

## Presentation of scientific merits

# Mostafa AllamehZadeh

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Seismology Department

### Education

- 2003-2006** Ph. D. in Geophysics (seismology), IIEES, Tehran, Iran  
**1989-1991** M.Sc. in Geophysics (seismology), Tehran University, Iran  
**1983-1987** B.Sc. in applied physics, Shahid-Beheshti University, Institute of physics, Tehran, Iran

### PROFESSIONAL EXPERIENCE

**2003 to Present:** Assistant Professor – International Institute of Earthquake Engineering and Seismology (IIEES), Tehran, Iran.

### *Teaching*

- Digital Signal Processing, Seismology, numerical Computing, Geoelectrics, Earthquake Prediction, Explosion Seismology

**1992 to 2003:** Researcher \_ International Institute of Earthquake Engineering and Seismology (IIEES), Tehran, Iran and Teaching Mathematics at Azad University

**1989 to 1990:** Research Assistant - University of Tehran

Responsibilities include:

- Working with other researchers on seismic records developing phase detections and identifications of earthquakes events.
- Application of Neural Network in Seismic processing

### Publications

1. **M. AllamehZadeh**, S. Durudi , L. Mahshadnia, ' Pattern recognition of seismogenic nodes using Kohonen selforganizing map: example in west and south west of Alborz

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region in Iran' Earthq. Sci., June 2017, Volume 30, [Issue 3](#), pp 145–155  
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2. **M. AllamehZadeh**, J. Mahmudi, ' Discrimination between Earthquakes and Explosions Using MLP and RBF Neural Networks', *Biostatistics and Biometrics Open Access Journal* 2(4): BBOAJ.MS.ID.555595 (2017), Page 1-13.
3. \*S.M. Vazirzade, S.Nozhati, **M. AllamehZadeh**, 'Seismic Reliability Assessment of Structures Using Artificial Neural Network', *Journal of Building Engineering* In Press (<http://doi.org/10.1016/j.jobe.2017.04.001>)  
\*
4. \*A. Nasrollahnejad, **M. AllamehZadeh**, Gholam Javan Doloei, ' Estimating Values of the Maximum Peak Ground Acceleration of a Strong Motion by Three Models of Artificial Neural Networks. *Bulletin of Earthquake Science and Engineering*', Vol. 3, No. 4, Winter 2016.M.
5. \*Behtaj, **M. AllamehZadeh**, Gh.R. Jafari, ' Inverse Statistics Method: Spatial and Temporal Dependence in Earthquake, *Journal of Seismology and Earthquake Engineering (JSEE)*, Vol 18, No 2 (2016) 71-78.
6. **M. AllamehZadeh**, A. Shafigh, M. Bahrami, "Identification the Formation of the Clusters for Earthquake Risk Reduction. *Bulletin of Earthquake Science and Engineering*, Vol. 2, No. 1, Spring 2015.
7. **M. AllamehZadeh**, M. Kavei, M. Mostafazadeh, " Application of Copula Theory to Develop Techniques for Earthquakes Forecasting, *Journal of Seismology and Earthquake Engineering (JSEE)*, Vol 17, No 2 (2015) 81-88.
8. M. Farrokhi, H. Hamzehloo, H. Rahimi, and **M. AllamehZadeh**, " Separation of intrinsic and scattering attenuation in the crust of central and eastern Alborz region, *Phys. Physics of the Earth and Planetary Interiors*, 253 (2016) 88-96.
9. M. Farrokhi, H. Hamzehloo, H. Rahimi, and **M. AllamehZadeh**, " Estimation of Coda-Wave Attenuation in the Central and Eastern Alborz" *B.S.S.A.*, Vol.105 No. 3, June 2015, doi: 10.1785/012014049.
10. **M. AllamehZadeh**, "Artificial Neural Networks Algorithms for Earthquake Forecasts' *Proceeding Int. Conf. on Mathematical Methods, Mathematical Models and Simulation in Science and Engineering*, 2014.
11. **M. AllamehZadeh**, Mostafazadeh, M., Mahshadnia, L. " Developed a Sophisticated Pattern Recognition of Earthquake Location, Simulation in Alborz Region" Report Project No 9604-93-6 at IIEES, 2013.
12. **M. AllamehZadeh**, Mirzaei, S., "Classification Events Using ARMA Coefficients Filters" *Research Bulletin of Seismology and Earthquake Engineering*, Vol. 15, No.4, winter 2013.

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13. **M. AllamehZadeh**, Mahshadnia, L. “ **Prediction of Seismic Clustering Using Adaptation Seismogenic Nodes Based on Kohonen SOFM – Example of West ALBORZ Region**” Research Bulletin of Seismology and Earthquake Engineering, Vol. 14, No.1&2, Spring & Summer 2011.
14. **M. AllamehZadeh**, “Discrimination analysis of Earthquakes and Man-made Events Using ARMA Coefficients Determination by Artificial Neural Networks, Natural Resources Research, Vol.20 No.4, December 2011.
15. \*R. Madahizadeh, **M. AllamehZadeh**, Prediction of Aftershocks Distribution Using Artificial Neural Networks and its Application on the May 12, 2008 Sichuan Earthquake’, Journal of Seismology and Earthquake Engineering (JSEE): Fall 2009, Vol. 11. No. 3, Page: 111-120.
16. **M. AllamehZadeh**, M. Abbassi, ” Recognition of seismic Precursory activities using Self-organizing Feature Maps Neural Networks” International Journal Disaster Advances, Vol I, (2008).
17. M. Reza Rahimi Tabar, Muhammad Sahimi, K. Kaviani, **M. AllamehZadeh**, , J. Peinke, M. Mokhtari, M. Vesaghi, M. D. Niry, F. Ghasemi, A. Bahraminasab, S. Tabatabai and F. Fayazbakhsh., M. Akbari .in:”Modelling Critical and Catastrophic Phenomena in Geoscience: A Statistical Physics Approach”,Lecture Notes in Physics, 705, pp. 281-301, Springer Verlag, Berlin—Heidelberg (2007).
18. **M. AllamehZadeh**, A. M. Farahbod, D. Hatzfeld, M. Mokhtari, A. S. Moradi, M. Mostafazadeh, A. Paul, and M. Tatar , Seismological Aspects of 26 December 2003 Bam Earthquake and its Aftershock Analysis, Earthquake Spectra 2004-11-22, Special Issue.
19. Mostafazadeh, M., **M. AllamehZadeh**, Seismological Aspects of 26 December 2003 Bam, JSEE: Special Issue on Bam Earthquake, Volume 6, No: 1 (Spring 2004).
20. **M. AllamehZadeh**, M. Mokhtari,’ Prediction of Aftershocks Distribution Using Self-Organizing Feature Maps (SOFM) and its Application on the Birjand-Ghaen and Izmit Earthquakes’, Journal of Seismology and Earthquake Engineering (JSEE): Fall 2003, Vol. 5, No. 3, Page: 1-15.
21. **M. AllamehZadeh**, \*P. Nassery,” Application of quadratic neural networks to seismic signal Classification”, *Physics of the Earth and Planetary Interiors*, Vol. 113(1999) 103-110.
22. **M. AllamehZadeh**, ‘Recognition of Seismic Precursory Activities Using SOFM’ European Geosciences Union General Assembly 2008, Vienna, Austria, 2008. (English)
23. **M. AllamehZadeh**,’ Detection complex networks of Bhuj earthquake (2001) and aftershocks’ International Symposium, the 2001 Bhuj Earthquake and Advances in earthquake Science (AES-2011), 22 - 24 January, 2011.

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24. **M. AllamehZadeh**, 'Discrimination between Earthquakes and Explosions Using Markov Length Scale' European Geosciences Union General Assembly 2008, Vienna, Austria, 2008. (English)
25. **M. Allamehzadeh**, C. Lucas, 'Mo Prediction Using Artificial Neural Networks Modeling', in Proceeding XXV General Assembly of The European Seismological Commission (ESC), September 9-14, 1996, Reykjavik, Iceland 181-186.
26. A. Abdi, **M. Allamehzadeh**, C. Lucas, M. Bahavar, 'Discrimination Between Natural Earthquakes and Artificial Events Using Neural Networks' In Proc. Second Int. Conf. Seismology and Earthquake Engineering, May 15-17, Tehran, Iran, 1995, 1907-1916. (English)
27. \*A. Abdi, C. Lucas, **M. Allamehzadeh**, M. Bahavar. "Classification of Seismic Events Using Neural Networks" 8th IEEE Mediterranean Conference on Industrial Applications in Power Systems, Computer Science and Telecommunications, Bari, Italy, May 13-16 1996, 20.
28. **M. Allamehzadeh** and C. Lucas. "M0 Prediction with Artificial Neural Network Modeling". European Seismological Commission 25th General Assembly, Reykjavik, Iceland, Sept. 9-14, 1996.
29. \*H. R. Hamidi, **M. Allamehzadeh**, C. Lucas and A. Abdi. "Classification of Seismic Events Using the ELVQ Network. International Conference on Intelligent & Cognitive Systems". Tehran, Sept. 23-26, 1996. 19- 22.
30. **M. Allamehzadeh** 'Application of Wiener Filters in seismic signal processing', the 9<sup>th</sup> Iranian Geophysical Seminar 1996, Tehran, Iran. (Abstract) (English)
31. \*P. Nassery, **M. Allamehzadeh**, ' Discrimination of Natural Earthquakes from Artificial Explosions Using A new FLVQ Model', Proceeding of the third International conference On Seismology and Earthquake Engineering, May 17-19, 1999, Tehran, Iran, P213-220. (English)
32. **M. Allamehzadeh**, A.M. Farahbod, Large Aftershocks Prediction Results in Eastern Iran The First Iran-Japan in Proc. Conf. 16-18 May 1998, Tehran. Iran. P67-73. (English)
33. **M. Allamehzadeh**, A.M. Farahbod, Seismic Source Identification Using Self-Organizing Technique, 1999, Proc.3th International Conf. 17-19 May, Tehran. Iran, P197-201. (English)
34. **M. Allamehzadeh**, A.M. Farahbod, A. Alinaghi, Variation in broadband Seismic noise at Kavosh in IRAN for event detection. Technical report, IIEES, IRAN, TEHRAN. (Perian)
35. **M. Allamehzadeh**, Seismic Noise Reduction using Time Delay Neural Networks (TDNN), ASC1998, NGRI, Hyderabad, INDIA.

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36. **M. Allamehzadeh**, M. Mostafazadeh, M. Mokhtair, ' Location Correction by Using Self-Organizing Neural Network during On-Site Inspection', onsite Inspection Workshop-6, 26-30 June 2000, Vienna, Austria.
37. A. M. Farahbod, **M. Allamehzadeh**, 'Discrimination between Earthquakes and Explosion using Ms/Mb', IIEES Bulletin, Vol. 6, No.2, summer 1997. (Persian)
38. **M. Allamehzadeh**, A. M. Farahbod, Pattern Recognition for Seismic Events Using Covariance Matrix, IIEES Bulletin, Vol. 6, No.2, summer 1997. (Persian)
39. **M. Allamehzadeh**, 'Seismic Phase Detection Using Optimum Filters', IIEES Bulletin, Vol.4, No.6, March 1996. (Persian)
40. **M. AllamehZadeh**, A. Abdi, ' Pn Phase Detection Using Wiener Optimum Filters, IIEES Technical Report, No.75-96-16, Dec. 1996. (Persian)
41. C. Lucas, M. Ghafory Ashtiany, M. Bahavar, M.Allamehzadeh, A.Abdi, Application of Artificial Neural Networks in Seismology, IIEES Bulletin, Vol. 5, No.3, Sep. 1996. (Persian)
42. **M. AllamehZadeh**, P. Nassery, Application of Quadratic Neural Network in seismic classification problems, IIEES Bulletin, No.1, autumn 1998. (Persian)
43. M. Allameh-Zadeh, A. Ansari, A. Bahraminasab, K. Kaviani, A. Mahdavi Ardakani, H. Mehr-nahad, D. Mehr-shahi, M.D. Niry, M. Reza Rahimi Tabar, S. Tabatabai, N. Taghavinia M. Vesaghi, F. Zamani A. , ' Mid-Infrared Radiation as a Short-Term Earthquake Precursor' Physics/0403003 V1 29 Feb 2004. (English)
44. M. R. Tabar, K. Kaviani, **M. AllamehZadeh**, Muhammad Sahimi, J. Peinke, M. Mokhtari, M. Vesaghi, M. D. Niry, F. Ghasemi, A. Bahraminasab, S. Tabatabai and F. Fayazbakhsh, Dynamics of the Markov Time Scale of Seismic Activity May Provide a Short-Term Alert for Earthquakes, Submitted (Pdf) (English)
45. A. Abdi, C. Lucas, **M. AllamehZadeh**, M. Behavar. "Classification of Seismic Events Using Neural Networks" 6th International Conference on Signal Processing Applications and Technology ICSPAT'95, Boston USA, Oct. 24-26 1995.
46. A.M. Farahbod, Yamini-Fard, F. and **AllamehZadeh, M.**, ' Characteristics of the Ardekul earthquake and its aftershocks', IIEES publication (1997).
48. Mostafa Allamehzadeh , Mohsen Dezvareh , Amir Mansor Farahbod , Dnis Hatzfeld , Mohammadreza Mokhtari , Ali Moradi, Mehrdad Mostafazadeh , Anne Paul , Mohammad Tatar , Seismological Aspects of the 2003 Bam Iran Earthquake and Its Aftershocks Analysis, Earthquake Spectra, 2005/12/01, 21, S1

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49. Mostafazadeh, A.M. Farahbod, Mokhtari, M., M. Allamehzadeh, (2004),  
Seismological Aspect of 26 December 2003 Bam Earthquake, JSEE, special publication  
Vol. 5 and 6.

Seismological Aspects of the 2003 Bam, Iran, Earthquake and Its Aftershock Analysis

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### **List of Students Thesis Supervisor:**

- 1) M. Rahmani, **M. AllamehZadeh**, S. Shams, (2017), 'Fitting Copulas to Bivariate Data Earthquakes', M.Sc. Thesis in Mathematical Sciences, University of Alzahra.
  - 2) F.Behdarvand Dehkordi, **M. AllamehZadeh**, S. Shams, (2017). 'Copula Function Approach to the Analysis of Extreme Values in Nature, M.Sc. Thesis in Mathematical Sciences, University of Alzahra.
  - 3) M. Madanipour, **M. AllamehZadeh**, S. Shams, (2017). 'The Joint Return Period Analysis Using Copula Function, M.Sc. Thesis in Mathematical Sciences, University of Alzahra.
  - 4) M. Behtaj, **M. AllamehZadeh**, J. Jafari, (2016), 'Inverse Statistics Method: Spatial and Temporal Dependence in Earthquake', M.Sc. Thesis in Geophysics Sciences, International Institute of Earthquake Engineering and Seismology (IIEES).
  - 5) Soma Durudi, **M. AllamehZadeh**, (2015), 'Seismic Pattern Recognition in Tehran Region Using SOFM', M.Sc. Thesis in Geophysics Sciences, International Institute of Earthquake Engineering and Seismology (IIEES).
  - 6) M. Farrokhi, **M. AllamehZadeh**, H. Hamzehloo (2015), 'Estimation of Q Structure in the Crust of Alborz Region', Ph.D. Thesis in Geophysics Sciences, International Institute of Earthquake Engineering and Seismology (IIEES).
- R. Madahizadeh, **M. AllamehZadeh**, Prediction of Aftershocks Distribution Using Artificial Neural Networks and its Application on the May 12, 2008 Sichuan Earthquake' M.Sc. Thesis in Geophysics Sciences, International Institute of Earthquake Engineering and Seismology (IIEES).

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### List of scientific works:

1. Correcting the earthquake location using Self-Organizing Neural Networks,
2. Prediction of large aftershock using Self-Organizing feature maps,
3. Mid-Infrared Radiation as a Short-Term Earthquake Precursor,
4. Discrimination between Earthquakes and Explosions Using Markov Length Scale (MLS),
5. Seismic Pattern Recognition in Alborz Region in Iran Using Spatio-Temporal Self-Organizing Feature Maps,
6. Dynamics of the Markov Time Scale of Seismic Activity for Short-Term Alert before Big Earthquakes,

### Project Reports:

1. C. Lucas, M. Bahavar, **M. Allamehzadeh**, A. Abdi, ' Application of artificial Neural networks in seismic event Recognition, Tehran, Iran, IIEES Technical Report in Persian, 1996.No.75-96-16. (Persian)
2. **M. Allamehzadeh**, Pn Phase detection and Spectral Analysis, Tehran, Iran, IIEES Technical Report, 1996, No.75-96-16. (Persian)
3. M. Mostafazadeh, **M. Allamehzadeh**, Gh. J. Doloie, ' Calculation of Seismic Moment in Seismic Zone in Iran', In Proc. Second Int. Conf. Seismology and Earthquake Engineering, May 15-17, Tehran, Iran, 1995,255-263. (Persian)
4. **M. Allamehzadeh**, A.M. Farahbod, A.A. Eslami, 'Discrimination Between Earthquakes and Explosion using MI/Mo., IIEES Technical Report.No.77-98-5, 1377 (Persian)
5. **M. Allamehzadeh**, 'Earthquake Location Prediction ( $M > 6.5$ ) for Iranian Plate and its Vicinity from 2003 to 2008., IIEES Technical Report.No.5707-90-8, 1390 (Persian)
5. **M. Allamehzadeh**, S. Mirzaei, 'Discrimination between earthquakes and Explosions in Broad Band Seismic Network Catalogue Using ARMA Filter Coefficients., IIEES Technical Report In Press, 1390 (Persian)

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### Book Chapter:

Short-Term Prediction of Medium and Large-Size Earthquakes Based on Markov and Extended Self-Similarity Analysis of Seismic Data, M. Reza Rahimi Tabar, Muhammad Sahimi, K. Kaviani, **M. Allamehzadeh**, J. Peinke, M. Mokhtari, M. Vesaghi, M. D. Niry, F. Ghasemi, A. Bahraminasab, S. Tabatabai and F. Fayazbakhsh., M. Akbari .in:”Modelling Critical and Catastrophic Phenomena in Geoscience: A Statistical Physics Approach”,Lecture Notes in Physics, 705, pp. 281-301, Springer Verlag, Berlin—Heidelberg (2007)(Pdf)

