

Curriculum Vitae: Seyed Hossein Mahdavi, PhD

Personal Details

Full name	Seyed Hossein Mahdavi	
Place of birth	Kerman, Iran	
E-mails	s.h.mahdavi@outlook.com ; sh.mahdavi@sharif.edu ; sh.mahdavi@bam.ac.ir ;	
Website	https://www.bam.ac.ir/resume/%D8%B3%DB%8C%D8%AF-%D8%AD%D8%B3%DB%8C%D9%86-%D9%85%D9%87%D8%AF%D9%88%DB%8C/	

Research Interests

Applied mathematical modeling and computations in structural mechanics. Engineering optimization; Structural dynamics and health monitoring. Wavelet and curvelet applications in structural mechanics; Signal/image processing. Non-linear analysis; System identification; Machine/Deep learning paradigms.
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Educations

2008-2011	IAUK, Kerman University, Iran M.Sc. in Structural Engineering Thesis: " <i>Linear and non-linear dynamic analysis of 2D frames using Chebyshev wavelets</i> " Supervisors: Prof. Dr. Saeed Shojaee & Prof. Dr. Eysa Salajegheh
2012-2016	University of Malaya (UM), Kuala Lumpur, Malaysia PhD in Structural Engineering Thesis: " <i>Structural health monitoring using adaptive wavelet functions</i> " Supervisor: Prof. Dr. Hashim Abdul Razak Ext. Examiner 1 from: Dep. of Civil Engineering, QUT (Australia). Ext. Examiner 2 from: Dep. of Civil Engineering, UNM (USA). Int. Examiner from: Dep. of Mathematics, UM (Malaysia). University of Malaya (UM); ranked 59 in QS ranking 2020.

Working experience:

Sep 2012-Sep2013 	Research Assistant Employer: Dep. of Civil Engineering, <u>University of Malaya(UM)</u>, Malaysia
Sep 2013-Jan2016 	Associate Researcher; - Algorithm development for structural health monitoring strategies - Supervision of bachelor and master students - Teaching assistant for computer programming in civil engineering <u>University of Malaya (UM)</u>

Feb. 2017-Mar.2017	 NWPU	Visiting Research Associate - Algorithm development for identification of non-linear composites <u>Northwestern Polytechnical University (NWPU), Xi'an, China</u>
Mar.2017- Feb. 2019	 NWPU	Post-Doctoral Research Fellow - Algorithm development for identification of non-linear structures - Supervision of master and collaborating with PhD candidates - Teaching <u>Northwestern Polytechnical University (NWPU), Xi'an, China</u>
Aug. 2017-Jan. 2019	 NWPU	Principle investigator: - An international collaboration on structural health monitoring research projects under NSFC Grant No.: 51750110509. <u>Northwestern Polytechnical University (NWPU), Xi'an, China</u>
Sep. 2018-Sep. 2019	 SUT	Post-Doctoral Research Fellow - Algorithm development for structural health monitoring and seismic assessment of non-linear hysteresis structures. - Supervision of master and collaborating with PhD candidates <u>Sharif University of Technology (SUT), Tehran, Iran</u>
Sep. 2018-Jan2019	 SUT	Lecturer 3 credits course for postgraduate candidates: "Structural Health Monitoring" Dep. of Civil Eng., <u>Sharif University of Technology (SUT), Tehran, Iran</u>
June. 2018-Present		R&D Scientist - Leading the SHM team. - Product development for SHM applications. Hoonam Structural Health Monitoring Group; <u>Sharif Advanced Technologies Incubator, Sharif University of Technology, Tehran, Iran.</u>
Oct. 2019-Present		Assistant Professor (Tenure Track) Head of Department of Civil Engineering Higher Education Complex of Bam, Iran

Grants, awards, scholarships:

2011	Young Researchers Club; IAUK ISI paper publication award
2012-2013	Department of Civil Eng., University of Malaya (UM) High Impact Research Grant (HIR: UM.C/HIR/MOHE/ENG/55)
2012-2015	Department of Civil Eng., University of Malaya (UM) Postgraduate Research Grant (IPPP/PG078/2013B)
2013-2015	University of Malaya (UM), Full scholarship under " Bright Sparks Scheme " (BSP/APP/1818/2013), as the outstanding researcher.
2015	University of Malaya (UM), International Conference Grant , to attend to DAMAS, Ghent University, Ghent, Belgium
2017	Northwestern Polytechnical University (NWP) Fund for a Postdoctoral Fellowship Program , Xi'an, China.
2017	National Science Foundation of China (NSFC) Research Fund for international Young Scientists (Grant No.: 51750110509)
2018	National Elites Foundation of Iran, Research Fund , Tehran, Iran
2021	Ministry of Cultural Heritage, Handicrafts and Tourism , Iran. Research project title: "Study of Seismic Vulnerability, Structural Health Monitoring, Presenting Details of Retrofitting and Reinforcement of the Exposed Chimney Constructed in Kerman City, Iran", (Grant no.: 59465-751213), principal investigator .
2023	Department of Civil Eng., Higher Education Complex of Bam, Bam, Kerman, Iran. Research project title: "Near Real-Time Structural Damage Detection Using Machine Learning Techniques", (Grant no.: 81167051400), principal investigator .

Publications (ISI ranked journals, conference proceedings):

ISI Ranked journals	1. S.H. Mahdavi, H.A. Razak, "A wavelet-based approach for vibration analysis of framed structures", Applied Mathematics and Computation (Elsevier-Q1), 220 (2013)414-428. 2. S.H. Mahdavi, H.A. Razak, "Indirect time integration scheme for dynamic analysis of space structures using wavelet functions", Journal of Engineering Mechanics (ASCE-Q1), DOI: 10.1061/(ASCE) 13 EM.1943-7889.0000914.
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3. **S.H. Mahdavi**, H.A. Razak, S. Shojaei, M.S. Mahdavi, "A comparative study on application of Chebyshev and spline methods for geometrically non-linear analysis of truss structures", **International Journal of Mechanical Sciences (Elsevier-Q1)**, 101 (2015)241-251. DOI: 10.1016/j.ijmecsci.2015.08.001.
4. **S.H. Mahdavi**, H.A. Razak, "Optimum dynamic analysis of 2D frames using free-scaled wavelet functions", **Latin American Journal of Solids and Structures (Q2)**, 11 (2014)1036-1048.
5. **S.H. Mahdavi**, S. Shojaei, "Optimum time history analysis of SDOF structures using free scales of Haar wavelet", **Structural Engineering and Mechanics (Q2)**, 45(1) (2013)95-110.
6. **S.H. Mahdavi**, H.A. Razak, "A comparative study on optimal structural dynamics using wavelet functions", **Mathematical Problems in Engineering (Q2)**, Vol. 2015, Article ID 956793, 10 pages, 2015. DOI: 10.1155/2015/956793.
7. **S.H. Mahdavi**, H.A. Razak, "An efficient iterative scheme using family of Chebyshev's operations", **Mathematical Problems in Engineering (Q2)**, Vol 2015 (2015), Article ID 205295, 10 pages, 2015. DOI: 10.1155/2015/205295.
8. **S.H. Mahdavi**, H.A. Razak, "An efficient method for dynamic analysis of spatial trusses using Legendre wavelets", **Arabian Journal for Science and Engineering (Springer-Q2)**, 2015.
9. **S.H. Mahdavi**, H.A. Razak, "Optimal sensor placement for time domain identification using a wavelet-based genetic algorithm", **Smart Materials and Structures (IOP Publication-Q1)**, 25(6), 2016. 065006.
10. Yu. Zhexing, **S.H. Mahdavi**, C. Xu, "Time-domain spectral element method for impact identification of frame structures using enhanced GAs", **KSCE Journal of Civil Engineering (Springer-Q 1)**, 2018.
11. **S.H. Mahdavi**, F.R. Rofooei, A. Sadollah, C. Xu, "A wavelet-based scheme for impact identification of framed structures using combined genetic and water cycle algorithms", **Journal of Sound and Vibration (Elsevier-Q1)**, 2019. DOI.org/10.1016/j.jsv.2018.11.022
12. Y Xu, C., Wu, G., Du, F., Zhu, W., & **Mahdavi, S. H.** (2019). A Modified Time Reversal Method for Guided Wave Based Bolt Loosening Monitoring in a Lap Joint. **Journal of Nondestructive Evaluation (Springer-Q 1)**, 38(4), 85.
13. **S.H. Mahdavi**, K Azimbeik. "A modified genetic algorithm strategy for optimal sensor exciter placement capable of time domain structural identification". International Journal of Optimization in Civil Engineering. 2022; 12 (4) :517-543.
14. Dehghani, H., Amiri Moghadam, M., & **S.H. Mahdavi** "Optimized Flooring Systems Selection by Analytic Hierarchy Process". International Journal of Optimization in Civil Engineering, 11(3), 397-409, 2021.

	15. Azimbeik, K., S.H. Mahdavi, & Rofooei, F. R., "Improved Image-Based, Full-Field Structural Displacement Measurement using Template Matching and Camera Calibration Methods". <i>Measurement (Elsevier-Q1)</i>, 112650, 2023. 16. S.H. Mahdavi, & C. Xu, "Time-Domain Structural Damage Identification Using Ensemble Bagged Trees and Evolutionary Optimization Algorithms". <i>Structural Control and Health Monitoring (Q1)</i>, 2023.
Conf. proc.	1. S.H. Mahdavi, H.A.Razak, "Optimal time history analysis of 2D trusses using free-scaled wavelet functions", <i>Aust. J. Basic & Appl. Sci.</i>, 8(19): 127-130, 2014. 2. S.H. Mahdavi, H.A.Razak, "A wavelet-based scheme for optimum measurement/monitoring of structural responses", <i>Journal of Physics: Conference Series</i> 628 (2015) 012024, DOI:10.1088/1742-6596/628/1/012024 (DAMAS 2015, Belgium). 3. S.H. Mahdavi, Zexing Yu and Chao Xu, "Joint-stiffness identification of truss bridges using an enhanced water cycle optimization algorithm", Engineering Mechanics Institute (EMI) International Conference 2018, Shanghai, China. 4. F. Dehghanpour, S.H. Mahdavi and F.R. Rofooei, "Structural identification using water cycle optimization algorithm", the 6th National and 2nd International Conference of Earthquake and Structural Engineering, Kerman, Iran, 2018. 5. M. Talebi, S.H. Mahdavi and F.R. Rofooei, "Application of phased-based displacement measurement of steel frames", the 5th International Conference on Bridge Engineering, Amirkabir Uni. Tehran, Iran, 2019. 6. M.J. Hosseini, S.H. Mahdavi and F.R. Rofooei, "Identification of Ibarra-Medina-Krawinkler hysteresis model parameters using particle swarm optimization algorithm", the 8th International Conference on Seismology and Earthquake Engineering. Tehran, Iran, 2019. 7. K. Azimbeik, S.H. Mahdavi and F.R. Rofooei, "Application of machine-vision in vibration measurement of large-scale structures", the 12th International Congress on Civil Engineering (12ICCE), Ferdowsi Uni, Mashhad, Iran, 2021.

Evaluation activities:

Referee for "<i>Latin American Journal of Solids and Structures (Q2)</i>" Referee for "<i>Smart Materials and Structures (Q1)</i>" Referee for "<i>Archives of Civil and Mechanical Engineering (Q1)</i>" Referee for "<i>Journal of Sound and Vibration (Q1)</i>" Referee for "<i>Journal of Engineering Mechanics (ASCE-Q1)</i>", member Referee for "<i>The Structural Design of Tall and Special Buildings (Q2)</i>" Referee for "<i>Machine Learning Science and Technologies (Q1)</i>" Referee for "<i>Structural Control and Health Monitoring (Q1)</i>"

Teaching experience:

2015-2016: Dep. of Civil Eng. UM	TA for "Computer Programing in Civil Engineering" as a key KPI for PhD full scholarship.
Spring 2017: Aerospace Eng. NWPU	"An introduction to Finite Element Method: Computer Programing Part"
Fall 2018: Dep. of Civil Eng., Sharif University	"Structural Health Monitoring" (3 credits course for postgraduate candidates)
2019-Present: Dep. of Civil Eng. Bam Uni.	BSc.: "Reinforced Concrete I&II", "Foundation Analysis and Design", "Structural Analysis I&II", "Statics", "English for Civil Eng.", "Bridge Eng.", "Earthquake and Wind Eng.". MSc.: "Finite Element Modeling", "Structural Dynamics".
Fall 2023: Dep. of Civil Eng., Shahid Bahonar University of Kerman	"Structural Health Monitoring" (3 credits course for postgraduate candidates)

Supervision:

2014-2015 BSc	Mr. Ng Chyi Chun ; Final year research project: "Optimum analysis and design of large-bay RC slabs using modified genetic algorithms", Department of Civil Engineering, UM . Supervisor
2015-2016 MSc	Mrs. M. S. Mahdavi ; Title: "Geometrically nonlinear analysis of truss structures using Chebyshev Halley algorithms", Dep. Civil Engineering, Islamic Azad University of Kerman , Kerman, Iran. Co-supervisor
2018 MSc	Ms. Fatemeh Dehghanpour ; Title: "Structural health monitoring using metaheuristic optimization algorithms", Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor
2019 MSc	Mr. Sina Pourghasem ; Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor
2019 MSc	Mr. Shahin Sagharchiha ; Title: "A comparative study on the application of metaheuristic optimization algorithms for identification of Bouc-Wen hysteresis model", Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor
2019 MSc	Mr. Amin Hosseini Tehrani ; Title: "Real-time structural health monitoring of nonlinear systems using hysteresis loop analysis", Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor

2020 MSc	Ms. Kimia Azim Beig; Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor
2020 MSc	Mr. Mohammad Javad Ghorbanian; Dep. Civil Engineering, Sharif University of Technology , Tehran, Iran. Co-supervisor
2023 MSc	Mr. Ali Refahi; Dep. Civil Engineering, Shahid Bahonar University of Kerman , Kerman, Iran. Co-supervisor
2023 MSc	Mr. Shahabi; Dep. Civil Engineering, Shahid Bahonar University of Kerman , Kerman, Iran. Co-supervisor
2023 PhD	Mr. Dehghani; Dep. Civil Engineering, Shahid Bahonar University of Kerman , Kerman, Iran. Co-supervisor
2023 MSc	Ms. Khamar; Dep. Civil Engineering, Higher Education Complex of Bam , Bam, Iran. Supervisor

Membership:

2007-present	Professional Engineer (PE), Ministry of Housing and Urban Planning, Iran.
2015-present	American Society of Civil Engineering (ASCE)
2017-present	National Elites Foundation of Iran
2018-present	SHM Group, Sharif Advanced Technologies Incubator, Sharif University of Technology, Tehran, Iran.

Social Media:

<https://www.researchgate.net/profile/Seyed-Mahdavi-4>

<https://scholar.google.com/citations?user=WD-6IHgAAAAJ&hl=en>

Last Update: 02/04/2024 [14/01/1403]