Mohsen Jalaeian Farimani (March 2017)

PHD Candidate, Shahrood University of Technology, Shahrood, Iran
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Education:

- **PHD Student**, since 2013, Control Engineering, Shahrood University of Technology, GPA, **18.43** /20 (up to now), Faculty Advisor, **Prof. Mohammad Mehdi Fateh**.
- **Master of Science**, 2012, Control Engineering, Ferdowsi University of Mashhad, GPA: **17.22** /20, Thesis entitled "Dynamic Growing Fuzzy Neural Controller, Design and Experimental Implementation, Application to Position and Impedance Control, and 3PSP Parallel Robot Setup" (Mark: **20** /20), Faculty Advisor: **Prof. M-R. Akbarzadeh-T**, Consultant Faculty: Dr. Alireza Akbarzadeh T.

Research Interests:

Robotics, Intelligent and conventional control theory, Optimization methods and theory, Soft computing (Fuzzy logic, Neural Network, evolutionary computing and chaos), Self-organizing intelligent systems, Dynamic Growing Fuzzy Neural Nets, Swarm intelligence, MEMS and Nano robotics, Adaptive control and pattern recognition, Force control (mechanical impedance control), Cognitive Science and Biotechnology, Rehabilitation Robots, Pedagogy and learning's psychology

Teaching Experiences:

- **Universities (since 2011):**
  - Ferdowsi University of Mashhad: (http://um.ac.ir/),
  - Shahrood University of Technology, Shahrood, Iran (http://shahroodut.ac.ir/fa/),
  - Golbahar new science and technology university, Golbahar, Iran (http://www.golbaharusnt.ac.ir/)
  - Montazeri University of Mashhad (http://www.mashhadmtv.ac.ir/)
  - Eqbal institute of higher education, Mashhad (http://eqbal.ac.ir/)
  - Ferdows Institute of Higher Education, Mashhad (http://ferdowsmashhad.ac.ir/)
  - Technical and Vocational College of Mashhad (http://tvu.ac.ir/)
  - Power and Water University of Technology, Mashhad (http://mapsab.ir/)
- **Courses:**
  - English Language;
  - Fundamental of Electrical Engineering; Principals of Electronics; and Principals of Electronics LAB;
  - Electrical Circuits; and Electrical Circuit Lab;
  - Computer Simulation; Computer Architecture LAB; and Computer Hardware;
  - Artificial Neural Networks;
  - Robotics; Robotic Lab; Robot Sensor; Robot Control; and Robotics and Intelligent Systems;
  - Instrumentation; Repair and Maintenance;
  - High Voltage and Insulation LAB;
  - MATLAB® Software; Microcontroller LAB;
  - Linear Control; Intelligent Control; Real-time Control Systems; Nonlinear Control; Digital Control; Modern Control;

B.Sc. Student's Thesis under My Supervision (44 students):

- **"Articulated SCARA Robot, Designing, Simulation and Fabrication + Manual Book"**, Eqbal IHE, 2012 fall, **5** Students.
- **"Radio Control Airplane, Fabrication and Control"**, Eqbal IHE, 2015 spring, **1** Student.
- **"Blimp Robot, Designing, Simulation, Fabrication and Analysis"**, Eqbal IHE, 2015 spring, **1** Student.
- **"Linear Motor",** Eqbal IHE, 2015 spring, **1** Student.

- **"DAPPER Robot, (Dual Armed Planar Parallel Elegant Robot) Designing, Simulation and Analysis"**, Eqbal IHE, 2015 spring, **4** Students.
- **"DAPPER Robot, (Dual Armed Planar Parallel Elegant Robot) Fabrication and Analysis"**, Montazeri University of Mashhad, 2015 fall, **2** Students.
- **"Lift Control using DC Motor and Ultrasonic Sensor"**, Montazeri University of Mashhad, 2015 fall, **2** Students.
- **"DC Servo System, Fabrication and Control"**, Montazeri University of Mashhad, 2015 fall, **2** Students.
- **"Magnetic Gun, Shooting and Position Control of a Ferromagnetic Pin"**, Montazeri University of Mashhad, 2015 fall and 2016 summer, **3** Students.
- **"Ether-cat Networks Programming"**, Montazeri University of Mashhad, 2015 fall, **1** Student.
- **"Ball and Beam, Fabrication, Modeling and Control"**, Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Dish-dryer and disinfector (Patent)"**, Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Human Pose Real Time Imitator Robot"**, Montazeri University of Mashhad, 2016 summer, **3** Students.
- **"Cable Suspended Painter Robot"**, Montazeri University of Mashhad, 2016 summer, **2** Students.
- **"Door Opener electric cylinder"**, Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Quadrotor",** Montazeri University of Mashhad, 2016 summer, **3** Students.
- **"Robotic 3-D Printed Hand, Pose Control"**, Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Tensegrity Structural Robot"**, Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Mobile Robot Platform",** Montazeri University of Mashhad, 2016 summer, **2** Students.
- **"Factotum Servant Robot",** Montazeri University of Mashhad, 2016 summer, **3** Students.
- **"Automatic Scrub Janitor Robot",** Montazeri University of Mashhad, 2016 summer, **1** Student.
- **"Delta Robot as a 3D-Printer",** Montazeri University of Mashhad, 2017 winter, **3** Students.

Scientific Lectures and Workshops:

- M. Jalaeian-F, **"Robotics in Real Life (MY Past to YOUR Future)"**, _Lecture,_ Montazeri University of Mashhad, 2017 Feb.
- M. Jalaeian-F, **"Robotics in Real Life"**, _Invited Lecture_, Montazeri University of Mashhad, 2016 Research week
- M. Jalaeian-F, "**Optimization in Impedance Control of a Rehabilitation Robot**", PHD Proposal, Shahrood University of Technology, summer 2016.
- M. Jalaeian-F, **"Self Organizing Intelligent Controller, A to Z"**, _Invited Lecture_, Shahrood University of Technology, fall 2013.
- M. Jalaeian-F, **"Linear Quadratic Gaussian Self Tuning Regulators"**, _Invited Lecture_, Shahrood University of Technology, fall 2013.
- M. Jalaeian-F, A. Rowhanimanesh, **"A Tutorial Workshop on Soft-Computing & Robotics"**, _workshop_, invited by Department of Computer Engineering, Azad University Quchan Branch, Quchan, Iran, May29th, 2012.
- M. Jalaeian-F, A. Rowhanimanesh, **"Swarm Intelligence in Nano-Robotics, 1+1=3"**, _invited lecture_, invited by Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran, May28th, 2012.
- M. Jalaeian-F, A. Rowhanimanesh, M.R. Akbarzadeh-T. **"Applications of Intelligent Systems to Nanomedicine"**, _invited lecture_, invited by Department of New Sciences and Technology, Faculty of Medicine, Mashhad University of Medical Sciences (MUMS), March 10th, 2012.
- M. Jalaeian-F, A. Rowhanimanesh, **"Robotics and Intelligent Systems"**, _invited lecture_, invited by Department of Computer Engineering, Azad University of Quchan, Quchan, March 5th, 2012.
- M. Jalaeian-F, A. Rowhanimanesh, **"A Tutorial Workshop on MATLAB and its Engineering Applications"**, _invited workshop_, invited by Department of Computer Engineering, Ferdows Institute of Higher Education, Mashhad, in March 6th 2012.
- M. Jalaeian-F, **"Toward Robotics and Parallel Robots"**, _Invited lecture_, Nov 22th, 2010, Faculty of Engineering, Ferdowsi University of Mashhad.

- M. Jalaeian-F, **"Auto-Structuring Fuzzy Neural Controllers"**, *Lecture*, Jul 11th, 2010, Department of Engineering, Ferdowsi University of Mashhad.
- M. Jalaeian-F, **"Simulated Annealing in combination by Fuzzy Logic and Reasoning"**, *Lecture*, May 30th, 2010, Faculty of Engineering, Ferdowsi University of Mashhad.
- M. Jalaeian-F, **"Robotics, Mechatronics and Control"**, *Lecture*, May 16th, 2010, Faculty of Engineering, Ferdowsi University of Mashhad.
- M. Jalaeian-F, M-R Ahangari, **"Toward Worldwide Educational Successful Methods in Computer Science"**, *Lecture*, May 11th, 2010, **BAHAR** University of Mashhad. (This lecture was concerning Pedagogy and Teaching Technology)
- M. Jalaeian-F, M-R Ahangari, **"Pre-university match of making computer program with Scratch software"**, *Workshop*, Emam Hosein high school, 2010, (Judge and Manager)
- M. Jalaeian-F, **"Artificial Intelligence and Soft-Computing"**, *Lecture*, Mar 12th, 2010, Faculty of Engineering, Ferdowsi University of Mashhad.
- M. Jalaeian-F, **"Fuzzy Control of Linear systems"**, *Lecture*, Dec 23rd, 2009, Faculty of Engineering, Ferdowsi University of Mashhad.

Research Project and Proposal:

- M. Jalaeian-F, **"Cable Suspended 2-DoF Parallel Robotic Painter"**, Montazeri University of Mashhad, Mashhad, Iran (2016).
- Alireza Akbarzadeh, M. Jalaeian-F, "**Design and construction of an autonomous robot mower for large spaces**", Mashhad Municipality and Ferdowsi University of Mashhad, Mashhad, Iran (2016).
- Alireza Akbarzadeh, M-R Akbarzadeh-T, M. Jalaeian-F, "**Power Hot-Line Robot**", hot-line Power Distribution Co, Mashhad, Iran (2015).
- Alireza Akbarzadeh, M-R Akbarzadeh-T, M. Jalaeian-F, "**Automatic Punch and Pin Machine for SAIPA-PRIDE Dynamic Ropes**", Part-Lastik, Mashhad, Iran (2015).
- M. Jalaeian-F, M-R Akbarzadeh-T, Alireza Akbarzadeh, **"Dynamic Growing Fuzzy Neural Controller, Design and Experimental Implementation, Application to Position and Impedance Control, and 3PSP Parallel Robot Setup"**, Ferdowsi University of Mashhad (2013).

Professional Activities:

- *Jun 2016:*
  Invited as Administrator of the Robotics Strategic steering Committee, Montazeri University of Technology, Mashhad, Iran, Jun 2016,
- *Sep 2012:*
  Member of Reviewers Committee, **CECIT2012**: "National Congress on Electrical Engineering, Computer and Information Technology", Mashhad, Iran, Sept. 2012.
- *Sep 2012:*
  Faculty Supervisor, attended to the **"The 3rd National Competition of Line Follower and Fighter Robots"** in Tabriz Worker's House, Tabriz, Iran. Our team had designed a *"Line Follower Robot"* at Ferdows Institute of Higher Education, Date: Sep 20 and 21, 2012.
- *June 2012:*
  Team Supervisor, attended the **"Intelligent Software Class of the 27th National Quran Competitions"** in Kermanshah, Iran. Our team had designed a *"simple version of speech-recognition-based intelligent software for teaching the reading of The Holy Quran"* at Ferdows Institute of Higher Education.
- *April 2012 - May 2012:*
  Chair, *"First Robotic Competitions of Ferdows Institute of Higher Education"*, including Line Followers and Open Classes, Ferdows Institute of Higher Education, Mashhad, Iran. Date: May 30th, 2012.
- *April 2012 – June 2012:*
  Foundation and Supervisory of **Ferdows Robotic Lab** (along with A. Rowhanimanesh), Ferdows Institute of Higher Education, Mashhad, Iran.
- *March 2012 - present:*
  Senior member of Administrative Committee, **Center of Excellence on Soft Computing and Intelligent Information Processing (SCIIP.um.ac.ir)**, Ferdowsi university of Mashhad, Iran.

- *2009 – 2012:*
  Team-Leader, (also Control Engineer and Microcontroller-based Hardware Designer), 3PSP Parallel Robot Team, Robotics LAB, FUM,(This team was one of the most outstanding robotic teams of FUM and made two industrial parallel robots, also some other industrial projects in the context of control theory was made in this group.).

Working Experiences:

- Micropulse technical group, 2000-2003, Head.
- Rayanfonon Pars Co., 2002-2004, Programmer.
- Payam-System Co., 2002-2004, Programmer.
- Behin-Gozin Toos Ltd Co., 2005-2007, Director.
- Saba Electronic Co., 2007-2009, Designer.
- Moj-Baran Khorasan Co., 2007-2009, Consulting engineer.
- Sima-Ertebat Co., 2007-2009, Technical Manager.
- Bargh-Technic Mahdi Workhouse, since 2008, Electrical Engineer.

Conferences, Workshops and Schools attendance:

- 4th Joint Conference of AI and Robotics and 6th IranOpen Robocup International Symposium, Qazvin, Iran, 2014.
- Key Lecture on "Uncertainty Dissected, from A to Z", Lecturer: Professor M.-R. Akbarzadeh-T, University of Mazandaran, Babolsar, Iran, Date: Oct 27, 2012.
- The 6th International Conference of Fuzzy Information and Engineering (**ICFIE**), University of Mazandaran, Babolsar, Iran, Date: Oct 25-26, 2012.
- The 3rd National Competition of Line Follower and Fighter Robots, in Tabriz Worker's House, Tabriz, Iran. As faculty supervisor of the team of Ferdows Institute of Higher Education, Date: Sep 20 and 21, 2012
- Workshop on Soft Data Mining, Ferdowsi University of Mashhad, 4 Jul, 2012, (1391).
- The 2nd International Conference on Control, Instrumentation, and Automation (**ICCIA2011**), School of Electrical and Computer Engineering, Shiraz University, Shiraz, Iran, 2011.
- First National Workshop on Soft Computing and Intelligent Systems (**WSCIS2011**), Ferdowsi University of Mashhad, Thursday, May, 2011 (1390)
- The 7thIranian Student Conference on Electrical Engineering (**ISCEE2004**), Khaje-Nasir University of Technology, Tehran, Iran, Sep. 2004
- Pedagogy and Skills of Teaching Program, 240hrs Workshop, **Ministry of Education of Iran**, (**with honor**, Mark: 18.87, Grade: **Excellent**), summer 2009.
- Programmable Logic Control in industrial applications, Workshop, Power and Water University of Technology, 2004, (Mark: **20** / 20)

Publications:

Book:

- Robot Control, Position and Force; 2013 (1392), **ISBN:** 978-600-6636-29-0
- Robots Simulation using MATLAB, 2016 (1395), **ISBN:** 978-600-04-6553-7

Journal Papers:

1- Shirin Fartashtolue, M-R Akbarzadeh-T, Alireza Akbarzadeh, **Mohsen Jalaeian-F**, "Position Tracking of a 3-PSP Parallel Robot Using Dynamic Growing Interval Type-2 Fuzzy Neural Control", Applied Soft Computing, 2015.

2- **Mohsen Jalaeian-F**, Augmented Downhill Simplex a Modified Heuristic Optimization Method, Journal of Computer & Robotics 5 (2), 2012, 1-6, (http://www.qjcr.ir/article_60_12.html)

3- **Mohsen Jalaeian-F**, Mohammad-R Akbarzadeh-T, "Impedance Control of 3-PSP Parallel Manipulator, using Dynamic-Growing Fuzzy-Neural Controller", ***under review.***

4- **Mohsen Jalaeian-F**, Mohammad-R Akbarzadeh-T, Alireza Akbarzadeh, "Dynamic Growing Fuzzy Neural Architecture for Experiments on a 3PSP Parallel Robot Control", ***under review.***

5- M. Ghaemi, M. R. Akbarzadeh-T and **M. Jalaeian-F**, "Adaptive General Type-2 Fuzzy Control for a Class of Nonlinear Systems", ***under review.***

Conference Papers:

8- **Mohsen Jalaeian-F**, "Augmented Downhill Simplex; A Modified Heuristic Optimization Method", 6th IranOpen Robocup International Symposium, Iran, 2014.

7- Shirin Fartah Tolue, M-R. Akbarzadeh-T., **Mohsen Jalaeian-F**, "Dynamic Growing Interval Type-2 Fuzzy Neural Controller", 13th Iranian Conference on Fuzzy Systems, Islamic Azad University, Qazvin Branch, Qazvin, Iran, 27-29August 2013

6- M. Ghaemi, M. R. Akbarzadeh-T, **Mohsen Jalaeian-F**, "Optimization of Membership Functions for an Indirect Adaptive Interval Type-2 Fuzzy Sliding Mode Control using Particle Swarm", 12th Iranian Conference on Fuzzy Systems, University of Mazandaran, October 25-27,, 2012.

5- **Mohsen Jalaeian-F**, Mohammad-R Akbarzadeh-T, Sadegh Abbasi A, Mostafa Ghaemi, "Dynamic-Growing Fuzzy-Neural Controller, Parameter Analysis", 12th Iranian Conference on Fuzzy Systems, ICFS1391, University of Mazandaran, Babolsar, Iran, October, 25-27, 2012.

4- Mostafa Ghaemi, M-R Akbarzadeh-T, **Mohsen Jalaeian-F**, "Adaptive Interval Type-2 Fuzzy PI Sliding Mode Control with Optimization of Membership Functions Using Genetic Algorithm", IEEE-indexed 2ndInternational e-Conference on Computer and Knowledge Engineering (ICCKE), Ferdowsi university of Mashhad, Iran, 2012

3- **Mohsen Jalaeian-F**, M-R Akbarzadeh-T, Alireza Akbarzadeh and Mostafa Ghaemi, "A Dynamic-Growing Fuzzy-Neuro Controller, Application to a 3PSP Parallel Robot", WCCI-2012 (Fuzz-IEEE 2012), IEEE World Congress on Computational Intelligence, Brisbane, Australia, 2012

2- Mostafa Ghaemi, M-R Akbarzadeh-T, **Mohsen Jalaeian-F**, "Optimal Design of Adaptive Interval Type-2 Fuzzy Sliding Mode Control Using Genetic Algorithm", IEEE-indexed 2ndInternational Conference on Control, Instrumentation, and Automation (ICCIA) 2011, Shiraz, Iran.

1- **Mohsen Jalaeian-F**, M-R Akbarzadeh-T, Alireza Akbarzadeh, Damoon Azarpazhooh, "Dynamic-Growing Fuzzy-Neural Controller, as Control System of Special 3PSP Parallel Robot", IEEE-indexed International Conference on Control, Instrumentation, and Automation (ICCIA) 2011.

References:

- **Prof. M.-R. Akbarzadeh-T** akbarzadeh@kiaeee.org, Full Professor, Dept. of Electrical Eng., Engineering Faculty, Ferdowsi University of Mashhad, Mashhad, Iran.
- **Dr. Alireza Akbarzadeh** ali_akbarzadeh_t@yahoo.com, ali_akbarzadeh@ferdowsi.um.ac.ir, Full Professor, Dept. of Mech. Eng., Engineering Faculty, Ferdowsi University of Mashhad, Mashhad, Iran.
- **Upon request**

My (Students') Projects at a glance:

SCARA Robot
Eqbal Lahoory Institute of Higher Education

FUM 3-PSP Parallel Robot