CURRICULUM VITAE

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Professional Preparation

Education

- PhD. Mechanical Engineering, Sharif University of Technology, Tehran, 1999.
- MSc. Mechanical Engineering, Sharif University of Technology, Tehran, 1993.
- BSc. Mechanical Engineering, KNT University of Technology, Tehran, 1991.

Employment History

<u>Academic Experience</u>

Jan 2010 – Present   Assistant Professor, Mechanical and Aerospace Engineering, University of Alabama in Huntsville (UAH)

Aug 2005 – Dec 2009   Assistant Professor, Mechanical Engineering Department, University of Alberta, Edmonton, Alberta, Canada

Jan 2002 – Aug 2005   Visiting Assistant Professor, Mechanical Engineering Department, Villanova University, Villanova PA, USA

Jan 2000 – Jan 2002   Post-Doctorate Fellow, Mechanical Engineering Department, Villanova University, Villanova PA, USA

Sept 1993 – Sept 1996   Instructor, Sharif University of Technology, Tehran, Iran

Sept 1993 – Sept 1996   Instructor, KNT University of Technology, Tehran, Iran

<u>Industrial Experience</u>

Jun 1998 – Dec 1999   Part-Time Design Engineer, R&D Department, Dana Automotive Research Center, Tehran, Iran

Sept 1995 – May 1998   Part-Time Design Engineer, Automotive Industries Research and Innovation Center, Tehran, Iran

Awards

Outstanding Junior Professor Award, College of Engineering, UAH, **2014**.

Teaching and Student Supervision

Courses taught

<u>UAH (2010 – present)</u>

Course	Semesters	Average enrollment	Student evaluation score
MAE/CE 271 – Statics	2	39 (undergraduate)	Ave.: 91.52%; Min: 88.91%; Max: 94.13%
MAE/CE 272 – Dynamics	12	46 (undergraduate)	Ave.: 89.51%; Min: 63.14%; Max: 95.61%
MAE 695ST – Introduction to Robotics	2	10 (graduate)	Ave.:94.53%; Min: 94.53%; Max: 94.53%

Course	Semesters	Average enrollment	Student evaluation score
MAE 695ST – Advanced Robotics	2	13 (graduate)	Ave.: 93.64%; Min: 89.52%; Max: 97.75%

University of Alberta (2005 - 2009)

Course	Semesters	Average enrollment	Student evaluation score
Mec E 250 – Engineering Mechanics: Dynamics	3	31 (undergraduate)	Ave.: 4.5/5.0; Min: 3.9/5.0; Max: 4.8/5.0
Mec E 301 – Mechanical Engineering Laboratory I (Mechanical Measurements)	4	66 (undergraduate)	Ave.: 4.0/5.0; Min: 3.8/5.0; Max: 4.3/5.0
Mec E 362 – Mechanics of Machines	2	92 (undergraduate)	Ave.: 3.2/5.0; Min: 2.8/5.0; Max: 3.6/5.0
Mec E 651 – Advanced Robotics	1	6 (graduate)	Ave.: 4.9/5.0; Min: 4.9/5.0; Max: 4.9/5.0

Villanova University (2002 - 2005)

Course	Semesters	Average enrollment	Student evaluation score
ME 2900 - ME Laboratory I	3	20 (undergraduate)	N/A
ME 3900 - ME Laboratory II	3	20 (undergraduate)	N/A
ME 4102 - System Dynamics	1	25 (undergraduate)	N/A
ME 4902 - ME Laboratory III	3	20 (undergraduate)	N/A
ME 5201 - Introduction to Finite Elements	3	25 (undergraduate)	N/A
ME 7040 - Introduction to Finite Element Analysis	3	8 (graduate)	N/A
ME 8200 - Elasticity & Stress Analysis	2	8 (graduate)	N/A

Contributions to the courses taught

UAH (2010 – present)

- *MAE/CE 272 (Dynamics):* revised the order of the material discussed in class for a better flow and continuity; prepared 12 new exercise series with complete problem solving instructions explaining method of solution to be used by the students during the class time; prepared solution to 48 homework problems reflecting the specific methods that were taught in class rather than using the generic/incomplete solutions off of the textbook's solution manual; adapted the course material for ANGEL/CANVAS.

- *MAE695ST (Advanced Robotics):* offered the graduate course that I had developed at the University of Alberta (Mec E 651) for the first time at UAH.

- *MAE695ST (Introduction to Robotics, Kinematics and Dynamics)*: offered a new graduate course that I developed with consultation with ECE/MAE colleagues to complement the related existing courses

University of Alberta (2005 - 2009)

- *Mec E 301 (Mechanical Measurement Laboratory):* developed 10 PowerPoint lecture presentations with total number of 180 slides to take full advantage of the Smart Classroom features; developed 8 data sheet booklets for 8 experiments to be used by the students during the experiments to organize and speed up data collection (containing

59 data tables in 23 pages); developed the course material for WebCT (online course management).

- *Mec E 362 (Theory of Machines and Mechanisms):* reorganized the order of the material discussed in class for a better consistency with the co-requisite Mec E 360 course requirements; developed 20 templates for graphical method of solution; developed 6 bundles of solved practice problems as students extra study material (45 pages); developed the course material for WebCT (online course management).

- *Mec E 651 (Advanced Robotics):* developed this completely new graduate course in the advanced robotics field; developed material for fourteen 3.0 hour lectures; developed 300 pages of course notes including the design of 30 problems and their solution; developed the course material for WebCT (online course management).

Student supervision

Gray background indicates completed project. **S:** Spring semester; **M:** Summer semester; **F:** Fall semester. **Bold:** In progress/projected graduation.

UAH (2010 - Present)

Name	Deg.	Duration	Co-supervisor	Thesis/Project
Brain Bae	PhD	F15-**M19**	N/A	*Thesis:* Reinforcement learning control of a quad-rotor UAV
Joseph Martin	MSc	F15-**F17**	N/A	*Thesis:* Vision-based control of UAVs
Swaroop Kotike	MSc	S15-**S17**	N/A	*Thesis:* Self-leveling lunar rover
Chandra Panathula	PhD	S15-**S19**	Yuri Shtessel (50%)	*Thesis:* Ultra-high accuracy sensor signal reconstruction
Jerry Sweafford (**passed qualifying**)	PhD	S13-M**16**	N/A	*Thesis:* Robust walking control for a biped robot
Semih Dinc (**qualifying, Nov. 20**)	PhD	F12-**F16**	Ramazan Aygun (%50)	*Thesis:* Vision-based control of ground robot
Sai Susheel Praneeth Kode	MSc	S13-S15	N/A	*Thesis:* Discrete sliding mode control of ground robots
John Alcorn	BSc	F14	N/A	*Honors thesis:* Neural networks for control
Karan Thakur	MSc	F11-F13	N/A	*Thesis:* Vision-based control of undersea robot
Lauren Griggs	MSc	S11-S13	N/A	*Thesis:* Control of arm robotic prosthesis
Christopher Nolen	MSc	S11-S13	N/A	*Thesis:* Disturbance rejection for a humanoid gait
Joshua Hill	MSc	S10-F11	N/A	*Thesis:* Control of walking for a humanoid
Yaswanth Siramdasu	MSc	S10-S12	N/A	*Thesis:* Control of unmanned boats
Chandra Panathula	MSc	S10-S12	Yuri Shtessel (30%)	*Thesis:* Sliding-free control of lunar rover
Richard Dyar	BSc	M13	N/A	*Project:* Lunar rover hardware systems
Kirby Viall	BSc	M11	N/A	*Project:* Obstacle avoidance software coding
Charles Boyles	BSc	M10	N/A	*Project:* Robotics Research Lab Start-up/Setup
Patrick Giddens	BSc	M10	N/A	*Project:* Robotics Research Lab Start-up/Setup
Dwiti Patel	BSc	M10	N/A	*Project:* Robotics Research Lab Start-up/Setup
Joel Grissom	BSc	M10	N/A	*Project:* Robotics Research Lab Start-up/Setup

University of Alberta (2005 - 2009)

Name	Deg.	Duration	Co-supervisor	Thesis/Project
Alejandro Martinez	MSc	S10-S14	Dr. Robert Koch (%50)	*Thesis:* Dynamic identification of an unmanned helicopter
Sepehr Khaligh	PhD	S09-S14	Dr. Robert Koch (%50)	*Thesis:* Coordination and control of multiple unmanned aerial vehicles
Mehdi Saffarian	MSc	S07-S09	N/A	*Thesis:* Model predictive formation control for autonomous helicopters
Guang Yang	MSc	S05-S07	N/A	*Thesis:* Trajectory-tracking controller design for an autonomous helicopter
Junzhao Zhao	MSc	S05-S07	N/A	*Thesis:* An indoor laboratory testbed for helicopter control design verification
Christopher van Kleek	MSc	S07-S09	Dr. R. Koch (30%)	*Thesis:* Decentralized formation controller design for strings of autonomous boats
Daniel Schoerling	MSc	F07-F08	N/A	*Thesis:* Sliding mode controller design for multiple surface vessels in 2D formations
Michael Dawson	MSc	S09-S11	Dr. J. Carey (50%)	*Thesis:* Development of intelligent robotic lower limb prosthesis with semi-active controls
Caleb Schulz	BSc	M09	Dr. J. Carey (50%)	*Project:* Development of myoelectric training tool for above elbow arm amputees
Richard Rennaud	BSc	M09	N/A	*Project:* Dynamic and aerodynamic identification of a helicopter
Brendan Ferguson	BSc	M09	N/A	*Project:* Development of a moment of inertia testbed
Shawn Prasad	BSc	M09	N/A	*Project:* Identification of a spatial actuation mechanism
Ben Topinka	BSc	M09	N/A	*Project:* Development of a 6DOF force/moment measurement testbed
Caleb Schulz	BSc	M09	Dr. J. Carey (50%)	*Project:* Design of a prosthetic robotic arm
Michael Dawson	BSc	M08	N/A	*Project:* Moment of inertia measurements testbed for autonomous vehicles
Matthew Bourassa	BSc	M08	Dr. Moussa (50%)	*Project:* An indoor laboratory testbed for helicopter rotor aerodynamic force measurements
Jason Meers	BSc	M07	Dr. C. Lange (40%)	*Project:* Aerodynamic analysis of a helicopter rotor in hovering and forward flight
Tania Wood	BSc	M07	N/A	*Project:* Selection, purchase, assembly of a helicopter for flight tests
Matthew Bourassa	BSc	M07	N/A	*Project:* On-board flight computer and inertial sensors integration and packaging
Michael Dawson	BSc	M07	N/A	*Project:* Assembly and flight test of the Maxi-Joker II unmanned helicopter
Andrew Browne	BSc	M06	N/A	*Project:* Construction of a small six-legged walking robot

Name	Deg.	Duration	Co-supervisor	Thesis/Project
Elizabeth Otto	High Sch.	M09	N/A	*Project:* High school student helping Rennaud
Miruna Marin	High Sch.	M09	N/A	*Project:* High school student helping Dawson

Villanova University (2002 - 2005)

Name	Deg.	Duration	Co-supervisor	Thesis/Project
Rineesh Sidhareddy	MSc	S03-S05	Dr. C. Nataraj (10%)	*Thesis:* Modeling and trajectory-tracking control of unmanned surface vessels
Mehdi Nikkhah	MSc	S03-S05	Dr. H. Ashrafiuon (50%)	*Thesis:* Robust control design for under-actuated biped walking robots

Teaching seminars and workshops

University of Alberta (2005 - 2009)

To improve the students perception of my teaching, I attended the following seminars and workshops:

- Workshop by University of Alberta's University Teaching Services (UTS).
- New Faculty Forum, seminar on "Learning Objectives."
- Mechanical Engineering Graduate Students Association (MEGSA) and the Department of Mechanical Engineering, seminars on "Excellence in Engineering Learning and Teaching."

Student exam committee member

UAH (2010 – present)

- 7 PhD students and 3 Master's students.

University of Alberta (2005 - 2009)

- 11 PhD students and 7 Master's students.

Service

Committee Service

<u>UAH (2010 - present)</u>

- Electrical and Computer Engineering Search Committee (2014 – present).
- Mechanical and Aerospace Engineering Search Committee (2014 – present).
- Mechanical Engineering Graduate Committee (2010 - present).
- Aerospace Engineering Undergraduate Committee (2012-2014)
- Search Committee for the Associate Dean of Undergraduate Studies (Spring 2011).

<u>University of Alberta (2005 - 2009)</u>

- Mechanical Engineering Graduate Committee (2006 - 2009).
- Faculty of Engineering Nomination Committee (2007 - 2009).

Public service

<u>UAH (2010 - present)</u>

- Invited presentation: An [almost] invisible controller for the unexpected unexpected! IEEE Joint Robotics & Automation - Controls Systems (JRACS) Society, April 17, 2015.
- Invited presentation: Unmanned Systems - From Research to Applications, UAH Alumni Association, Alumni Lunch & Learn, March 11, 2013.
- Invited presentation: UAH Unmanned Systems Research, NASA/Army/Industry/Academia Systems and Software Engineering Forum, July 26, 2011.
- Invited presentation: Careers in robotics, Sci-Quest's Career Quest (Robotics), February 22, 2010.

Editorial service

Editorial board member of Journal: *Nonlinear Engineering - Modeling and Application* (4 issues per year), since 2011.

Organizing conferences

<u>UAH (2010 - present)</u>

- Session chair of Dynamics and Controls Track, ASME's International Mechanical Engineering Congress and Exposition (IMECE 2011), November 2011, Denver, CO.
- International committee member, the 13th, 14th, and 15th Conference on Control and Applications (CA), International Association of Science and Technology for Development (IASTED), July 2011: Vancouver, BC, Canada; June 2012: Crete, Greece, June 2012; August 2013: Honolulu, HI, USA.

<u>University of Alberta (2005 - 2009)</u>

- Co-organizer, special session, the ASME Conference on Smart Materials, Adaptive Structures, and Intelligent Systems (SMASIS), September 2009, Santa Barbara, CA, USA.
- International committee member, the 10th, 11th, and 12th conference on Control and Applications, International Association of Science and Technology for Development (IASTED), Quebec City, QC, May 2008; Cambridge, UK, July 2009; Montreal, QC, Canada, July 2010.
- I co-organized the Symposium on Nonlinear Modeling and Control of Smart Material Systems for the International Nonlinear Science and Complexity Conference (Beijing, China), August 7-12, 2007.

Funding review

- NSF Panel for REU Research Site: Reviewed 9 proposals (2014)
- NSERC (NSF of Canada) Mechanical Engineering Grant Selection Committee (GSC) (2007-2009)

Paper and book reviews

I have reviewed books and book chapters for the following publisher:

- Springer

I have reviewed papers for the following journals:

- IEEE Journal of Oceanic Engineering
- Journal of Vibration and Control
- Nonlinear Engineering - Modeling and Application
- Shock and Vibration Journal
- Transactions of the Society for Modeling and Simulation International
- Journal of Control and Intelligent Systems
- International Journal of Vehicle Systems Modeling and Testing
- IET Control Theory & Applications Journal
- International Journal of Robust and Nonlinear Control
- Journal of Mechanical Design
- Robotica
- Automatica
- Control Engineering Practice
- IEEE Transactions on Robotics
- IEEE Transactions on Control System Technology

I have reviewed papers for the following conferences:

- IEEE RAS/EMBS International Conference on Biomedical Robotics
- IEEE American Control Conferences
- IEEE Conferences on Decision and Control
- IEEE/RSJ International Conferences on Intelligent Robots and Systems
- IEEE Multi-Conferences on Systems and Control
- ASME's International Design Engineering Technical Conferences
- ASME's Computers and Information in Engineering Conferences
- ASME's International Mechanical Engineering Conferences and Expositions (IMECE)

Research

Research support

UAH (2010 - present)

Applicants	Title of proposal, funding source & program	Amount	Years of tenure
Awarded – Federal, State, and International			
F. Fahimi (PI), S. Dinc (PhD fellow)	An analytical solution to vision based trajectory tracking system using 3D models of targets *Alabama - EPSCoR*	$25,000	2015-2016
Dr. Ameur Abdullah Touir (PI), F. Fahimi (Co-I), and 3 other Co-Is	3D formation control in a heterogeneous multi-robot system using swarm intelligence in a hazardous environments *National Science, Technology and Innovation Plan (Kingdom of Saudi Arabia) (with King Saud University)*	$500,399 (10%)	2015-2017
F. Fahimi (PI), J. Sweafford (PhD fellow)	Feedback control for disturbance reduction and stability improvement in biped walking robot *NASA - Alabama Space Grant Consortium program*	$37,000	2015-2016 (Renewed)
F. Fahimi (PI), R. Aygun (Co-I)	REU site: Fundamental research topics related to unmanned systems *NSF – Engineering Education Centers program*	$297,791 (50%)	2014-2017
F. Fahimi (PI), J. Sweafford (PhD fellow)	Feedback control for disturbance reduction and stability improvement in biped walking robot *NASA - Alabama Space Grant Consortium program*	$37,000	2014-2015 (First Year)
P. Farrington (PI), F. Fahimi (Co-I), and 3 other Co-Is	Collaborative research: Planning grant: I/UCRC for advanced vehicle manufacturing *NSF – I/UCRC program*	$11,500 (20%)	2014-2015
Awarded – Internal UAH Sources			
F. Fahimi (PI), R. Aygun (Co-I)	Human-robot cooperation via artificial robotic vision *UAH – CCFR*	$5,000 (50%)	2015-2016 (Renewed)
F. Fahimi (PI), R. Aygun (Co-I)	Human-robot cooperation via artificial robotic vision *UAH – CCFR*	$5,000 (50%)	2014-2015 (First year)
F. Fahimi	Coordination & control for groups of unmanned helicopters *UAH – JFDR*	$10,008	2012-2013
F. Fahimi	Research projects on autonomous vehicles and controls *UAH – Graduate Research Assistant Support*	$114,000	2011-2013
Pending grant applications			
F. Fahimi (PI), C.-k. Kang (Co-PI), D. Yeo (Co-PI, from UMD)	Reinforcement Learning Control for Flexible Flapping Wing MAVs Based on a High-Fidelity Dynamic Model *NSF – DCSD*	$553,362	2016-2019
H. Zhou (PI, from CEE), F. Fahimi (Co-PI), K. Zuo (Co-PI)	Structural-Energetic Nexus: Pressure-Driven Building Envelope with Tunable Properties for Integrated Hazard Mitigation and Hydronic Balancing *NSF - SAE*	$351,392	2016-2019

University of Alberta (2005 - 2009)

Applicants	Title of proposal, funding source & program	Amount	Years of tenure
Awarded – Federal, and Industrial			
F. Fahimi	Testbeds for autonomous vehicle identification *NSF (of Canada) – Research Tools & Instruments Grant program*	$19,885	2009
J. Carey (PI), F. Fahimi (Co-I), J. Hebert et. al. (Glenrose Hospital)	Development of myoelectric training tool for above elbow arm amputees *Glenrose Rehabilitation Hospital – Clinical Research Fund*	$10,000 (50%)	2008-2009
S. Behzadipour (PI), F. Fahimi (Co-I).	Infrastructure for the Advanced Robotics Research Laboratory *Canada Foundation for Innovation*	$143,605 (50%)	2007-2008
F. Fahimi.	Control of autonomous vehicle group formations *NSF (of Canada) - Discovery Grant Program*	$95,000	2006-2009

Villanova University (2002 - 2005)

Applicants	Title of proposal, funding source & program	Amount	Years of tenure
Awarded - Federal			
F. Fahimi (Senior Personnel)	Real-time trajectory planning for groups of unmanned marine vehicles *US Navy, Office of Naval Research (ONR)*	$75,000 (100%)	2004-2005

Collaborators

UAH: Dr. Shtessel (Electrical and Computer Engineering), Dr. Aygun (Computing Science).

University of Alberta: Drs. Koch, Carey, Behzadipour, Moussa, Nadler, Lipsett, Flynn (Department of Mechanical Engineering); Dr. Jagersand (Department of Computer Science).

Glenrose Rehabilitation Hospital: Appointed Research Affiliate (2007-2009).

Other Institutions: Dr. Jazar (RMIT, Melbourn, Australia).

List of publications

Underline indicates the student coauthor. Asterisk indicates the presenter of the conference papers.

Book

Fahimi, F., *Autonomous robots: Modeling, path planning, and control*, Springer, New York, Nov 2008, 345 pages. (*http://www.springer.com/engineering/book/978-0-387-09537-0*)

Journal publications

[1] Sweafford, J., Fahimi, F., "Using recurrent neural networks for model-based nonlinear control: An alternative approach," *IEEE Transactions on Control Systems Technology*, pp. 1-15, **2015**. Submitted.

[2] Dinc, S., Fahimi, F., and Aygun, R., "Mirage: An $O(n)$ time analytical solution to 3D camera pose estimation with multi-camera support," *Computer Vision and Image Understanding*, pp. 1-18, **2015**. Submitted.

[3] Dinc, S., Fahimi, F., and Aygun, R. "Vision-based trajectory tracking for mobile robots using mirage pose estimation method," *IET Computer Vision*, pp. 1-16, **2015**. Accepted.

[4] Khaligh, S. P., Fahimi, F., and Koch, C. R., "Control oriented modeling for nonlinear trajectory tracking

control of small unmanned helicopters," *Journal of American Helicopter Society*, pp. 1-44, **2015**. Submitted.

[5] Khaligh, S. P., Fahimi, F., and Koch, C. R., "A system identification strategy for nonlinear model of small-scale unmanned helicopters," *Journal of American Helicopter Societ*y, pp. 1-39, **2015**. Submitted.

[6] Khaligh, S, Fahimi, F., Koch, R., "A fast inverse kinematic solution for the nonlinear actuating mechanisms of a small-scale helicopter," *Multibody System Dynamics*, in press, pp.1-20, **2015**.

[7] Nolen, C., and Fahimi, F., "External disturbance compensation for simulated humanoid robots via a configuration control approach," *International Journal of Robotics and Automation*, in press, pp. 1-8, **2015**.

[8] Fahimi, F., and Kode, S.S.P., "A universal trajectory tracking controller for mobile robots via model-free on-line reinforcement learning," *Control and Intelligent Systems*, vol 43, no. 1, pp. 56-64, **2015**.

[9] Hill, J., Fahimi, F., "Active disturbance rejection for walking bipedal robots using the acceleration of the upper limbs," *Robotica*, vol. 33, no. 2, pp. 264-281**, 2015**.

[10] Khaligh, S., Fahimi, F., and Koch, R. C., "A HIL testbed for initial controller gain tuning of a small unmanned helicopter," *Journal of Intelligent and Robotic Systems: Theory and Applications*, vol. 73, no. 1-4, pp. 289-308, **2014**.

[11] Panathula, C. B., Fahimi, F., Shtessel, Y. B., "Slip eliminator for robots on slippery 3D terrains," *Control and Intelligent Systems*, vol. 42, no. 2, pp. 167-175, **2014**.

[12] Griggs, L., Fahimi, F., "Introduction and testing of an alternative control approach for a robotic prosthetic arm," *The Open Biomedical Engineering Journal*, vol. 8, pp. 93-105, **2014**.

[13] Siramdasu, S., and Fahimi, F., "Nonlinear dynamic model identification methodology for real robotic surface vessels." *International Journal of Control*, vol. 86, no. 12, pp. 2315-2324, **2013**.

[14] Fahimi, F., "Full drive-by-wire dynamic control for 4-wheel-steer all-wheel-drive vehicles," *Vehicle System Dynamics*, vol. 51, no. 3, pp. 360-376, March 1, **2013**.

[15] Siramdasu, Y., Fahimi, F., "Incorporating input saturation for surface vessel control with experiments," *Control and Intelligent Systems*, vol. 41, no. 1, pp. 49-55, **2013**.

[16] Van Kleeck, C., and Fahimi, F., "Alternative trajectory-tracking control approach for marine surface vessels with experimental verification," *Robotica*, vol. 31, no. 1, pages 25-33, **2013**.

[17] Panathula, C. B., Fahimi, F., Shtessel, Y. B., "Nonlinear model predictive control versus linear time-variant control for mobile robots prone to input saturation," *Nonlinear Engineering - Modeling and Application*, vol. 1, no.1, **2012**.

[18] Dawson, M., Fahimi, F., Carey, J., "The development of a myoelectric training tool for above-elbow amputees," *The Open Biomedical Engineering Journal*, **2012**, vol. 6, pages 5-15.

[19] Dawson, M., Carey, J., Fahimi, F., "Myoelectric training systems," *Expert Review of Medical Devices*, September **2011**, vol. 8, no. 5, Pages 581-589.

[20] F. Fahimi, M. Saffarian, "The control point concept for nonlinear trajectory-tracking control of autonomous helicopters with fly-bar," *International Journal of Control*, v 84, n 2, **2011**, p 242-252.

[21] Schoerling, D., Van Kleeck, C., Fahimi, F., Koch, C. R., Ams, A., and Löber, P., "Experimental test of a robust formation controller for marine unmanned surface vessels," *Autonomous Robots*, v 28, n 2, **2010**, p 213-230.

[22] Saffarian, M., and Fahimi, F., "Non-iterative nonlinear model predictive approach applied to the control of helicopters' group formation," *Robotics and Autonomous Systems*, v 57, n 6-7, **2009**, p 749-757.

[23] Saffarian, M., and Fahimi F., "A model predictive framework for autonomous formation flight of

helicopter groups," *Control and Intelligent Systems*, v 37, n 4, **2009**, pages 1-7.

[24] Fahimi, F., Nataraj, C., Ashrafiuon, H., "Real-time obstacle avoidance for multiple mobile robots," *Robotica*, v 27, n , **2009**, p 189-191.

[25] Fahimi, S.V.S. Rineesh, C. Nataraj, 2008, "Formation controllers for under-actuated surface vessels and zero-dynamics stability," *International Journal of Intelligent Systems and Control*, **2008**, v 36, n 3, p 1-11.

[26] Fahimi, F., "Full formation control for autonomous helicopter groups," *Robotica*, v 26, n 2, March, **2008**, p 143-156.

[27] Fahimi, F., "Sliding mode formation control for under-actuated surface vessels," *IEEE Transactions on Robotics*, v 23, n 3, June, **2007**, p 617-622.

[28] Fahimi, F., "Non-linear model predictive formation control for groups of autonomous surface vessels," *International Journal of Control*, v 80, n 8, August, **2007**, p 1248-1259.

[29] Nikkhah, M., Ashrafiuon, H., Fahimi, F., "Robust control of under-actuated bipeds using sliding modes," *Robotica*, v 25, n 3, May, **2007**, p 367-374.

[30] Fahimi, F., Browne, A., "Stiquito controlled! Making a truly autonomous robot," *IEEE Control Systems Magazine*, v 26, n 2, **2005**, p 92-94.

[31] Fahimi, F., Ashrafiuon, H., Nataraj, C., "Obstacle avoidance for spatial hyper-redundant manipulators using harmonic potential functions and the mode shape technique," *Journal of Robotic Systems*, v 20, n 1, January, **2003**, p 23-33.

[32] Fahimi, F., Ashrafiuon, H., Nataraj, C., "An improved inverse kinematic and velocity solution for spatial hyper-redundant robots," *IEEE Transactions on Robotics and Automation*, v 18, n 1, February, **2002**, p 103-107.

[33] Meghdari, A., Fahimi, F., "On the first-order decoupling of dynamical equations of motion for elastic multi-body systems as applied to a two-link flexible manipulator," *Multi-body System Dynamics*, v 5, n 1, **2001**, p 1-20.

[34] Esmailzadeh, E., Fahimi, F., "Optimal adaptive active suspensions for a full car model," *Vehicle System Dynamics*, v 27, n 2, February, **1997**, p 89-107.

Peer-reviewed conference publications (* indicates the presenter)

[1] Dinc, S., Sigdel, M., Dinc, I., Sigdel, S.M., Fahimi, F., Aygun, R., "Depth-color image registration for 3d surface texture construction using kinect camera system," *IEEE SoutheastCon 2014*, March 13-16, (Lexington, KY), **2014**.

[2] Nolen, C.*, and Fahimi, F., "External disturbance compensation for humanoid robots via a configuration control approach," *Proceedings of the ASME 2013 International Mechanical Engineering Conference and Exposition*, IMECE2013-65021, November 13-21, **2013**.

[3] Dinc, S., Fahimi, F.*, Aygun, R., "Vision-based trajectory tracking approach for mobile platforms in 3D world using 2D image space," *Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition*, IMECE2013-64969, November 15-21, **2013**.

[4] Khaligh, S. P., Martinez, A., Fahimi, F.*, and Koch, C. R., "A HIL testbed for small unmanned helicopter's initial controller gain tuning," *International Conference on Unmanned Aircraft Systems (ICUAS)*, p 383-391, **2013**.

[5] Fahimi, F.*, and Thakur, K., "An alternative closed-loop vision-based control approach for unmanned aircraft systems with application to a quadrotor," *International Conference on Unmanned Aircraft Systems (ICUAS)*, p 353-358, **2013**.

[6] J. Traum*, C. Carmen, and F. Fahimi, "Design and development of a lunar rover in association with the google™ lunar X-prize competition," 6*3rd International Astronautical Congress*, Naples, Italy, 12

pages, October **2012**.

[7] Panathula, C. B., Fahimi, F.*, and Shtessel, Y. B., "Model predictive traction control for robots on slippery 3D terrains," in proceedings of the *2012 IEEE American Control Conference*, (Montreal, Quebec, Canada), pp. 4257–4262, June **2012**.

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