

CURRICULUM VITAE

Short Biography

Naser Khaji's background in Japan came back to 1998 when he started his Ph.D. study at the Department of Civil Engineering, the University of Tokyo. In 2019, he came back to Japan to begin a new career at Hiroshima University (HU). He received his B.Eng. and M.Eng. degrees from the University of Tehran (Iran) and Tarbiat Modares University (Iran) in 1995 and 1998, respectively. After his graduation from the University of Tokyo in 2001, he joined Tarbiat Modares University (TMU), where he was promoted to full professorship in 2013. His research interests include health monitoring of various infrastructures, soil-structure-fluid interaction, computational structural dynamics and seismic wave propagation, inverse problems in structural dynamics and earthquake engineering, numerical methods in computational mechanics, and seismic hazard analysis.



Academic Leadership and Services

- 2021-Present** Member of sub-committee of international affairs, committee of theoretical and applied mechanics, Science Council of Japan
- 2019-Present** Principal investigator of infrastructure management laboratory (HU)
- 2017-2018** Dean of faculty of civil and environmental engineering (TMU)
- 2017-2018** Member of council of the university (TMU)
- 2017-2018** Representative of Iranian ministry of science, research, and technology in national committee of seismometer and accelerometer networks
- 2009-2018** Member of international affairs council of the university (TMU)
- 2017** Ranking reviewer of two national scientific-research journals for Iranian ministry of science, research and technology
- 2009-2017** Director of international scientific collaborations of the university (TMU)
- 2009-2013** Head of department of earthquake engineering (TMU)
- 2014-2018** Reviewer for promotion of academic staff in several universities of Iran
- 2013-Present** Reviewer and reader of various post-doctoral proposals, research plans, authored books for several universities of Iran
- 2010-2019** Representative of TMU in the board of trustees of national and international congresses in civil engineering
- 2015** Member of scientific committee of 7th international conference on seismology and earthquake engineering
- 2006** Member of executive committee of 7th international congress on civil engineering
- 2002-2003** Director of computer center of department of civil engineering (TMU)

Professional Membership

- Japanese society of civil engineers (JSCE), Japan
- Iranian association of earthquake engineering (IAEE), Iran
- Iranian association of bridge engineering (IABE), Iran

Research Interests

- Computational structural dynamics and seismic wave propagation
- Inverse problems in structural dynamics and earthquake engineering

- Numerical methods in computational mechanics (finite element method, boundary element method, discrete element method)
- Health monitoring of structures
- Soil-structure-fluid interaction
- Seismic hazard analysis

Selected Publications

Authored books

1. Khaji, N. 2013. Principles of Engineering Seismology and Seismic Hazard Analysis. Tarbiat Modares University Press, Tehran, Iran (*in Persian*). ISBN: 978-600-5394-82-5
2. Khaji, N. 2017. Principles of Engineering Seismology and Seismic Hazard Analysis. Tarbiat Modares University Press, Tehran, Iran (*in Persian*). ISBN: 978-600-5394-82-5 (2nd Edition)
3. Khaji, N. 2020. Principles of Engineering Seismology and Seismic Hazard Analysis. Tarbiat Modares University Press, Tehran, Iran (*in Persian*). ISBN: 978-600-5394-82-5 (3rd Edition)

Refereed international journal papers

1. Khaji N, Ahmadi MT, 2002. An efficient method for dam-reservoir seismic interaction analysis. Engineering Journal of Amirkabir, 13(50), 86–94. (SCOPUS indexed)
2. Tarinejad R, Ahmadi MT, Khaji N, 2007. Analysis of topographic amplification effects on canyon sites using 3D boundary element method. Journal of Seismology and Earthquake Engineering, 9(1), 25–37.
3. Mehrjoo M, Khaji N, Moharrami H, Bahreininejad A, 2008. Damage detection of truss bridge joints using artificial neural networks. Expert Systems with Applications, 35(3), 1122–1131. (SCI & SCOPUS indexed)
4. Shekari MR, Khaji N, Ahmadi MT, 2009. A coupled BE–FE study for evaluation of seismically isolated cylindrical liquid storage tanks considering fluid–structure interaction. Journal of Fluids and Structures, 25(3), 567–585. (SCI & SCOPUS indexed)
5. Gharighoran A, Daneshjoo F, Khaji N, 2009. Use of Ritz method for damage detection of reinforced and post-tensioned concrete beams. Construction and Building Materials, 23(6), 2167–2176. (SCI & SCOPUS indexed)
6. Khaji N, Habibi M, Mirhashemian P, 2009. Modeling transient elastodynamic problems using spectral element method. Asian Journal of Civil Engineering, 10(4), 361–380. (SCOPUS indexed)
7. Khaji N, Shafiei M, Jalalpour M, 2009. Closed-form solutions for crack detection problem of Timoshenko beams with various boundary conditions. International Journal of Mechanical Sciences, 51(9-10), 667–681. (SCI & SCOPUS indexed)
8. Mirhashemian P, Khaji N, Shakib H, 2009. Soil-structure interaction (SSI) analysis using a hybrid spectral element/finite element (SE/FE) approach. Journal of Seismology and Earthquake Engineering, 11(2), 83–95.#
9. Shekari MR, Khaji N, Ahmadi MT, 2010. On the seismic behavior of cylindrical base-isolated liquid storage tanks excited by long-period ground motions. Soil Dynamics and Earthquake Engineering, 30(10), 968–980. (SCI & SCOPUS indexed)
10. Karimi I, Khaji N, Ahmadi MT, Mirzayee M, 2010. System identification of concrete gravity dams using artificial neural networks based on a hybrid FE-BE approach. Engineering Structures, 32(11), 3583–3591. (SCI & SCOPUS indexed)
11. Hamzeh Javaran S, Khaji N, Moharrami, H, 2011. A dual reciprocity BEM approach using new Fourier radial basis functions applied to 2D elastodynamic transient analysis. Engineering Analysis with Boundary Elements, 35(1), 85–95. (SCI & SCOPUS indexed)#
12. Khanmirza E, Khaji N, Johari Majd V, 2011. Model updating of multistory shear buildings for simultaneous identification of mass, stiffness and damping matrices using two different soft-

- computing methods. *Expert Systems with Applications*, 38(5), 5320–5329. (SCI & SCOPUS indexed)
13. Khaji N, Khodakarami MI, 2011. A new semi-analytical method with diagonal coefficient matrices for potential problems. *Engineering Analysis with Boundary Elements*, 35(6), 845–854. (SCI & SCOPUS indexed)
 14. Hamzeh Javaran S, Khaji N, Noorzad, A, 2011. First kind Bessel function (J-Bessel) as radial basis function for plane dynamic analysis using dual reciprocity boundary element method. *Acta Mechanica*, 218(3–4), 247–258. (SCI & SCOPUS indexed)
 15. Shafiee M, Khaji N, 2011. Analytical solutions for free and forced vibrations of a multiple cracked Timoshenko beam subject to a concentrated moving load. *Acta Mechanica*, 221(1–2), 79–97. (SCI & SCOPUS indexed)
 16. Mirzayee M, Khaji N, Ahmadi MT, 2011. A hybrid distinct element–boundary element approach for seismic analysis of cracked concrete gravity dam–reservoir systems. *Soil Dynamics and Earthquake Engineering*, 31(10), 1347–1356. (SCI & SCOPUS indexed)
 17. Khodakarami MI, Khaji N, 2011. Analysis of elastostatic problems using a semi-analytical method with diagonal coefficient matrices. *Engineering Analysis with Boundary Elements*, 35(12), 1288–1296. (SCI & SCOPUS indexed)
 18. Dehghani E, Daneshjoo F, Aghakouchak AA, Khaji N, 2012. A new bond-slip model for adhesive in CFRP-steel composite systems. *Engineering Structures*, 34(1), 447–454. (SCI & SCOPUS indexed)
 19. Soghrat MR, Khaji N, Zafarani H, 2012. Simulation of strong ground motion in northern Iran using the specific barrier model. *Geophysical Journal International*, 188(2), 645–679. (SCI & SCOPUS indexed)
 20. Khodakarami MI, Khaji N, Ahmadi MT, 2012. Modeling transient elastodynamic problems using a novel semi-analytical method yielding decoupled partial differential equations. *Computer Methods in Applied Mechanics and Engineering*, 213(1), 183–195. (SCI & SCOPUS indexed)
 21. Khaji N, Kazemi Noureini H, 2012. Detection of a through-thickness crack based on elastic wave scattering in plates, Part I: Forward Solution. *Asian Journal of Civil Engineering*, 13(3), 301–318. (SCOPUS indexed)
 22. Kazemi Noureini H, Khaji N, 2012. Detection of a through-thickness crack based on elastic wave scattering in plates, Part II: Inverse Solution. *Asian Journal of Civil Engineering*, 13(4), 433–454. (SCOPUS indexed)
 23. Khaji N, Khodakarami MI, 2012. A semi-analytical method with a system of decoupled ordinary differential equations for three-dimensional elastostatic problems. *International Journal of Solids and Structures*, 49(18), 2528–2546. (SCI & SCOPUS indexed)
 24. Mehrjoo M, Khaji N, Ghafory-Ashtiany M, 2013. Application of genetic algorithm in crack detection of beam-like structures using a new cracked Euler–Bernoulli beam element. *Applied Soft Computing*, 13(2), 867–880. (SCI & SCOPUS indexed)
 25. Khaji N, Hamzehei Javaran S, 2013. New complex Fourier shape functions for the analysis of two-dimensional potential problems using boundary element method. *Engineering Analysis with Boundary Elements*, 37(2), 260–272. (SCI & SCOPUS indexed)
 26. Khaji N, Mirzajani M, 2013. Frequency domain analysis of elastic bounded domains using a new semi-analytical method. *Acta Mechanica*, 224(7), 1555–1570. (SCI & SCOPUS indexed)
 27. Peimani M, Yazdanpanah MJ, Khaji N, 2013. Parameter estimation in hysteretic systems based on adaptive least-squares. *Journal of Information Systems and Telecommunication*, 1(4), 217–221. (SCOPUS indexed)
 28. Dehghan Manshadi SH, Khaji N, Rahimian M, 2014. Cavity/inclusion detection in plane linear elastic bodies using linear sampling method. *Journal of Nondestructive Evaluation*, 33(1), 93–103. (SCI & SCOPUS indexed)
 29. Khaji N, Mehrjoo M, 2014. Crack detection in a beam with an arbitrary number of transverse cracks using genetic algorithms. *Journal of Mechanical Science and Technology*, 28(3), 823–836. (SCI & SCOPUS indexed)

30. Mehrjoo M, Khaji N, Ghafory-Ashtiany M, 2014. New Timoshenko-cracked beam element and crack detection in beam-like structures using genetic algorithm. *Inverse Problems in Science and Engineering*, 22(3), 359–382. (SCI & SCOPUS indexed)
31. Shafiei M, Khaji N, 2014. Simulation of two-dimensional elastodynamic problems using a new adaptive physics-based method. *Meccanica*, 49(6), 1353–1366. (SCI & SCOPUS indexed)
32. Hamzehei Javaran S, Khaji N, 2014. Dynamic analysis of plane elasticity with new complex Fourier radial basis functions in the dual reciprocity boundary element method. *Applied Mathematical Modelling*, 38(14), 3641–3651. (SCI & SCOPUS indexed)
33. Dehghan Manshadi SH, Khaji N, 2014. Cavity detection in a heat conductor using linear sampling method. *Heat and Mass Transfer*, 50(7), 973–984. (SCI & SCOPUS indexed)
34. Najafizadeh J, Kamalian M, Jafari MK, Khaji N, 2014. Seismic analysis of rectangular alluvial valleys subjected to incident SV waves by using the spectral finite element method. *International Journal of Civil Engineering*, 12(3), 439–451. (SCI & SCOPUS indexed)
35. Khodakarami MI, Khaji N, 2014. Wave propagation in semi-infinite media with topographical irregularities using Decoupled Equations Method. *Soil Dynamics and Earthquake Engineering*, 65(1), 102–112. (SCI & SCOPUS indexed)
36. Ahmadi HR, Daneshjoo F, Khaji N, 2015. New damage indices and algorithm based on square time–frequency distribution for damage detection in concrete piers of railroad bridges. *Structural Control and Health Monitoring*, 22(1), 91–106. (SCI & SCOPUS indexed)#
37. Khanmirza E, Khaji N, Khanmirza E, 2015. Identification of linear and non-linear physical parameters of multistory shear buildings using artificial neural network. *Inverse Problems in Science and Engineering*, 23(4), 670–687. (SCI & SCOPUS indexed)
38. Khaji N, Dehghan Manshadi SH, 2015. Time domain linear sampling method for qualitative identification of buried cavities from elastodynamic over-determined boundary data. *Computers and Structures*, 153, 36–48. (SCI & SCOPUS indexed)
39. Moghadaszadeh SO, Khaji N, 2015. Development and application of a semi-analytical method with diagonal coefficient matrices for analysis of wave diffraction around vertical cylinders of arbitrary cross-sections. *Ocean Engineering*, 110, 292–302. (SCI & SCOPUS indexed)
40. Shafiei M, Khaji N, 2015. An adaptive physics-based method for the solution of one-dimensional wave motion problems. *Civil Engineering Infrastructures Journal*, 48(2), 217–234.
41. Mirzajani M, Khaji N, Khodakarami MI, 2016. A new global nonreflecting boundary condition with diagonal coefficient matrices for analysis of unbounded media. *Applied Mathematical Modelling*, 40(4), 2845–2874. (SCI & SCOPUS indexed)
42. Khaji N, Yazdani M, 2016. Determination of stress intensity factors of 2D fracture mechanics problems through a new semi-analytical method. *Fatigue & Fracture of Engineering Materials & Structures*, 39(4), 467–478. (SCI & SCOPUS indexed)
43. Zakian P, Khaji N, 2016. A novel stochastic-spectral finite element method for analysis of elastodynamic problems in the time domain. *Meccanica*, 51(4), 893–920. (SCI & SCOPUS indexed)
44. Peimani M, Yazdanpanah MJ, Khaji N, 2016. Adaptive dynamic surface control of Bouc–Wen hysteretic systems. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, 138(9), 091007 (7 pages). (SCI & SCOPUS indexed)
45. Zakian P, Khaji N, 2016. Spectral finite element simulation of seismic wave propagation and fault dislocation in elastic media. *Asian Journal of Civil Engineering*, 17(8), 1189–1213. (SCOPUS indexed)
46. Yazdani M, Khaji N, Khodakarami MI, 2016. Development of a new semi-analytical method in fracture mechanics problems based on energy release rate. *Acta Mechanica*, 227(12), 3529–3547. (SCI & SCOPUS indexed)

47. Zakian P, Khaji N, Kaveh A, 2017. Graph theoretical methods for efficient stochastic finite element analysis of regular structures. *Computers and Structures*, 178, 29–46. (SCI & SCOPUS indexed)
48. Fekrazadeh S, Khaji N, 2017. An analytical method for crack detection of Timoshenko beams with multiple open cracks using a test mass. *European Journal of Environmental and Civil Engineering*, 21(1), 24–41. (SCI & SCOPUS indexed)
49. Khaji N, Rezaei MH, 2017. Modification of specific barrier model using new time functions for inclined fault. *Journal of Seismology and Earthquake Engineering*, 19(3), 189–205.
50. Zakian P, Khaji N, Soltani M, 2017. A Monte Carlo adapted finite element method for dislocation simulation of faults with uncertain geometry. *Journal of Earth System Science*, 126(7), 1–22. (SCI & SCOPUS indexed)
51. Khaji N, Zakian P, 2017. Uncertainty analysis of elastostatic problems incorporating a new hybrid stochastic-spectral finite element method. *Mechanics of Advanced Materials and Structures*, 24(12), 1030–1042. (SCI & SCOPUS indexed)
52. Livani MA, Khaji N, Zakian P, 2018. Identification of multiple flaws in 2D structures using dynamic extended spectral finite element method with a universally enhanced meta-heuristic optimizer. *Structural and Multidisciplinary Optimization*, 57(2), 605–623. (SCI & SCOPUS indexed)
53. Mirzajani M, Khaji N, Hori M, 2018. Stress wave propagation analysis in one-dimensional micropolar rods with variable cross-section using Micropolar Wave Finite Element Method. *International Journal of Applied Mechanics*, 10(4), 1850039 (28 pages). (SCI & SCOPUS indexed)
54. Yazdani M, Khaji N, 2018. Development of a new semianalytical approach for 2D analysis of crack propagation problems. *Fatigue & Fracture of Engineering Materials & Structures*, 41(6), 1344–1363. (SCI & SCOPUS indexed)
55. Mohtasebi M, Khaji N, 2018. An analytical method for crack detection of beams with uncertain boundary conditions by a concentrated test mass, *Civil Engineering Journal*, 4(7), 1629–1645. (SCI indexed)
56. Hamzehei Javaran S, Khaji N, 2018. Complex Fourier element shape functions for analysis of 2D static and transient dynamic problems using dual reciprocity boundary element method. *Engineering Analysis with Boundary Elements*, 95, 222–237. (SCI & SCOPUS indexed)
57. Zakian P, Khaji N, 2018. A stochastic spectral finite element method for wave propagation analyses with medium uncertainties. *Applied Mathematical Modelling*, 63, 84–108. (SCI & SCOPUS indexed)
58. Zakian, P, Khaji N, 2019. A stochastic spectral finite element method for solution of faulting-induced wave propagation in materially random continua without explicitly modeled discontinuities. *Computational Mechanics*, 64(4), 1017–1048. (SCI & SCOPUS indexed)
59. Bazrafshan A, Khaji N, 2020. Generation of synthetic accelerograms using a probabilistic critical excitation method based on energy constraint. *Earthquakes and Structures*, 18(1), 45–56. (SCI & SCOPUS indexed)
60. Shafiei M, Khaji N, Eskandari-Ghadi M, 2020. An adaptive cellular automata approach with the use of radial basis functions for the simulation of elastic wave propagation. *Acta Mechanica*, 231(7), 2723–2740. (SCI & SCOPUS indexed)
61. Babae R, Khaji N, 2020. Decoupled scaled boundary finite element method for analysing dam-reservoir dynamic interaction. *International Journal of Computer Mathematics*, 97(8), 1725–1743. (SCI & SCOPUS indexed)
62. Mirzajani M, Khaji N, Hori M, 2021. Wave propagation analysis of micropolar elastic beams using a novel micropolar wave finite element method. *Mechanics of Advanced Materials and Structures*, 28(6), 551–567. (SCI & SCOPUS indexed)
63. Mirzajani M, Khaji N, Hori M, 2021. Analysis of elastic pulse dispersion in periodically layered composite rods using Wave Finite Element Method. *International Journal of Applied Mechanics*, 13(5), 2150050 (25 pages). (SCI & SCOPUS indexed)

64. Kalantari M, Khaji N, Eskandari-Ghadi M, 2021. Rocking forced displacement of a rigid disc embedded in a functionally graded transversely isotropic half-space. *Mathematics and Mechanics of Solids*, 26(7), 1029–1052. (SCI & SCOPUS indexed)
65. Rezaei MH, Khaji N, Di Maio R, Emolo A, 2021. A modified Specific Barrier Model based on new time functions and approach for cracks location on the fault plane: Application to the 2008, Iwate-Miyagi earthquake. *Geophysical Journal International*, 227(1), 76–98. (SCI & SCOPUS indexed)
66. Forghani S, Khaji N, 2022. An anisotropic multi-scale method for slipping dislocations. *International Journal of Plasticity*, 148, 103130. (SCI & SCOPUS indexed)
67. Kalantari M, Khaji N, 2022. Torsion vibration of foundation in a functionally graded transversely isotropic, linearly elastic half-space. *Forces in Mechanics*, 7, 100082. (Elsevier)
68. Eskandari-Ghadi M, Shokrollahi M, Khaji N, 2022. Impedance functions of rigid rectangular foundations bonded on layered transversely isotropic elastic/poroelastic half-space. *Engineering Analysis with Boundary Elements*, 138, 423–438. (SCI & SCOPUS indexed)
69. Shokrollahi M, Eskandari-Ghadi M, Khaji N, 2022. A unified approach for stress wave propagation in transversely isotropic elastic and poroelastic layered media. *Soil Dynamics and Earthquake Engineering*, 157, 107152. (SCI & SCOPUS indexed)
70. Omidian P, Khaji N, 2022. A multi-objective optimization framework for seismic resilience enhancement of typical existing RC buildings. *Journal of Building Engineering*, 52, 104361. (SCI & SCOPUS indexed)
71. Kalantari M, Khaji N, Eskandari-Ghadi M, Keawsawasvong S, 2022. Dynamic analysis of a vertically loaded rigid disc in a functionally graded transversely isotropic half-space. *Transportation Infrastructure Geotechnology* (in press). (SCI & SCOPUS indexed)
72. Matinfar M, Khaji N, Ahmadi G, 2022. Deep convolutional generative adversarial networks for generation of numerous artificial spectrum-compatible earthquake accelerograms using a limited number of ground motion records. *Computer-Aided Civil and Infrastructure Engineering* (in press). (SCI & SCOPUS indexed)
73. Kalantari M, Khaji N, 2022. Response of rigid circular plate in a functionally graded transversely isotropic, half-space under horizontal steady-state excitation. *Mechanics Based Design of Structures and Machines* (in press). (SCI & SCOPUS indexed)

Refereed national journal papers (in Persian)

1. Khaji N, 2004. Split node technique for modeling of discontinuities in a continuum. *Modarres Technical and Engineering Journal*, 15, 37–49.
2. Khaji N, Higashihara H, 2005. A new method for numerical modeling of crustal deformations, part one: theory. *Modarres Technical and Engineering Journal*, 19, 13–30.
3. Khaji N, Higashihara H, 2005. A new method for numerical modeling of crustal deformations, part two: application. *Modarres Technical and Engineering Journal*, 19, 31–50.
4. Choupani K, Khaji N, 2006. An inverse method for dynamic properties identification of 2D- and 3D-shear frames. *Research Bulletin of Seismology and Earthquake Engineering*, 9(3), 2–15.
5. Hafizi R, Khaji N, Shafieefar M, 2007. Evaluation of wave-diffraction forces on a submerged sphere using a hybrid BE-FE method. *Journal of Hydraulics*, 4, 23–37.
6. Bahrany AH, Khaji N, 2010. Green's function operator matrix of intraplate faults. *Journal of the Earth and Space Physics*, 36(1), 59–69.
7. Joharzadeh M, Khaji N, Bahreininejad A, 2010. Health monitoring of cracked cantilever beams using artificial neural networks considering nonlinear crack behavior. *Modares Civil Engineering Journal*, 10(3), 105–118.
8. Ahmadvand Sh, Khaji N, Soltani M, 2010. Seismic rehabilitation of masonry arch bridges using post-tensioning method. *Journal of Transportation Engineering*, 1(2), 1–19.
9. Arab MH, Khaji N, 2012. Seismic analysis of baffled liquid storage tanks using boundary element method. *Modares Civil Engineering Journal*, 12(2), 11–22.

10. Khaji N, Amini M, 2013. Evaluation of canyon site effects on seismic waves. *Modares Civil Engineering Journal*, 13(1), 53–66.
11. Hamzehei Javaran S, Khaji N, 2013. Analysis of free and forced vibrations problems using the dual reciprocity boundary element method based on inverse multiquadric radial basis functions. *Journal of Computational Methods in Engineering*, 32(1), 51–64.
12. Mirzajani M, Khaji N, 2014. Decoupled equations method for solving two-dimensional elastodynamic problems in the frequency domain. *Sharif Journal of Civil Engineering*, 30(3), 65–74.
13. Babae R, Khaji N, Ahmadi MT, 2015. Development of decoupled equations methods for calculating hydrodynamic pressures on concrete gravity dams. *Modares Civil Engineering Journal*, 15, 41–52.
14. Yazdani M, Khaji N, 2015. Development of decoupled equations method to calculate J-integral in linear elastic fracture mechanics problems. *Modares Mechanical Engineering*, 15(9), 59–68.
15. Livani MA, Khaji N, Zakian P, 2016. Damage identification of cracks in structures via extended finite element method and particle swarm optimization. *Modares Civil Engineering Journal*, 16(5), 177–189.
16. Bazrafshan A, Khaji N, 2016. Determination of critical excitation for MDOF systems based on displacement target function and energy constraint. *Bulletin of Earthquake Science and Engineering*, 3(1), 17–28.
17. Maddahi N, Khaji N. 2016. Vibration-based damage identification of masonry walls using distinct element modeling. *Modares Civil Engineering Journal*, 17(1), 203–215.
18. Bazrafshan A, Khaji N, 2016. Seismic response of base-isolated high-rise buildings under long-period ground motions. *Modares Civil Engineering Journal*, 16(2), 41–52.
19. Mirashrafi SR, Khaji N, 2016. Determination of slippage field of strike-slip faults using inverse solution methods. *Journal of the Earth and Space Physics*, 42(2), 233–245.
20. Zakian P, Khaji N, 2016. Development of higher-order stochastic spectral finite element method for uncertainty analysis of 2D continua. *Modares Mechanical Engineering*, 16(7), 51–60.
21. Mirzajani M, Khaji N. 2017. Stress wave propagation modelling in one-dimensional micropolar rods using a new Wave Finite Element Method. *Modares Mechanical Engineering*, 17(5), 405–412.
22. Yazdani M, Khaji N, 2017. Estimation of coefficients of Williams' series in LEFM problems using decoupled equations method. *Sharif Journal of Civil Engineering*, 33(2), 87–97.
23. Mousivand H, Khaji N, 2017. Application of scaled boundary finite element method in topographic effects on seismic waves. *Journal of Modeling in Engineering*, 15, 161–174.
24. Rezaei MH, Khaji N, 2018. Modification of specific barrier model for faulting modeling by using of new time functions based on site position and fault geometry. *Journal of the Earth and Space Physics*, 44(1), 21–38. (SCOPUS indexed)
25. Rezaei MH, Khaji N, 2018. Simulation of L'Aquila earthquake using specific barrier model. *Modares Civil Engineering Journal*, 18(2), 101–112.
26. Torkanloo E, Khaji N, 2019. A new approach for determination of threshold parameter in the spectral decomposition regularization method. *Bulletin of Earthquake Science and Engineering*, 6(1), 13–22.
27. Rezaei MH, Khaji N, 2019. Modeling of faulting using a specific barrier model based on a novel packing technique of rupture cracks. *Bulletin of Earthquake Science and Engineering*, 6(2), 15–26.
28. Ahmadi A, Khaji N, Bazrafshan A, 2019. Seismic analysis of base-isolated water storage tanks subjected to long-period earthquakes using critical excitation method. *Sharif Journal of Civil Engineering*, 35.2(4.1), 111–118.

29. Ghazanfari Tehran A, Khaji N, Yazdani M. 2020. Dynamic analysis of soil-structure interaction using decoupled scaled boundary finite element method. *Bulletin of Earthquake Science and Engineering*, 7(3), 83–96.

Selected refereed conference proceedings

1. Khaji N, 2003. On the location determining of coming Tokai earthquake, Central Japan. 4th International Conference of Seismology and Earthquake Engineering, SEE4, Tehran, Iran.
2. Khaji N, Mehrjoo M, 2007. Damage Detection of Bridge Structures from Dynamic Responses Using Neural Networks. 5th International Conference of Seismology and Earthquake Engineering, SEE5, Tehran, Iran.#
3. Karimi I, Khaji N, 2009, System identification of concrete gravity dams using artificial neural networks. 2nd International Conference of Long Term Behavior of Dams, LTDB09, Graz, Austria.#
4. Khodakarami MI, Khaji N, 2010. Application of higher-order elements in scaled boundary finite element method (SBFEM) to improve its accuracy and efficiency. 5th National Congress on Civil Engineering, Mashhad, Iran.#
5. Kazemi Noureini H, Khaji N, 2011. Application of spectral finite element method in analysis of transient elastodynamic problems. 6th National Congress on Civil Engineering, Semnan, Iran.#
6. Mehrjoo M, Khaji N, 2011. Stiffness matrix of a new cracked beam finite element using the conjugated beam method and Betti's law. 6th International Conference on Seismology and Earthquake Engineering, SEE6, Tehran, Iran.#
7. Hamidi M, Khaji N, 2011. Accurate boundary conditions for finite element modeling of movement field within Iran tectonic plate. 6th International Conference on Seismology and Earthquake Engineering, SEE6, Tehran, Iran.
8. Khaji N, 2011. Studies in seismic wave propagation in Iran. 8th UNESCO Workshop on Reduction of Earthquake Losses in South-Asia Region, Tehran, Iran.#
9. Khoakarami MI, Khaji N, 2011. A novel semi-analytical method with diagonal coefficient matrices for the analysis of elastostatic problems. International Conference on Boundary Element and Meshless Techniques XII, BETEQ2011, Brasilia, Brazil.
10. Shafiei M, Khaji N, 2012. An adaptive physics-based method for solution of wave motion problem in one dimension. 9th International Congress on Civil Engineering, Isfahan, Iran.
11. Fekrazadeh S, Khaji N, 2012. Boundary conditions identification of beam-like structural elements using a test mass. 9th International Congress on Civil Engineering, Isfahan, Iran.
12. Khodakarami MI, Khaji N, 2012. A novel three-dimensional semi-analytical method with diagonal coefficient matrices for potential problems. 9th International Congress on Civil Engineering, Isfahan, Iran.#
13. Khodakarami MI, Khaji N, 2012. Site response analysis of wave propagation in half-planes with topography irregularities based on a novel semi-analytical simulation approach. 15th World Conference of Earthquake Engineering, 15WCEE, Lisbon, Portugal.#
14. S.H. Dehghan Manshadi, N. Khaji, 2012. A linear sampling method for inverse scattering elastodynamics problems in the time domain. 15th World Conference of Earthquake Engineering, 15WCEE, Lisbon, Portugal.#
15. M. Shafiei, N. Khaji, 2012. An adaptive physics-based method for the solution of wave motion problem in two dimensions. 15th World Conference of Earthquake Engineering, 15WCEE, Lisbon, Portugal.#
16. S. Hamzehei Javaran, N. Khaji, 2012. Inverse Multiquadric (IMQ) function as radial basis function for plane dynamic analysis using dual reciprocity boundary element method. 15th World Conference of Earthquake Engineering, 15WCEE, Lisbon, Portugal.
17. Yazdani M, Khaji N, 2015. Development of decoupled equations method to calculate stress intensity factors in 2D problems. 10th International Congress on Civil Engineering, Tabriz, Iran.#

18. Maddahi N, Khaji N, 2015. Vibration based damage identification of masonry structures. 10th International Congress on Civil Engineering, Tabriz, Iran.#
19. Zakian P, Khaji N, 2015. A stochastic-spectral finite element applied to the analysis of stochastic structural mechanics problems. 10th International Congress on Civil Engineering, Tabriz, Iran.#
20. Zakian P, Khaji N, 2015. A stochastic-spectral finite element method for analysis of elastodynamic problems. 7th International Conference on Seismology and Earthquake Engineering, SEE7, Tehran, Iran.
21. Mirzajani M, Khaji N, 2016. A new nonreflecting open boundary condition for circular cavities in unbounded domain. Proceedings of the 9th National Congress on Civil Engineering, Mashhad, Iran.
22. Zakian P, Khaji N, 2017. A new approach for stochastic analysis of cyclically symmetric structures. Proceedings of the 3rd International Conference on Structural Engineering, Tehran, Iran.
23. Zakian P, Khaji N, 2018. A numerical strategy for solution of wave propagation in random media. Proceedings of the 11th International Congress on Civil Engineering, Tehran, Iran.
24. Kalantari M, Khaji N, Eskandari-Ghadi M, 2020. Displacement of a rigid disc embedded in a functionally graded transversely isotropic half-space. Proceedings of the 7th International Conference on Civil, Architectural, and Environmental Sciences, Berlin, Germany.
25. Omidian P, Khaji N, 2020. Retrofit optimization for resilience enhancement of office buildings in the refinery sites under seismic scenarios. Proceedings of the 12th National Congress on Civil Engineering, Tabriz, Iran.
26. Forghani S, Khaji N, 2020. An anisotropic multi-scale method for modeling wave propagation. Proceedings of the 12th National Congress on Civil Engineering, Tabriz, Iran.
27. Omidian P, Khaji N, 2020. A multi-occurrence seismic hazard life-cycle cost retrofit optimization framework for RC refinery infrastructures. Proceedings of the 6th International Reliability and Safety Engineering Conference, Shiraz, Iran.

Teaching Experience

- Structural mechanics (B.Sc. Level)
- Structural analysis (B.Sc. Level)
- Advanced structural engineering (M.Sc. Level)
- Finite element method (M.Sc. Level)
- Advanced engineering mathematics (M.Sc. Level)
- Seismic hazard analysis (M.Sc. Level)
- Seismic analysis of special structures (M.Sc. Level): dynamic analysis of storage tanks, bridges, tunnels, pipelines, telecommunication towers, and so forth.
- Boundary element method (Ph.D. Level)
- Nonlinear finite element method (Ph.D. Level)
- Elastic wave propagation (Ph.D. Level)

Theses and Dissertations Supervision

Supervising and advising 55 M.Sc. theses and 15 Ph.D. dissertations in the aforementioned research interests, some of which are given in the followings:

Selected M.Sc. theses supervision

2006

- Mehrjoo M. Structural health monitoring of truss bridges using artificial neural networks.

2007

- Shekari MR. Dynamic analysis of seismically isolated cylindrical liquid storage tanks considering fluid–structure interaction.
- Mirzayee M. Seismic analysis of cracked concrete gravity dam using a hybrid distinct element–boundary element approach.

2008

- Khanmirza E. Model updating of multistory shear buildings for simultaneous identification of physical parameters using artificial neural networks.
- Mirhashemian P. Dynamic analysis of soil-structure interaction problems using a hybrid finite element–spectral element approach.

2009

- Karimi I. System identification of dynamic characteristics for concrete gravity dams using artificial neural networks.
- Hamzeh Javaran S. New orthogonal higher-order basis functions for boundary element method applied to elastodynamic transient analyses.
- Shafiee M. Analytical solutions for free and forced vibrations of a cracked Timoshenko beam subject to a concentrated moving load.

2010

- Soghrat MR. Simulation of strong ground motion in northern Iran using the specific barrier model.
- Kazemi Noureini H. Detection of a through-thickness crack in plates using spectral finite element method.

2011

- Fekrazadeh S. An analytical method for crack detection of Timoshenko beams using a test mass.

2012

- Mirzajani M. A new semi-analytical method for analysis of dynamic soil-structure interaction problems.

2013

- Moghadaszadeh SO. Development and application of a modified scaled boundary finite element method for analysis of wave diffraction around vertical cylinders.

2015

- Livani MA. Identification of cracks in 2D structures using dynamic extended spectral finite element method and genetic algorithm.

Selected Ph.D. dissertations supervision

2007

- Gharighoran A. Damage detection of bridges deck using variation of dynamic characteristics (Advisor).

2011

- Khodakarami MI. Modeling transient elastodynamic problems using a novel semi-analytical method with diagonal characteristics matrices (Supervisor).

2012

- Ahmadi HR. Damage detection in concrete piers of railroad bridges based on time–frequency distribution analyses (Advisor).

2013

- Hamzehei Javaran S. New basis functions of infinite continuity for analysis of continuum mechanics problems using boundary element method (Supervisor).

- Mehrjoo M. Application of expert systems in damage detection of steel bridge's girders (Supervisor).

2014

- Dehghan Manshadi SH. Development of linear sampling method for the solution of inverse problems of elastic wave scattering (Supervisor).
- Najafizadeh J. Seismic analysis of alluvial valleys using the spectral finite element method (Advisor).

2015

- Shafiei M. Development of cellular automata for adaptive solution of one- and two-dimensional elastodynamic problems (Supervisor).

2016

- Yazdani M. Development of decoupled equations method for analysis of crack problems based on linear elastic fracture mechanics (Supervisor).
- Zakian P. A novel stochastic-spectral finite element method for analysis of seismic wave propagation problems due to faulting (Supervisor).
- Peimani M. Modeling, control and condition monitoring of hysteretic structural systems (Advisor).

2018

- Mirzajani M. Development of the Wave Finite Element Method based on Cosserat theory (Supervisor).
- Rezaei MH. Simulation of generation and propagation of seismic waves based on a new modified specific barrier model (Supervisor).

2022

- Kalantari M. Analysis of a rigid disc in a functionally graded transversely isotropic half-space under vertical, horizontal, rocking and torsion displacements (Supervisor).
- Forghani S. Anisotropic concurrent coupled atomistic and discrete dislocation for partial dislocations in FCC materials (Supervisor).

Advisory (Reviewer) Board of International Journals

- International Journal of Mechanical Sciences (Elsevier)
- International Journal of Solids and Structures (Elsevier)
- Engineering Structures (Elsevier)
- Journal of Engineering Mechanics (ASCE)
- Engineering Analysis with Boundary Elements (Elsevier)
- Fatigue & Fracture of Engineering Materials & Structures (Wiley)
- Journal of Aerospace Engineering (ASCE)
- Acta Mechanica Sinica (Springer)
- Structural Engineering and Mechanics (Techno-Press)
- International Journal of Computational Methods (Institute of Mechanics, Chinese Academy of Sciences)
- Ain Shams Engineering Journal (Elsevier)
- Journal of Earthquake Engineering (Taylor & Francis)
- Journal of Seismology and Earthquake Engineering (IIEES)
- International Journal of Civil Engineering (IUST)
- Journal of Computational Methods in Engineering (IUT)
- Scientia Iranica (SUT)
- Civil Engineering Infrastructures Journal (UT)
- International Journal of Maritime Technology (IANAME)

Member of Editorial Boards

- Co-Editor-in-Chief of Journal of Earthquake and Tsunami (World Scientific Press) Since July 1st, 2022.
- Editor of Journal of Seismology and Earthquake Engineering (IIEES)
- Editor of Sustainable Structures (Sustainable Development Press)
- Editorial Advisory Board of Modares Civil Engineering Journal (TMU)

Research Projects

- Khaji, N. 2008. Seismic analysis of cracked concrete gravity dams using a hybrid distinct element–boundary element approach. Water Resources Management Organization, Iranian Ministry of Energy (Project number: DAM2-85126).
- Zakian P, Khaji N. 2017. Numerical simulation of seismic wave propagation due to faulting in a random domain. Iran National Science Foundation (Project number: 96.S.53925).

Academic Awards

1995	Graduated ranking the second from University of Tehran.
1998	Graduated ranking the first from Tarbiat Modares University.
1995-1998	Post-graduate scholarship for M.Sc. studies awarded by Iranian ministry of science, research and technology.
1998-2001	Full scholarship for Ph.D. studies awarded by Japanese ministry of education, science, sports, and culture.
2013	Distinguished professor at Tarbiat Modares University.
2017	Distinguished researcher at Tarbiat Modares University.
2022	Current citations in SCOPUS: 1190; Hirsch number (h-index): 18
