

CV

Year: 2020

Name: Alireza

Surname: Tavakolpour-Saleh

Date & Place of birth: 22 Dec. 1980, Iran (Shiraz)

Current Status: Associate Professor,
PhD of Mechanical Engineering (Mechatronics)

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QUALIFICATIONS:

Academic:

BSc & MSc: Shiraz University, Iran (1999-2003 and 2003-2006)

PhD: Universiti Teknologi Malaysia (UTM), Malaysia (2007-2010).

Field of Concentration: *Mechanical Engineering (Mechatronics)*

Awards:

- 8th *Khwarizmi International Award* 2006 in Mechanical Eng. Group, Iran.
- GOLD medal of 21th *International Invention Innovation and Technology Exhibition (ITEX2010)* in Mechanical Eng. Category.
- Academic scholarship and research Grant from Universiti Teknologi Malaysia (UTM).
- Best student award 2010 from scientific representative of Iran ministry of science at South-East Asia.
- Distinguished faculty member of SUTECH for research (year: 2015, 2016, 2017 & 2018)
- Distinguished faculty member of SUTECH for teaching (year: 2015, 2018)
- Best AWARD of Iranian Society of Mechanical Engineers (ISME) for graduate thesis supervision (year: 2017)

Memberships

- Member of National Foundation of Geniuses of Iran (Membership code: 1747)
- Member of Iranian Inventors Association (Membership No.:652)
- Member of Iranian Society of Mechanical Engineering (ISME)
- Member of Editorial Reviewer Board of Artificial Intelligence Research Journal (Canada)

Patents:

- 1 - Computerized Tachometer Equipped with Stroboscopic System for Preventing Errors, (Patent No.: 31693, Iran)
- 2 - Engine Powered by Ice Refrigeration, (Patent No.: 34167, Iran)
- 3 - Solar Stirling Engine with Limited Temperature Equipped with Flat-Plate Solar Collector, (Patent No.: 35583, Iran)
- 4- An Intelligent Low-Temperature Solar Stirling Pump, (Patent No.:85556, Iran)
- 5- Electrical power generation from wasted energy of vehicles using ratchet-crank-sprocket mechanism (Patent No.: 82990, Iran)

Books:

A.R. Tavakolpour-Saleh, "Applied Electronics for Mechatronic Engineers", LAMBERT Academic Publishing (Germany), 2012.

Publications

Journal papers:

1. Tavakolpour, A. R, Mailah, M., I. Z. Mat Darus, "Self-learning active vibration control of a flexible plate structure with piezoelectric actuator", *journal of Simulation, Modelling Practice and Theory*, Vol. 18, 2010, pp. 516-532. (ISI, selected as the 19th Top article of www.sciencedirect.com in simulation field, 2010)
2. Tavakolpour, A. R, Mat Darus, I. Z., Mailah, M., "Genetic Algorithm-based Identification of Transfer Function Parameters for a Rectangular Flexible Plate System", *International Journal of Engineering Application of Artificial Intelligence*, Vol. 23, 2010, pp. 1388-1397. (ISI, can be found in www.sciencedirect.com)
3. Tavakolpour, A. R., Zomorodian, A., Golneshan, A. A., "Simulation, construction and testing of a two-cylinder solar Stirling engine powered by a flat-plate solar collector without regenerator", *International Journal of Renewable Energy*, Vol. 33, 2008, pp. 77-87. (ISI, selected as the 10th toppest article of www.sciencedirect.com in energy field, 2008)

4. Abookazemi, K., Ahmad, H., Tavakolpour, A.R., Mustafa, M.W., "Unit commitment solution using an optimized genetic system", *International Journal of Electrical Power and Energy Systems*, Vol. 33, 2011, pp. 969-975. (ISI, can be found in www.sciencedirect.com)
5. Tavakolpour, A. R., Mailah, M., "Control of Resonance phenomenon in Flexible Structures via Active Support", *Journal of Sound and Vibration*, Vol. 331, 2012, pp. 1388-97. (ISI, IF: 1.613, can be found in www.sciencedirect.com)
6. Tavakolpour, A. R., Mat Darus, I. Z., Mailah, M., "Numerical Simulation of a Flexible Plate System for Vibration Control", *WSEAS Transaction on Systems and Control*, Vol. 4, 2009, pp. 119-128. (Indexed in Elsevier Scopus)
7. Tavakolpour, A. R., Mailah, M., Mat Darus, I. Z., "Active Vibration Control of a Rectangular Flexible Plate Structure Using High Gain Feedback Regulator", *International Review of Mechanical Engineering*, Vol. 3, No. 5, 2009, pp. 579-587. (Indexed in Elsevier Scopus)
8. Sabzehmeidani, Y., Mailah, M., Hussein, M., Tavakolpour, A. R., "Intelligent Control and Modelling of a Micro Robot for In-pipe Application", *WASET Journal of Mechanical and Mechatronics Engineering*, Vol. 72, 2010, pp. 448-453. (Indexed in Elsevier Scopus)
9. Tavakolpour, A. R., Mailah, M., Mat Darus, I. Z., "Modeling and Simulation of a New Active Vibration Control System for Flexible Structures", *WSEAS Transaction on Systems and Control*, Vol. 6, 2011, pp. 184-195. (Indexed in Elsevier Scopus)
10. Ahmadi, A.R., Tavakolpour-Saleh, A.R., "Imperialist Competitive Algorithm-based Adaptive Fuzzy Control of a Pneumatic Actuator", *Journal of Systems and Control Engineering*, Vol. 228(1), 2014, pp.2641.(ISI, IF: 0.7, doi: 10.1177/0959651813504745)
11. Tavakolpour-Saleh, A.R., Sadeghzadeh, M. R., "Design and development of a three-component force/moment sensor for underwater hydrodynamic tests, *Journal of Sensors and Actuators A: Physical*, Vol. 216, 2014, pp.84-91. (ISI, IF: 1.9, can be found in www.sciencedirect.com)
12. Tavakolpour-Saleh, A.R., Nasib, S.A.R., Sepasyan, A., Hashemi, S., "Parametric and non-parametric system identification of an experimental turbojet engine", *Aerospace Science and Technology* 43 (2015) 21-29. (ISI, IF:1, can be found in www.sciencedirect.com)
- 13- Jokar, H., Tavakolpour-Saleh, A.R., "A novel solar-powered active low temperature Stirling pump", *Renewable Energy* 81 (2015) 319-337. (ISI, IF: 3.476, can be found in www.sciencedirect.com)
- 14- Zare, SH, Tavakolpour-Saleh, A.R., "Nonlinear dynamic analysis of a solar free piston hot-air engine", *J. Modarres Mechanical Engineering*, Vol. 15 (9), 2015, pp.223-234. (ISC, In Persian)

- 15- Tavakolpour-Saleh, A.R., Jokar, H., "Neural network based control of an intelligent solar Stirling pump", *Energy* 94 (2016) 508-523. (ISI, IF: 4.86, can be found in www.sciencedirect.com)
16. Tavakolpour-Saleh, A.R., Jokar, H., "Adaptive Fuzzy Control of a Nonlinear Tank Process", *WASET Journal of Mechanical and Mechatronics Engineering*, Vol.10 (2) , 2016, pp. 408-416. (Indexed in Elsevier Scopus)
- 17- Zare, SH., Tavakolpour-Saleh, A.R., "Frequency-based design of a free piston Stirling engine using genetic algorithm", *Energy* , Vol. 109, 2016, pp. 466-480. (ISI, IF: 4.86, can be found in www.sciencedirect.com)
- 18- Tavakolpour-Saleh, A.R., Setoodeh, A.R., Gholamzadeh, M., "A novel multi-component strain-gauge loadcell for wind tunnel tests: Simulation and experiment", *Sensors and Actuators A: Physical*, Vol. 247, 2016, pp. 172-186 (ISI, IF: 2.201, can be found in www.sciencedirect.com)
- 19- Tavakolpour-Saleh, A.R., Zare, SH., Omidvar, A., "Applying perturbation technique to analysis of a free piston Stirling engine possessing nonlinear springs", *Applied Energy*, Vol. 183, 2016, pp. 526-541. (ISI, IF: 5.746, can be found in www.sciencedirect.com)
- 20- Tavakolpour-Saleh, A.R., Setoodeh, A.R., Ansari, E., "Iterative learning control of two coupled nonlinear spherical tanks", *World Academy of Science, Engineering and Technology: International Journal of Mechanical Aerospace Industrial Mechatronic and manufacturing Engineering*, Vol. 10, No. 11, 2016, pp. 1826-1833.
- 21- Sangdani, H., Tavakolpour-Saleh, A.R., "Active force control of a vision-based target tracker robot", *Aerospace Mechanics Journal*, Vol. 13, No. 4, 2016, pp. 89 – 98. (In Persian).
- 22- Zare, SH., Tavakolpour Saleh, A.R., Omidvar, A., "From Beale Number To Pole Placement Design of Free Piston Stirling Engines", *Archive of Mechanical Engineering*, No. 4, 2017, pp. 499-518. (ISI)
- 23- Zare, SH., Tavakolpour-Saleh, A.R., Aghajanzadeh, O., "An investigation on gas pressure drop in heat exchangers on dynamics of a free piston Stirling engine", *International Journal of Engineering (IJE)*, Vol. 30 (2), 2017, pp. 150-160 (ISI).
- 24- Tavakolpour-Saleh, A.R., Zare, SH., Bajian, H., "Optimization of Stirling heat engine using the gray wolf optimization algorithm", *International Journal of Engineering (IJE)*, Vol. 30, No. 6, 2017, pp. 895-903 (ISI).
- 25- Karami, M., Tavakolpour-Saleh, A.R., Norouzi, A., "Modeling, development, and evaluation of a micro-robot equipped with vibratory actuator", *Modares Mechanical Engineering*, Vol. 17, No. 8, 2017, pp. 413-422. (In Persian)

26- Tavakolpour-Saleh, A.R., Haddad, M.A., "A fuzzy robust control scheme for vibration suppression of a nonlinear electromagnetic actuated flexible systems", *Mechanical Systems and Signal Processing*, Vol.86, 2017, pp. 86-107. **(ISI, IF: 2.771, can be found at www.sciencedirect.com)**

27- Tavakolpour-Saleh, A.R., Zare, SH., Bahreman, H., "A novel active free piston Stirling engine: Modeling, development, and experiment", *Applied Energy*, Vol. 199, 2017, pp.400-415. **(ISI, IF: 5.746, can be found in www.sciencedirect.com)**

28- Sangdani, M.H., Tavakolpour-Saleh, A.R., Lotfavar, A., "Genetic Algorithm-Based Optimal Computed Torque Control of a Vision-Based Tracker Robot: Simulation and Experiment", *Engineering Applications of Artificial Intelligence*, 67 (2018) 24-38. **(ISI)**

29- Zare, Sh., Shourangiz-Haghighi, A.R., Tavakolpour-Saleh, A.R., "Higher order modeling of a free-piston Stirling engine: analysis and experiment", *International Journal of Energy and Environmental Engineering*, 9 (2018) 273–293. **(ISI)**

30. A Tavakolpour-Saleh, MH Sangdani, "Parameters identification of an experimental vision-based target tracker robot using genetic algorithm", *International Journal of Engineering* 31(3) (2018) 480-486. **(ISI)**

31- Zare, Sh., Tavakolpour-Saleh, A.R., "Applying Particle Swarm Optimization to Study the Effect of Dominant Poles Places on Performance of a Free Piston Stirling Engine", *Arabian Journal for Science and Engineering* 44 (6), 2019, 5657-5669. **(ISI)**

32- A Shourangiz-Haghighi, AR Tavakolpour-Saleh, " A neural network-based scheme for predicting critical unmeasurable parameters of a free piston Stirling oscillator", *Energy Conversion and Management* 196 (2019) 623-639. **(ISI, IF: 7.4, can be found in www.sciencedirect.com)**.

33. S Zare, A Tavakolpour-Saleh, A Shourangiz-Haghighi, T Binazadeh, "Assessment of damping coefficients ranges in design of a free piston Stirling engine: Simulation and experiment", *Energy* 185 (2019) 633-643. **(ISI, IF: 5.5, can be found in www.sciencedirect.com)**.

34- S Zare, AR Tavakolpour-Saleh, T Binazadeh, " Passivity based-control technique incorporating genetic algorithm for design of a free piston Stirling engine ", *Renewable Energy Focus* 28 (2019) 66-77.

35- S Zare, AR Tavakolpour-Saleh, "Design of a traveling wave thermo-acoustic engine based on genetic algorithm", *International Journal of Energy Research*, 43 (2019) 8790-8801. **(ISI)**

36- A.R. Tavakolpour-Saleh, Shahryar Zare, "An averaging-based Lyapunov technique to design thermal oscillators: A case study on free piston Stirling engine", *Energy* 189 (2019) 116127. **(ISI, IF=5.537, can be found in www.sciencedirect.com)**

- 37- Tahereh Binazadeh, Mahsa Karimi, Ali Reza Tavakolpour-Saleh, "Robust control approach for handling matched and/or unmatched uncertainties in port-controlled Hamiltonian systems", *IET Cyber-systems and Robotics*, 1 (3) (2019) 73-80.
- 38- A.R. Tavakolpour-Saleh, "A novel theorem on motion stability", *Communications in Nonlinear Science and Numerical Simulation*, 2020. (ISI, Under Review)
- 39- S Zare, AR Tavakolpour-Saleh, " Free piston Stirling engines: A review", *International Journal of Energy Research*, 44(7) (2020) 5035-6088. (ISI)
- 40- M. Farzaneh, A.R. Tavakolpour-Saleh, "Adaptive Trajectory Tracking Control of a Quadrotor Based on Iterative Learning Algorithm", *Journal of Engineering Technology and Applied Sciences*, 5 (1) (2020) 1-12.
- 41- A.P. Masumi, A.R. Tavakolpour-Saleh, "Experimental assessment of damping and heat transfer coefficients in an active free piston Stirling engine using genetic algorithm", *Energy*, 195 (2020) 117064. (ISI, IF=5.537, can be found in www.sciencedirect.com)
- 42- M. Karami, A.R. Tavakolpour-Saleh, A. Norouzi, "Optimal nonlinear PID control of a micro-robot equipped with vibratory actuator using ant colony algorithm: Simulation and experiment ", *Journal of Intelligent and Robotic Systems*, 99 (2020) 773-796. (ISI)
- 43- M. Farzaneh, A.R. Tavakolpour-Saleh, T. Binazadeh, "Stabilization of a Quadrotor System Using an Optimal Neural Network Controller ", *Journal of the Brazilian Society of Mechanical Science and Engineering*, 2020. (ISI, Under Review).
- 44- Shahryar Zare, A.R. Tavakolpour-Saleh, "Predicting onset conditions of a free piston Stirling engine", *Applied Energy*, 262 (2020) 114488.(ISI, IF=8.558, can be found in www.sciencedirect.com)
- 45- Shahryar Zare, A.R. Tavakolpour-Saleh, M.H. Sangdani, "Investigating limit cycle in a free piston Stirling engine using describing function technique and genetic algorithm", *Energy Conversion and Management*, 210 (2020) 112706. (ISI, IF=7.181, can be found in www.sciencedirect.com)
- 46- A.P. Masoumi, A.R. Tavakolpour-Saleh, A. Rahideh, "Applying a genetic-fuzzy control scheme to an active free piston Stirling engine: Design and experiment", *Applied Energy*, 268 (2020) 115045. (ISI, IF=8.558, can be found in www.sciencedirect.com)
- 47- A.R. Tavakolpour-Saleh, Shahryar Zare, "Justifying performance of thermo-acoustic Stirling engines based on a novel lumped mechanical model", *Applied Energy*, (2020). (ISI, Under Review).
- 48- A.R. Tavakolpour-Saleh, A. Hamzavi, A. Omidvar, "A novel solar-powered combined heat and power system based on Stirling cycle along with active control", *Energy*, (2020). (ISI, Under Revision)

49- H. Yousefzadeh, A.R. Tavakolpour-Saleh, "A novel unified dynamic-thermodynamic method for estimating damping and predicting performance of kinematic Stirling engines", *Energy*, (2020). (ISI)

50- M.H. Sangdani, A.R. Tavakolpour-Saleh, "PSO-based parameter identification applied to a target tracker robot with flexible joint", *International Journal of Engineering*, 33(9) (2020) 1797-1802. (ISI)

Conference Papers:

1- Tavakolpour, A. R., Mat Darus, I. Z., Mailah, M., "Performance Evaluation of Finite Difference and Finite Element Methods Applied to Flexible Thin Plate for Active Vibration Control", *Proc. Of 10th WSEAS Int. Conf. on Automatic Control, Modeling & Simulation (ACMOS'08)*, Istanbul, Turkey, 2008, pp. 230-236.

2- Tavakolpour, A. R., Mat Darus, I. Z., Mailah, M., "Performance Evaluation of Genetic Algorithm for System Identification of a flexible structure", *Proc. Of IEEE student conference on Research & Development (SCOReD2008)*, Johor, Malaysia, 2008, pp. 38-42.

3- Mat Darus, I. Z., Tavakolpour, A. R., Toha, S.F., Mohamad, M., Tokhi, M.O., "Adaptive Neuro-Modeling of a Twin Rotor System", *Proc. Of IEEE student conference on Research & Development (SCOReD2008)*, Johor, Malaysia, 2008, pp. 290-294.

4- Tavakolpour, A. R., Mat Darus, I. Z., Mailah, M., "Modeling and Simulation of an Active Vibration Control System for a Flexible Structure Using Finite Difference Method", *Proc. of the 3rd IEEE Asia International Conference on Modeling and Simulation (AMS2009)*, Indonesia, 2009, pp. 448-453. (Can be found in IEEE digital library)

5- Tavakolpour, A. R., Mat Darus, I. Z., Mailah, M., "Neural Networks-based Identification of a Flexible Plate Structure for Active Vibration Control", *Proc. Of the 2th International Conference on Control, Instrumentation and Mechatronic Engineering (CIM2009)*, Melaka, Malaysia, 2009, pp. 349-354.

6- Tavakolpour, A. R., Mailah, M., Mat Darus, I. Z., "Vibration Control of a Flexible Thin Plate Using Active Force Control Strategy", *Proc. Of the 2th International Conference on Control, Instrumentation and Mechatronic Engineering (CIM2009)*, Melaka, Malaysia, 2009, pp. 139-144.

7- Kazi, S., Mailah, M., MD Zain, M., Tavakolpour, A.R., "Vibration Control of a Hand model Using Active Force Control with Piezoelectric Actuator", *Proc. Of International Graduate Conference on Engineering and Science (IGCES2008)*, Johor, Malaysia, 2008, pp.230-241.

8- Tavakolpour Saleh, A., Zarinchang, J., "Simulation and construction of a solar stirling engine with two cylinder equipped with flat plate solar collector", *Proc. Of the International Stirling Forum 2008 (ISF2008)*, Germany, 2008.

9- Tavakolpour, A.R. and Zomorodian, A. and Golneshan A., 2006, "Design and Development of a Solar Stirling Engine with Limited Temperature", *Proceeding of 4th National Congress on Agricultural Machinery Engineering & Mechanization*, University of Tabriz, Iran, 2006. (Persian Manuscript is Available).

10- Tavakolpour, A. R., Zomorodian, A., Golneshan, A. A., "Performance Evaluation of a Solar Stirling Engine in Agriculture", *Proceeding of 3th Student Conference on Agricultural Machinery Engineering*, Shiraz University, Iran, 2007. (Presented as Key-Note-Speaker, Persian Manuscript is Available)

11- Tavakolpour, A.R., "Genetic algorithm based active vibration control of a flexible structure with non collocated actuator and sensor", *ISME*, Shiraz University, Iran, 2011.

12- Tavakolpour, A.R., Zare, B., "Modelling and control of a stirred tank heater system under disturbance", *Proc. ICMEAT2012*, Isfahan, Iran, 2012.

13- Tavakolpour, A.R., Lotfavar, A., "System identification of a piezo-actuated flexible plate using artificial neural networks", *Proc. ICMEAT2012*, Isfahan, Iran, 2012.

14- Jokar, H ,Tavakolpour-Saleh, A.R., "Presentation and modeling of a novel LTD solar-powered active Stirling pump with liquid power piston" , *Proc. of ACEC2014*, Kerman, Iran, 2014

15- Khanjanpour, H., Rahnema, M., Iranmanesh, M.,Tavakolpour-Saleh, A.R. "Design, Development and Experimental Analysis of Gamma-Type Stirling Engine" ,*Proc. of 2ed Annual Clean Energy Conference*, Kerman Iran, 2012

16- Haghgu, H., Hoseini-Babanari ,Z., Lotfavar, A ,Tavakolpour-Saleh ,A.R. " Human Walking Simulation Using Dynamic Parallel Neural Networks", *Proc. of 22ed Annual International Conference on Mechanical Engineering*, Ahvaz, Iran, 2014

۱۷- شهریار زارع، علیرضا توکل پورصالح، هیبت اله جوکار، "بررسی تاثیر انتقال حرارت محدود بر دینامیک یک موتور هوای گرم پیستون آزاد خورشیدی با استفاده از روشهای کنترل خطی"، اولین کنگره سالانه جهان و بحران انرژی، ۱۳۹۴.

۱۸- علیرضا توکل پورصالح، هیبت اله جوکار، شهریار زارع، "بررسی عملکرد تجربی یک پمپ هوشمند خورشیدی فعال"، اولین کنگره سالانه جهان و بحران انرژی، ۱۳۹۴.

۱۹- محمد حسین سنگدانی، علیرضا توکل پورصالح، "کنترل دینامیک معکوس یک ربات ردیاب هدف مجهز به بینایی"، دومین کنفرانس سراسری توسعه محوری مهندسی عمران، معماری، برق و مکانیک ایران، ۱۳۹۴.

۲۰- محمد حسین سنگدانی، علیرضا توکل پورصالح، "کنترل فعال نیرو یک ربات ردیاب هدف مجهز به بینایی ماشین" دومین کنفرانس سراسری توسعه محوری مهندسی عمران، معماری، برق و مکانیک ایران، ۱۳۹۴.

۲۱- آتوسا داورپناه، علیرضا توکل پورصالح، امیر لطف آور، "بهینه سازی انحنای لوله در ربات پیوسته نوع لوله های هم مرکز به منظور حرکت در مسیرهای مشخص"، کنفرانس بین المللی یافته های نوین پژوهشی در مهندسی صنایع و مهندسی مکانیک، ۱۳۹۴.

۲۲- آتوسا داورپناه، امیر لطف آور، علیرضا توکل پورصالح، "شبهه سازی سینماتیکی ربات پیوسته نوع لوله های هم مرکز"، کنفرانس بین المللی یافته های نوین پژوهشی در مهندسی صنایع و مهندسی مکانیک، ۱۳۹۴.

۲۳- حسین بهرمن، علیرضا توکل پورصالح، "بررسی اثر تغییرات فرکانس جابجاگر بر کورس پیستون قدرت یک موتور هوای گرم پیستون آزاد فعال"، اولین کنفرانس بین المللی دستاوردهای نوین پژوهشی در مکانیک، مکترونیک و بیو مکانیک، ۱۳۹۴

۲۴- نور الدین خسروی، علیرضا توکل پورصالح، جعفر روزگار، "شبهه سازی ارتعاش غیر خطی ورق مربع شکل چهار سر گیردار با جابجایی بزرگ"، اولین کنفرانس ملی مهندسی مکانیک و مکترونیک ایران، ۱۳۹۵

۲۵- اشکان نوروزی، علیرضا توکل پورصالح، "بررسی اصول حرکتی یک میکروروبات ارتعاشی"، اولین کنفرانس ملی مهندسی مکانیک و مکترونیک ایران، ۱۳۹۵

26- MH Khanjanpour, M Rahnama, A Javadi, M Akrami, M Tavakolpour, M Iranmanesh, "An investigation of a Y-type MTD Stirling engine prototype", *UK Association for Computational Mechanics (UKACM)*, 2019.

27- FP Da Costa, PHLSP Domingues, Roberto Z Freire, Leandro S Coelho, AR Tavakolpour-Saleh, Helon VH Ayala, "Genetic Algorithm for Topology Optimization of an Artificial Neural Network Applied to Aircraft Turbojet Engine Identification", *2019 IEEE Congress on Evolutionary Computation (CEC)*, (2019). pp. 1095-1101.

28- A. Davarpanah, A. Lotfavar, A. Tavakolpour-Saleh, "The optimization of Concentric Tube Continuum Robot based on Target Point via Genetic Algorithm", *27th Annual International Conference of Iranian Society of Mechanical Engineering (ISME2019)*, 2019, 418-422.

29- A. Davarpanah, A. Lotfavar, A. Tavakolpour-Saleh, "The optimization of CTR for transferring in complicated and tight spaces via Genetic Algorithm", *27th Annual International Conference of Iranian Society of Mechanical Engineering (ISME2019)*, 2019, 423-427.

30- Alireza Shourangiz-Haghighi, Alireza Tavakolpour-Saleh, "Prediction of output power and efficiency for a free piston Stirling oscillator using artificial neural network", *3ed International Conference on Soft Computing CSC2019*, 20 & 21 Nov 2019. Gilan, Iran.

31- Alireza Shourangiz-Haghighi, Alireza Tavakolpour-Saleh, "Prediction of the stable limit cycle for a free piston Stirling oscillator via Takagi-Sugeno fuzzy system", *3ed International Conference on Soft Computing CSC2019*, 20 & 21 Nov 2019. Gilan, Iran.

Research projects:

- 1- Design and evaluation of three-component force/moment dynamometer for water channel laboratory (For: Malek Ashtar University of Technology, 2013)
- 2- Fabrication and installation of three-component force/moment dynamometer for water channel laboratory. (For: Malek Ashtar University of Technology, 2013-2014)
- 3- Design and development of 12-channels data-logging system for measurement of strain and temperature distribution in Kosar-6 system (Fajr Ind. Comp., Shiraz, 2013)
- 4- Measurement of strain and temperature in G9 System. (Fajr Ind. Comp., Shiraz, 2013)
- 5- Design & development of a new sensor for measuring the moisture content of agricultural products (In: Shiraz University, 2005-2006)
- 6- Design & development of an active vibration control system for a rectangular flexible plate structure using piezoelectric actuator. (Universiti Teknologi Malaysia, 2007- 2010)
- 7- Design & development of an active vibration control system for a flexible beam with cantilever configuration using a new electromagnetic actuator. (Universiti Teknologi Malaysia, 2007- 2009)
- 8- Intelligent active vibration control for a flexible beam using active force control method and iterative learning algorithm. (Universiti Teknologi Malaysia, 2007- 2009)
- 9- Modeling & simulation of an active solar water heater using MATLAB/Simulink. (Universiti Teknologi Malaysia, 2008)
- 10- Design and development of a two-cylinder low temperature differential Stirling engine equipped with flat plate solar collector. (In. Shiraz University, 2004-2006)
- 11- Design and development of a very low temperature differential Stirling engine powered by an ice cube. (2006-2007)
- 12 - Design & development of a 5 tons walnut dryer (In: Fars Engineering Research Center, 2004-2005)
- 13 - Design & development of a solar cooker (In: Shiraz University, 2002)
- 14 - Design & development of a solar Fryer (In: Shiraz University, 2001-2002)
- 15 - An investigation into mechanical analysis of combine MF 5650 (In: Fars Engineering Research Center, 2005).
- 16 - An investigation into mechanical analysis of a rotary chopper (In: Fars Engineering Research Center, 2003-2004)

Teaching Experience:

Graduate:

- Advanced Control
- Advanced Instrumentation and Measurement Systems
- System Identification
- Dynamical systems
- Soft Computing

Under graduate:

- Dynamics
- Hydraulic and pneumatic

- Automatic Control
- *Computer programming*
- *Heavy Machinery*
- *Auto-mechanic Lab*
- *Thermodynamics Lab*
- *Control & Instrumentation Lab.*
- *Mechanics of Machine Lab*
- *Fluid Mechanics Lab*
- *Statics Lab*

Computer Skills:

- C programming
- Qbasic programming
- MATLAB programming
- LabVIEW programming
- Programming of Micro-Controllers in AVR studio, Code Vision and MPLAB (AVR, PIC)
- Programming of PLC
- Simulink/MATLAB
- ANSYS (Structural, Thermal, Modal and Solid analysis)
- Mechanical Desktop (Advanced)
- AUTOCAD
- Multisim (Circuit Analysis)
- Working Model 4D

Research Interests

- 1- Mechatronics
- 2- Dynamic and Energetic Systems
- 3- Active Vibration/Force Control (AVC/AFC)
- 4- Stirling Engines
- 5- Renewable energy Systems Control
- 6- Adaptive and Intelligent Control
- 7- Artificial Intelligence (Genetic Algorithms (GAs), Neural Networks (NNs), Evolutionary Algorithms (EAs), Fuzzy Logic (FL))
- 8- System Identification
- 9- Instrumentation and Measurement Systems
- 10- Robotics and Automation
- 11- Machine Vision