini Dolatabadi and **Ahmad Fakharian**, “*Nonlinear Optimal Control of Magnetic Levitation System Based on HJB Equation Approximation Solution*”, ICEE2014, May 20-22 2014, pp. 1360-1365, Tehran, Iran.
- 42- Mahdi Zarghami, **Ahmad Fakharian**, Amin Ganjali Poudeh and Aras Adhami Mirhosseini, “*Fast and Precise Positioning of Wheeled Omni-Directional Robot with Input Delay Using Model-Based Predictive Control*”, 33th Chinese Control Conference, July 28-30 2014, pp. 7800-7804, Nanjing, China.
- 43- Mahdi Zarghami, **Ahmad Fakharian**, Amin Ganjali Poudeh and Aras Adhami Mirhosseini, “*Model-Based Predictive Control of Wheeled Omni-Directional Robots Considering Nonlinear Dynamical Constraints and Input Delay*”, ICARCV2014, December 10-12 2014, pp. 1379 – 1385, Singapore.
- 44- Reza Rahmani and **Ahmad Fakharian**, “*A Combination of 3-Phase and D-q Techniques for Controlling the Islanded Microgrid System: New Schemes*”, ICEE2015, May 10-14 2015, pp. 1457 – 1462, Tehran, Iran.

- 45- Naser Azim Mohseni and **Ahmad Fakharian**, “*Optimal Trajectory Planning for an Omni-Directional Mobile Robot with Static Obstacles: A Polynomial Based Approach*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-6, Qazvin, Iran.
- 46- Fatemeh Tohfeh and **Ahmad Fakharian**, “*Polynomial Based Optimal Trajectory Planning and Obstacle Avoidance for an Omni-Directional Robot*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-6, Qazvin, Iran.
- 47- **Ahmad Fakharian**, Saeed badr and Mohsen Abdi, “*Implementation of a Frequency FIR Filter as 2D-FIR Filter Based on FPGA*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-4, Qazvin, Iran.
- 48- Mohammad Hossein Bamorovat Abadi, Mohammadreza A. Oskoei and **Ahmad Fakharian**, “*Mobile Robot Navigation using Sonar Vision Algorithm applied to Omnidirectional Vision*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-6, Qazvin, Iran.
- 49- Farahnaz Javidi, **Ahmad Fakharian**, “*Trajectory tracking via adaptive nonlinear control approach for a quadrotor MAV*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-7, Qazvin, Iran.
- 50- Haddadi, S.J., Emamagholi, O., Javidi, F. and **Ahmad Fakharian**, “*Attitude control and trajectory tracking of an autonomous miniature aerial vehicle*”, AI & Robotics (IRANOPEN), April 12 2015, pp. 1-6, Qazvin, Iran.
- 51- **Ahmad Fakharian**, Saeed Badr and Mohsen Abdi, “*Design and Implementation of a Controller with Two-Degrees of Freedom using Neural Networks Based on FPGA*”, ICIEA2015, June 15-17 2015, pp. 280-283, Auckland, New Zealand.
- 52- Shirin Shahravan Mehr and **Ahmad Fakharian**, “*LQG Controller Based on Fuzzy Logic to Control the Power of Wind Turbine*”, ICIEA2015, June 15-17 2015, pp. 1548-1553, Auckland, New Zealand.
- 53- Yasamin Keshmiri Esfandabadi and **Ahmad Fakharian**, “*Application of Monte Carlo for Localizing a Mobile Robot using Odometry and Laser Scanner Data*”, 7th Iranian Conference on Electrical and Electronics Engineering (ICEEE2015), August 19-20 2015, Gonabad, Iran.
- 54- Reza Rahmani and **Ahmad Fakharian**, “*A New Control Approach for Islanded Microgrid System Based on Correlative Techniques*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 339-344, Qazvin, Iran, 2016.
- 55- Mehdi Golestani, Peyman Ahmadi and **Ahmad Fakharian**, “*Fractional Order Sliding Mode Guidance Law: Improving Performance and Robustness*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 469-474, Qazvin, Iran, 2016.
- 56- Arash Sheikhlari and **Ahmad Fakharian**, “*Adaptive Optimal Control via Reinforcement Learning for Omni-Directional Wheeled Robots*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 208-213, Qazvin, Iran, 2016.
- 57- Meisam daneshdoust and **Ahmad Fakharian**, “*Reducing the Navigational Error of a Flying Object in Space by Using an Integration of GPS and INS Data*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 245-250, Qazvin, Iran, 2016.
- 58- Naser Azim Mohseni and **Ahmad Fakharian**, “*Optimal Trajectory Planning for Omni-directional Mobile Robots using Direct Solution of Optimal Control Problem*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 172-177, Qazvin, Iran, 2016.
- 59- Hesameddin Mosaffa and **Ahmad Fakharian**, “*Temperature Control of Distillation Column in Hydro-alkylation of toluene: a Supervisory Predictive Control Approach*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 401-406, Qazvin, Iran, 2016.
- 60- Khatereh Nejadkazemi and **Ahmad Fakharian**, “*Pressure Control in Gas Oil Pipeline: a Supervisory Model Predictive Control Approach*”, The 4th International Conference on Control, Instrumentation and Automation (ICCIA2016), pp. 396-400, Qazvin, Iran, 2016.
- 61- A. Farhamfard, M. B. Menhaj and **Ahmad Fakharian**, “*H_∞ Output Feedback Controller Design for Flexible Needles Guidance*”, the 6th joint Conference on Artificial Intelligence & Robotics and the 8th RoboCup Iran Open International Symposium 2016, pp. 164-169, Qazvin, Iran, 2016.

- 62- Masoud Emam and **Ahmad Fakharian**, “*Path Following of an Omni-Directional Four-Wheeled Mobile Robot*”, the 6th joint Conference on Artificial Intelligence & Robotics and the 8th RoboCup Iran Open International Symposium 2016, pp. 36-41, Qazvin, Iran, 2016.
- 63- Leila Sedghi and **Ahmad Fakharian**, “*Robust Voltage Regulation in Islanded Microgrids: A LMI Based Mixed H_2/H_∞ Control Approach*”, the 24th Mediterranean Conference on Control and Automation (MED2016), pp. 431-436, Athens, Greece, 2016.
- 64- Masoud Emam and **Ahmad Fakharian**, “*Attitude Tracking of Quadrotor UAV via Mixed H_2/H_∞ Controller: A LMI based Approach*”, the 24th Mediterranean Conference on Control and Automation (MED2016), pp. 390-395, Athens, Greece, 2016.
- 65- Reza Rahmani and **Ahmad Fakharian**, “*A Novel Method for Connecting the PV unit to Hybrid Microgrid Systems Based on Smart Controlling Structure*”, ICEE2016, May 10-12 2016, Shiraz, Iran.
- 66- Amir Basati, Mohammad B. Menhaj and **Ahmad Fakharian**, “*GA-Based Optimal Droop Control Approach to Improve Voltage Regulation and Equal Power Sharing for Islanded DC Microgrids*”, 2016 Electric Power Quality and Supply Reliability Conference (PQ2016), pp. 145-150, Tallinn, Estonia, 2016.
- 67- Shima Parsian Mehr, Seyed Ali Moosavian and **Ahmad Fakharian**, “*An Experimental System Identification Modeling and Robust Control for NAO Humanoid Robot*”, the 4th RSI International Conference on Robotics and Mechatronics (ICROM2016), Tehran, Iran, 2016.

FUNDED PROJECTS

- 1- **Project Title:** “Study of effect of power transmission lines (20 KV to 400 KV) on Gas pipelines and calculation of optimal frontage”
Client: NIGC Company, Iran
Budget: 23000 USD
Year: 2010
- 2- **Project Title:** “Design of a CANSAT for Different Missions”
Client: Qazvin Branch, Islamic Azad University
Budget: 5000 USD
Year: 2014
- 3- **Project Title:** “Design of a CANSAT2 for Different Missions”
Client: Qazvin Branch, Islamic Azad University
Budget: 5000 USD
Year: 2015
- 4- **Project Title:** “Using Robust Filter for Consensus Problem in Multi Agent systems”
Client: Qazvin Branch, Islamic Azad University
Budget: 5000 USD
Year: 2015

RELEVANT PASSED COURSES

- Adaptive Control with grade 18/20 (First grade in class)
- Robust Control with grade 17/20 (Second grade in class)
- Multivariable Control with grade 18.75/20 (First grade in class)
- System Identification with grade 17/20 (Second grade in class)
- Stochastic Processes with grade 15.8/20
- Advanced Industrial Control with grade 18/20 (First grade in class)
- Modern Control with grade 18.5/20 (First grade in class)
- Industrial Control with grade 18.75/20 (First grade in class)
- Operational Research with grade 20/20 (First grade in class)

- Estimation Theory with grade 17.5/20 (First grade in class)
- System Theory with grade 19/20 (First grade in class)
- Mathematical Analysis with grade 17/20 (Second grade in class)

TECHNICAL KEY SKILLS

- I&C systems technical specifications preparation
- Control system structure design
- Technical proposal preparations for power plant, Water Treatment and Refinery projects
- Basic and detail design of I&C Systems for power plants, cement and water treatment
- Feasibility Study preparing for I&C Systems of industrial projects
- Technical BID evaluation for I&C systems in power plant and other industrial projects
- Performance tests of I&C systems for power plant, Cement, Water Treatment and Refinery

WORK EXPERIENCE

- **I&C Master Advisor in Karavar Company, 2011-Current:**
 - BID evaluation for Tehran Water Treatment Plant No. 7 project
 - Technical supervising and reviewing on I&C engineering section of Tehran Water Treatment Plant No. 7 project
- **Senior Control and Instrumentation Engineer in Mapna Group Company, 2008-2010:**
 - Preparing Technical Specifications for BOO and BOT Power Plants Projects such as Ferdowsi, Assaluyeh power plants
 - Technical supervising on operation of power plants according to standard procedure
 - Preparing standard operation procedure for gas and combined cycle power plant projects
 - Preparing feasibility study for future projects of company
 - Bid evaluation for company selection in control and instrumentation systems of power plant projects
 - Factory acceptance tests for DCS and other related instrumentation and control systems in power plant projects
 - Site installation and commissioning supervision for I&C systems in hydro and combined cycle power plant projects
 - Technical meetings and negotiations with all related companies in power plant projects
- **Member of Iranian National Standard Technical Committee, 2008- up to now:**
 - Preparing several standard documents for industrial applications
- **Instrumentation and Control Advisor of Lar Consultant Company, 2003-2012:**
 - Basic Design of Group Control System of Tehran East Water Transport Line
 - Design and design review of I&C systems for Kamal Saleh Water Transportation Line
 - Factory acceptance tests for DCS and other related instrumentation and control systems in Kamal Saleh Water Transportation Line
 - Site installation and commissioning supervision for I&C systems in Kamal Saleh Water Transportation Line project
 - Technical BID evaluation for I&C systems of Kamal Saleh Water Transportation Line
 - Technical meetings and negotiations with all related companies in project
 - Advisor of I&C portion in Robat Karim telemetry project
 - Master Advisor of I&C portion in No. 7 Water Treatment Plant of Tehran

- **Master Advisor of Instrumentation, Control and Process in Fara Darya Co., 2008-2010:**
 - Design review of I&C and Process documents of Bandar Abbas Intake project
- **Manager of Instrumentation and Control Department in Azarab Energy Industry Company, 2003- 2008:**
 - Design of I&C systems for Power Plants Projects such as Dez, Piran Hydro Power Plants, Baniyas, Almahdi, Hormozgan, Rey and Bistoon Power Plants,
 - Preparing technical and commercial proposal for thermal and hydro power plant projects such as baniyas, Bistoon, Dez, Piran, Hormozgan, Rey and Almahdi projects
 - Bid evaluation for control and instrumentation systems of power plant projects such as Bistoon, Rey, Baniyas
 - Technical meetings and negotiations with all related companies in power plant projects
 - Design review of I&C documents in power plant projects
 - Factory acceptance tests for DCS and other related instrumentation and control systems in power plant projects
 - Site installation and commissioning supervision for I&C systems in hydro and combined cycle power plant projects
- **Master Engineer of I&C Group in Moshanir Consultant Company, 2001-2008:**
 - Design, Design review and supervision of I&C systems in Hydro Power Plants such as Masjed-Soleiman, Karoon2, Kohrang, Maroon, Moghan and Oganda Hydro Power Plants
 - Design, Design review and supervision of I&C systems in Combined Cycle Power Plants Projects such as Neka, Yazd, Kerman and Kazeron Combined Cycle Power Plants
 - Preparation technical specifications for I&C systems of hydro and combined cycle power plant projects for our clients
 - Technical BID evaluation for power plant projects such as Siah Bisheh project
 - Factory acceptance tests for DCS and other related instrumentation and control systems in power plant projects
 - Site installation and commissioning supervision for I&C systems in hydro and combined cycle power plant projects
 - Technical meetings and negotiations with all related companies in power plant projects
- **Master Advisor of OIEC Company, 2002-2003:**
 - Preparing feasibility Study with Stone& Webster Co. for renewing of Control System of Abadan Refinery Project
- **Master I&C Engineer of R&D Dept. in Almahdi Aluminum Company, 2000-2001:**
 - Design and Supervision on I&C Systems in new projects of company such as anode production unit, Material Handling Unit, Second Production Line, Fume Treatment Plant
 - Preparing feasibility study for new projects of company such as anode production unit,...
 - Site supervision
- **Instrumentation and Control Engineer in Fara Sanat Basamad Company, 1999-2000:**
 - Design of Industrial Automation Systems in Cements Projects such as Hormozgan and Oromieh Cements Projects
 - Installation and commissioning of I&C systems in Cement projects such as Hormozgan and Orumieh projects
 - Factory acceptance tests for DCS and other related instrumentation and control systems in Cement projects

References

- 1- Professor Thomas Gustafsson, Lulea University of Technology, Sweden
Email: Thomas.gustafsson@ltu.se
- 2- Professor Georgios Nikolakopoulos, Lulea University of Technology, Sweden
Email: Georgios.nikolakopoulos@ltu.se
- 3- Professor Mohammad Javad Yazdan panah, University of Tehran, Iran
Email: yazdan@ut.ac.ir
- 4- Professor Mohammad Taghi Hamidi Beheshti, Tarbiat Modares University, Iran
Email: mbehesht@modares.ac.ir
- 5- Professor Mohammad Bagher Menhaj, Amir Kabir University of Technology, Iran
Email: Menhaj@aut.ac.ir