Saeed EFTEKHAR AZAM

Curriculum Vitae

Identifying and Personal Information

E-mail: saeed.eftekhar@polimi.it;

Date of Birth: 25/05/1983 - Mianeh, Iran

Citizenship: Iranian

Residence status: European permanent residence permit, issued by government of Italy

Click here for Google Scholar profile

H-index (Scopus; Google Scholar): 6

i10-index (Google Scholar): 5

Current Occupation

Sep. 2015 – Ongoing
Postdoctoral researcher at Department of Civil and Environmental Engineering, Politecnico di Milano

Scientific advisor: Prof. Stefano Mariani

Education

Jan. 2009 – Mar. 2012
PhD in STRUCTURAL ENGINEERING in Department of Structural Engineering at **POLITECNICO DI MILANO** (MILAN - ITALY)
Thesis title: Dual estimation and reduced order modelling of damaging structures
Scientific advisor: Prof. Stefano Mariani
Evaluation: **CON MERITO** (WITH DISTINCTION)

Sep. 2005 – Jan. 2008
Master of Science in STRUCTURAL ENGINEERING in Department of Civil and Environmental Engineering at **SHARIF UNIVERSITY OF TECHNOLOGY** (TEHERAN - IRAN)
Thesis title: Dynamic response of Timoshenko beams to moving mass
Scientific advisor: Prof. Masood Mofid

Sep. 2001 – Sep. 2005
Bachelor of Science in CIVIL ENGINEERING at **UNIVERSITY OF TEHRAN** (TEHRAN - IRAN)

Research & Working Experiences

Feb. 2014 – Aug. 2015
Postdoctoral Researcher in Department of Mechanical Engineering at **University of Thessaly** (VOLOS - GREECE)
Project title: Uncertainty Quantification and Propagation in Complex Structural Dynamics Simulations using Monitoring Data
Scientific advisor: Prof. Costas Papadimitriou

Jun. 2012 – Dec. 2013
Research Associate (conscript) for the project "Applications of the Magneto-Rheologic dampers in improvement of seismic performance of existing structures"
In Department of the Structures at Road, Housing and Urban Development Research Center
Tehran-Iran

May 2012– Nov. 2013
Senior Structural Engineer in collaboration with Alidoost & Partners architectural design studio

Sep. 2006– Jan. 2008
Part time **Structural Engineer** at Shora Consulting Engineers

Teaching Experiences

Ongoing:
Contributing (tutoring, lecturing and teaching material preparation) to the course "Computational modelling for materials engineering", in Politecnico di Milano, organized by Prof. Stefano Mariani

Mentorship Experiences

Co-supervisor for a Master of Science thesis carried out in the Department of Structural Engineering by **Mehrdad Bagherinia**, Politecnico di Milano, Dec. 2010

Co-supervisor for a Master of Science thesis carried out in the Department of Structural Engineering by **Ilaria Franzoni**, Politecnico di Milano, Mar. 2011

Co-supervisor for a Master of Science thesis carried out in the Department of Structural Engineering by **Giovanni Capellari**, Politecnico di Milano, Apr. 2014

Honors & Awards

Full scholarship: tuition fees and living allowance covering studies towards the PhD degree at Politecnico di Milano University

Ranked **33th** in the Nationwide Entrance Exam for Graduate Studies among over 20,000 Civil Engineering graduated participants, Iran, 2004.

Scientific Referee for Journals

Scientia Iranica: Transactions in Civil Engineering
Structural Engineering & Mechanics
PLOS ONE
Micromachines
Sensors
Journal of Mechanical Science and Technology

Technical Expertise

Recursive Bayesian inference methods:
Kalman filter
Extended Kalman filter
Unscented Kalman filter
Square-root unscented Kalman filter
Particle filter
Hybrid Particle filter

POD-based reduced order modelling:
Principal component analysis
Singular value decomposition

Modal identification:
Stochastic subspace methods

Parallel processing:
OpenMP

Structural dynamics:
Moving mass problem
System identification
Parameter identification

Design:
Seismic design
Steel structures
Reinforced concrete structures

Language Skills

PERSIAN: Native language
ENGLISH: Fluent
ITALIAN: Fluent

Computer Skills

Operating Systems: Windows – Linux

Mathematical: MATLAB - FORTRAN

Structural design: SAP2000– ETABS – SAFE – ABAQUS

Professional Memberships

Iranian Construction Engineering Organization: registered in Alborz province; design, supervision and construction

Publications

Book

1. **S. Eftekhar Azam**. "Online Damage Detection in Structural Systems: Applications of Proper Orthogonal Decomposition and Kalman and Particle Filters". Springer International Publishing AG, SpringerBriefs in Applied Sciences and Technology, 2013, ISBN 978-3-319-02558-2.

Peer Reviewed Journal Papers

1. G. Capellari, **S. Eftekhar Azam**, S. Mariani. Hybrid Reduced-Order Modeling and Particle-Kalman Filtering for the Health Monitoring of Flexible Structures. *Sensors* (IF = 2.245), 16, pp. 1-20, 2016.

2. **S. Eftekhar Azam**, E. Chatzi, C. Papadimitriou, A. Smyth. Experimental validation of the Kalman-type filters for online and real-time state and input estimation. *Journal of Vibration and Control* (IF = 4.355), in press.

3. R. Afghani Khoraskani, M. Mofid, **S. Eftekhar Azam**, M. Ebrahimzadeh. A new simplified formula in the prediction of the resonance velocity for multiple masses traversing a thin beam. *Scientia Iranica A: Transactions in Civil Engineering* (IF = 1.025), in press.

4. **S. Eftekhar Azam**, E. Chatzi, C. Papadimitriou. A dual Kalman filter approach for state estimation via output-only acceleration measurements. *Mechanical Systems and Signal Processing* (IF = 2.256), 60 pp. 866-886, 2015.

5. A. Nikkhoo, M. Ebrahimzadeh, **S. Eftekhar Azam**, J. Vaseghi. Vibration of a thin rectangular plate subjected to series of moving inertial loads, *Mechanic Research Communications* (IF = 1.502), 55, pp. 105-113, 2014.

6. **S. Eftekhar Azam**, S. Mariani. Investigation of computational and accuracy issues in POD-based reduced order modeling of dynamic structural systems, *Engineering Structures* (IF = 1.838), 54, pp. 150-167, 2013.

7. **S. Eftekhar Azam**, M. Mofid, R. Afghani Khorasgani. Dynamic response of Timoshenko beam subjected to moving mass, *Scientia Iranica A: Transactions in Civil Engineering* (IF = 1.025), 20, pp. 50–56, 2013.

8. **S. Eftekhar Azam**, S. Mariani. Dual estimation of partially observed nonlinear structural systems: a particle filter approach, *Mechanic Research Communications* (IF = 1.502), 46, pp. 54-61, 2012.

9. **S. Eftekhar Azam**, A. Ghisi, S. Mariani. Parallelized sigma-point Kalman filtering for structural dynamics, *Computers and Structures* (IF = 2.134), 92-93 , pp. 193-205, 2012.

10. **S. Eftekhar Azam**, M. Bagherinia, S. Mariani. Stochastic system identification via particle and sigma-point Kalman filtering, *Scientia Iranica A: Transactions in Civil Engineering* (IF = 1.025), 19, pp. 982-991, 2012.

Journal Papers in Progress

1. G. Capellari, **S. Eftekhar Azam**, S. Mariani. Towards real-time health monitoring of structural systems via recursive Bayesian filtering and reduced order modeling. *Submitted.*

2. **S. Eftekhar Azam**, E. Chatzi, C. Papadimitriou. Fatigue damage identification for bridge type structures via output-only sparse response measurements, manuscript in progress.

3. **S. Eftekhar Azam**, S. Mariani, N. Attari. Dual Estimation and reduced order modelling of damaging structures. *Computer Aided Civil and Infra Structural Engineering* , manuscript in progress.

Conference papers:

1. G. Abbiati, E. Cazzador, I. Lanese, **S. Eftekhar Azam**, O. S. Bursi, A. Pavese. Recent advances on the hybrid simulation of bridges base on partitioned time integration, dynamic identification and model updating. 6th International Conference on Advances in Experimental Structural Engineering, August 2015, At University of Illinois, Urbana-Champaign, United States.

2. **S. Eftekhar Azam,** V. Dertimanis, E. Chatzi, C. Papadimitriou. Output-only schemes for joint input-state-parameter estimation of linear systems. 25-27 May 2015, UNCECOMP 2015 - 1st ECCOMAS Thematic Conference on Uncertainty Quantification in Computational Sciences and Engineering.

3. **S. Eftekhar Azam**, E. Chatzi C. Papadimitriou, A. Smyth. Experimental Validation of the Dual Kalman Filter for Online and Real-time State and Input Estimation. IMAC-XXXIII, 2-5 February 2015, Orlando, United States.

4. G. Capellari, **S. Eftekhar Azam**, S. Mariani. Document Online damage detection in plates via vibration measurements, IMAC-XXXIII, 2-5 February 2015, Orlando, United States.

5. **S. Eftekhar Azam**, C. Papadimitriou, E. Chatzi. Recursive Bayesian filtering for displacement estimation via output-only vibration measurements. ACEM 2014, 24-28 August, Busan, South Korea.

6. **S. Eftekhar Azam** , E. Chatzi , C. Papadimitriou. A dual input and state estimation scheme for fatigue damage prediction in metallic structures. EMI 2014 Engineering Mechanics Institutes Conference, 5-8 August 2014, Ontario, Canada.

7. **S. Eftekhar Azam**, R. Afghani Khorasgani, M. Mofid. Dynamic control of beams acted by multiple moving masses in resonance state using piezo-ceramic actuators. Active and Passive Smart Structures and Integrated Systems, 12-15 March 2012, San Diego, United States.

8. S. Mariani, F. Caimmi, **S. Eftekhar Azam**, M. Bruggi, P. Bendiscioli, Damage detection in vibrating composites using MEMS. Proceedings of 1st International Conference on Urban Construction in the Vicinity of Active Faults, 3-5 September 2011, Tabriz, Iran.

9. **S. Eftekhar Azam**, S. Mariani. POD-based reduced order modeling of dynamic systems. Proceedings of 1st International Conference on Urban Construction in the Vicinity of Active Faults, 3-5 September 2011, Tabriz, Iran.

10. **S. Eftekhar Azam**, S. Mariani. Particle and sigma-point Kalman filters: a comparison of performance. Proceedings of 1st International Conference on Urban Construction in the Vicinity of Active Faults, 3-5 September 2011, Tabriz, Iran.

11. **S. Eftekhar Azam**, M. Bagherinia, S. Mariani. Stochastic system identification via filtering techniques. 8th International Conference on Structural Dynamics, EURODYN 2011, 4-6 July 2011, Leuven, Belgium.

12. S. Mariani, **S. Eftekhar Azam**, A. Ghisi, A. Corigliano, B. Simoni. Reduced Order Modelling of MEMS Dynamics. Design, Test, Integration and Packaging of MEMS/MOEMS, 11-13 May 2011, Aix – en – Provence, France.

13. **S. Eftekhar Azam**, S. Mariani. Stochastic system identification using Kalman filtering. CST2010, The Tenth International Conference on Computational Structures Technology, 14-17 September 2010, Valencia, Spain.

14. **S. Eftekhar Azam**, A. Ghisi, S. Mariani. A parallel implementation of the sigma-point Kalman filter. CST2010, The Tenth International Conference on Computational Structures Technology, 14-17 September 2010, Valencia, Spain.