



Morteza Khodabin

Associate Professor in Statistics

Department of Mathematics, Islamic Azad University- Karaj Branch, P. O. Box 31485-313, Iran.

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Personal Details:

Surname : Morteza
Forename : Khodabin
Date Of Birth : 04 September 1969
Place Of Birth : Iran
Sex/Marital : Male/Married
Citizen Ship : Iranian
Tel : +989123617120

Qualifications:

Ph D : Probability & Statistics , Tehran , Sciences & Research University Campus , I.A.U , 2004

MA : Probability & Statistics , Tehran , Shahid Beheshti University , 1996

BA : BS : Statistics , Tehran , Shahid Beheshti University , 1994

Title of Ph.D. Thesis :

Entropy and Statistical Hypothesis Testing

Honors:

- **1994-Presented : Member of Iranian Statistical Society**
- **Member of Special committee for Mathematics and Statistics in 12-Zone of I.A.U**
- **Managing Editor of Mathematical Sciences Quarterly Journal, I.A.U, Karaj-branch**
- **Member of scientific committee in Karaj Mathematics house (2008-2010)**
- **Member of scientific committee in Instructor Training Center (ITC) (2007-2010)**

Teaching Experience & Positions:

1- Teaching of Statistical concepts and methods in Department of Statistics ,Shahid Beheshti University , 1995-6

2- Teaching of Statistics & probability for engineering in Sciences & Research University campus, I.A.U, 2003-4

3- Teaching of Statistics & probability for engineering in Ghazvin branch , 2004, 2012- continue

4- Teaching of Mathematics statistic & Mathematics for statistics in Payam Nur University, Tehran branch, 1998

5- Teaching of Applied probability & statistic (1), Applied probability & statistics (2), Stochastic processes, Regression and Simulation for mathematical student in Karaj branch, 1998-continue

6- Teaching of Statistical concepts and methods, Prior mathematics, Mathematics(1), Mathematics(2), Applied mathematics for Accounting students in Karaj branch, 1997-2006

7- Teaching of Applied probability & statistic (1) & (2), Stochastic processes, Time series in Department of Mathematics, Teacher Training University, 2005-6

8- Teaching of statistical inference (1) & (2) for MA statistics students in I.A.U, Tehran Shomal branch, 2005-6

9- Teaching of modern stochastics processes for MA mathematics students in I.A.U, Karaj branch, 2006-continue

10- Teaching of modern stochastics processes and Stochastic calculus for PHD mathematics students in I.A.U, Karaj branch, 2009-continue

Courses Taught (BA, MA, PhD)

BA : Mathematics, Management & Accounting , Engineering

MA : Mathematics , Statistics, Financial Mathematics

Ph.D : Veterinary, Mathematics, Management & Accounting

Papers:

Before 2010

1. E. [Pash M. Khodabin](#) GR. [Mohtashami Borzadran](#)
Testing statistical hypothesis via Shannon's entropy in exponential families
Iranian International Journal of Science. 2004;5(2):267-279.
2. E. [Pash M. Khodabin](#) GR. [Mohtashami Borzadran](#)
Hypothesis testing via Shannon's entropy in exponential family and its application in comparison r populations
IUST International Journal of Engineering Science. 2005;16(4):17-20.
3. E. [Pash M. Khodabin](#) GR. [Mohtashami Borzadran](#)
Entropy in exponential families
Journal of Sciences Islamic azad University. 2006;16(2):1-9.
4. [Morteza Khodabin](#)
Some of nonlinear time series models and applications
Mathematics Scientific Journal of Islamic Azad University of Arak. 2007;1(6):67-95.
5. E. [Pasha A. Beitollahi](#) M. [Khodabin](#)
Divergence measure and testing statistical hypothesis
Pakistan Journal of Statistics. 2007;23(3):205-220. (ISI)

2010 Papers

6. [Morteza Khodabin](#) and [Alireza. Ahmadabadi](#)
Some properties of generalized gamma distribution
Mathematical Sciences. 2010;4(1):9-28. (ISC)
7. [Morteza Khodabin](#)

ADK entropy and ADK entropy rate in irreducible- aperiodic Markov chain and Gaussian processes

Journal of the Iranian Statistical Society. 2010;9(2):25-36. (ISC)

8. Morteza Khodabin and Reza Kazemi Matin

A statistical test for outlier identification in data envelopment analysis

Iranian Journal of Optimization. 2010; 4: 211-218. (ISC)

2011 Papers

9. Morteza Khodabin and Neda Kiaee

Stochastic dynamical logistic population growth model

Journal of Mathematical Sciences: Advances and Applications. 2011; 11(1): 11-29.

10. Morteza Khodabin

Some properties of ADK entropy and ADK entropy rate

Procedia Computer Science. 2011;3:1170-11777.

11. Morteza Khodabin

Asymptotic distribution of divergence measure with applications

Journal of Applied Mathematics. 2011; Vol. 8. 1(28): 41-53. (ISC)

12. N. [Tahernia](#), M. [Khodabin](#), N. [Mirzaei](#)

Mixed model for interoccurrence times of earthquakes based on EM algorithm

Acta Geophysica. 2011;59(5):872-890. (ISI)

13. M. [Khodabin](#), K. [Maleknejad](#), M. [Rostami](#), M. [Nouri](#)

Numerical solution of stochastic differential equations by second order Runge-Kutta methods

Mathematical and Computer Modelling. 2011; Volume 53, Issues 9–10 : 1910-1920. (ISI)

14. [Morteza Khodabin](#)

Some wonderful statistical properties of Pi-number decimal digits

Journal of Mathematical Sciences: Advances and Applications. 2011; 11(2): 69-77.

2012 Papers

15. M. [Khodabin](#), K. [Maleknejad](#), M. [Rostami](#), M. [Nouri](#)

Interpolation solution in generalized stochastic exponential population growth model

Applied Mathematical Modelling. 2012; Volume 36, Issue 3 : 1023-1033. (ISI)

16. K. Maleknejad, M. Khodabin, M. Rostami
Numerical solution of stochastic Volterra integral equations by a stochastic operational matrix based on block pulse functions
Mathematical and Computer Modelling. 2012; Volume 55, Issues 3–4 : 791-800. (ISI)

17. K. Maleknejad, M. Khodabin, M. Rostami
A numerical method for solving m -dimensional stochastic Itô–Volterra integral equations by stochastic operational matrix
Computers & Mathematics with Applications. 2012; Volume 63, Issue 1: 133-143. (ISI)

18. N. Tahernia, M. Khodabin, N. Mirzaei and Morteza Eskandari
Statistical models of interoccurrence times of Iranian earthquakes on the basis of information criteria
Earth System Science, 2012; Volume 121, No 2: 463-474. (ISI)

19. M. Khodabin, K. Maleknejad, M. Rostami, M. Nouri
Numerical approach for solving stochastic Volterra–Fredholm integral equations by stochastic operational matrix
Computers & Mathematics with Applications, Volume 64, Issue 6, September 2012, 1903-1913. (ISI)

20. Morteza Khodabin
An application of trajectories ambiguity in two-state Markov chain
International Journal of Mathematical Modeling & computations, Vol. 02, No. 03, 2012, 221- 229. (ISC)

2013 Papers

21. Morteza Khodabin and Reza Ezzati
Entropy rate for Ehrenfest's urn models
Essays on Mathematics and Statistics: Volume 3, Athens Institute for Education and Research, 2013, 135-149.

22. M. Khodabin, K. Maleknejad , F.Hosseini Shekarabi
Application of Triangular Functions to Numerical Solution of Stochastic Volterra Integral Equations
IAENG International Journal of Applied Mathematics, 43:1, IJAM_43_1_01. 2013

23. Morteza Khodabin
States recognition in random walk Markov chain via binary entropy
Journal of Interpolation and Approximation in Scientific Computing, Volume 2013 (2013) 1-6. (ISC)

24. N. Tahernia, M. Khodabin, N. Mirzaei
Non Poissonian Seismic Hazard Assessment of Tehran Metropolitan by
Renewal Process
Arabian Journal of Geosciences. 2013, 1-11. DOI 10.1007/s12517-013-0930-
5. (ISI)

25. M. Khodabin, K. Maleknejad , M. Asgari
Numerical solution of stochastic population growth model in a closed system
Advances in Difference Equations 2013, 2013:130. (ISI)

26. R. Ezzati, M. Khodabin and M. Salahaddin
A new approach for defuzzification of a fuzzy number and its
application for ranking fuzzy numbers
Journal of Fuzzy Set Valued Analysis 2013 (2013) 1-13

27. Morteza Khodabin , Mohammad Ahmad Naeini
Confidence interval for number of population in dynamical
stochastic exponential population growth model
International Journal of Applied Mathematical Research, 2 (3) (2013) 403-
407.

2014 Papers

28. M. Asgari , E. Hashemizadeh, M. Khodabin and K. Maleknejad
Numerical solution of nonlinear stochastic Volterra integral equation by
stochastic operational matrix based on Bernstein polynomials
Bull. Math. Soc. Sci. Math. Roumanie. Tome 57(105) No. 1, 2014, 3-12. (ISI)

29. M. Khodabin , K. Maleknejad, T. Damercheli
*Approximate solution of the stochastic Volterra integral equations via
expansion method*
*International Journal of Industrial Mathematics, Vol. 6, No. 1, 2014. 41-48.
(ISC)*

30. Reza Ezzati, Morteza Khodabin and Zahra Sadati
*Numerical implementation of stochastic operational matrix driven by a
fractional Brownian motion for solving a stochastic differential equation*
*Abstract and Applied Analysis, Volume 2014, Article ID 523163, 11 pages.
(ISI).*

- 31.** Khosrow Maleknejad, Morteza Khodabin and Farkhondeh Hosseini Shekarabi
Modified block pulse functions for numerical solution of stochastic Volterra integral equations
Journal of Applied Mathematics, Volume 2014 (2014), Article ID 469308, 10 pages. (ISI)
- 32.** Reza Ezzati, Morteza Khodabin and Zahra Sadati
Numerical Solution of Backward Stochastic Differential Equations Driven by Brownian Motion through Block Pulse Functions
Indian Journal of Science and Technology, Vol 7(3), 271–275, March 2014. (ISI).
- 33.** Jaber Talebi, Karamollah Daneshfard, Morteza Khodabin
The Impact of Information Technology on the Performance of the Human Resource In the Martyr Foundation and Veterans Affairs of Great Tehran
Universal Journal of Management and Social Sciences, Vol 4(7), 2014.
- 34.** M Khodabin, V Hosseinitoudeshki
Confidence interval in Kirsch equations
International Journal of Applied Mathematical Research, Vol 3(4), 375–379, 2014.
- 35.** Morteza Khodabin and Neda Kiaee
Stochastic Dynamical Theta-Logistic Population Growth Model
SOP Transactions on Statistics and Analysis(STSA), 74-88, 2014.
- 36.** Morteza Khodabin
ADK divergence measure and testing exponentiality based on estimated ADK information
International Journal of Applied Mathematical Research, Vol 3(4), 446-453, 2014.
- 37.** F. Hosseini Shekarabi, M. Khodabin and K. Maleknejad
The Petrov-Galerkin Method for Numerical Solution of Stochastic Volterra Integral Equations
IAENG International Journal of Applied Mathematics, 44:4, IJAM_44_4_02. 2014.
- 38.** Reza Ezzati, Soheil Salahshour, Ronald R. Yager and Morteza Khodabin
Fuzzy Linear and Nonlinear Integral Equations: Numerical Methods

2015 Papers

39. M. Khodabin, M. Rostami

Mean square numerical solution of stochastic differential equations by fourth order Runge-Kutta method and its application in the electric circuits with noise
Advances in Difference Equations 2015, 2015:62 (ISI)

40. F. Hosseini Shekarabi and M. Khodabin

Numerical Solution of a Model for Stochastic Polymer Equation Driven by Space–Time Brownian Motion via Homotopy Perturbation Method
International Journal of Applied and Computational Mathematics
DOI 10.1007/s40819-015-0072-4. 2015

41. M. Fallahpour, K. Maleknejad , M. Khodabin

Approximation Solution of Two-Dimensional Linear Stochastic Fredholm Integral Equation by Applying the Haar Wavelet
International Journal of Mathematical Modelling & Computations. Vol. 05, No. 04, Fall 2015, 361- 372.

2016 Papers

42. Morteza Khodabin

Entropy, uncertainty and related concepts in Brownian motion process
Journal of Fuzzy Set Valued Analysis 2016 SI.1 (2016) 19-30

43. Morteza Khodabin

Some aspects in population growth rate
Journal of Interpolation and Approximation in Scientific Computing 2016 SI.1 (2016) 14-18

44. M. Fallahpour, M. Khodabin, K. Maleknejad

Approximation solution of two-dimensional linear stochastic Volterra-Fredholm integral equation via two-dimensional block-pulse functions
International Journal of Industrial Mathematics (IJIM). Vol. 8, No. 4, 2016
Article ID IJIM-00774, 8 pages. (ISC)

45. F. Hosseini Shekarabi and M. Khodabin

Numerical solution of stochastic Lotka-Volterra equations via operational matrices

Journal of Interpolation and Approximation in Scientific Computing 2016 SI.1 (2016) 37-42.

46. N. Rahmani, M. Khodabin, E. Hashemizadeh

Numerical solution of stochastic SIR model by Bernstein polynomials

Journal of Interpolation and Approximation in Scientific Computing 2016 SI. 1 (2016) 19-25

47. P. Jami, M. Khodabin, E. Hashemizadeh

Numerical solution of stochastic SIR model via split – step forward Milstein method

Journal of Interpolation and Approximation in Scientific Computing 2016 No.1 (2016) 38-45

48. F. Hosseini Shekarabi, M. Khodabin and K. Maleknejad

Application of operational matrices to numerical solution of stochastic SIR model

Arab. J. Math. (2016) 5:77–86. (ISI listed)

49. B. Farahani, M. Khodabin and R. Ezzati

Numerical solution of stochastic nonlinear Volterra integral equations by a stochastic operational matrix based on Haar wavelets

Advances and Applications in Statistics, Volume48, Number5, 2016, page 317-336. (ISI listed).

50. M. Khodabin and M. Rostami

Numerical Solution of m-Dimensional Stochastic It^o-Volterra Integral Equations by Stochastic Operational Matrix based on Rationalized Haar Wavelet

Advances in Differential Equations and Control Processes, Volume 17, Number 3, 2016, Pages 189-212 (ISI listed).

51. M. Khounsiavash , R. Kazemi Matin and M. Khodabin

Two statistical tests for outlier identification in non-parametric performance measurement

Journal of Operational Research and Its Applications, Volume 13, Number 2 (8-2016). (ISC)

52. M. Rostami and M. Khodabin

An optimal method based on rationalized Haar wavelet for numerical solution of stochastic Ito-Volterra integral equations

Journal of Operational Research and Its Applications, Vol. 6, No. 4, pp. 39-52, Autumn 2016.

2017 Papers

53. B. Hashemi, M. Khodabin and K. Maleknejad

Numerical method for solving linear stochastic Ito-Volterra integral equations driven by fractional Brownian motion using hat functions

Turk J Math, (2017) 41: 611-624 (ISI)

54. B. Hashemi, M. Khodabin and K. Maleknejad

Numerical solution based on hat functions for solving nonlinear stochastic Ito-Volterra integral equations driven by fractional Brownian motion

Mediterr. J. Math. (2017) 14: 24. doi:10.1007/s00009-016-0820-7 (ISI)

55. M. Fallahpour, M. Khodabin, K. Maleknejad

Theoretical error analysis and validation in numerical solution of two-dimensional linear stochastic Volterra-Fredholm integral equation by applying the block-pulse functions

Cogent Mathematics (2017), 4: 1296750

http://dx.doi.org/10.1080/23311835.2017.1296750 (ISI-listed)

56. B. Hashemi, M. Khodabin

Series expansion of Wiener integrals via block pulse function

Journal of New Researches in Mathematics, 2017.

Available online at <http://jnrm.srbiau.ac.ir>

بسط سری انتگرال‌های وینر به کمک توابع بلاک پالس

مجله پژوهش‌های نوین در ریاضی- علوم و تحقیقات

سال دوم، شماره نهم، بهار ۱۳۹۶

شماره شایا: ۱۶۹-۰۱۶۸۲

57. M. Asgari and M. Khodabin

Computational method based on triangular operational matrices for solving nonlinear stochastic differential equations

Int. J. Nonlinear Anal. Appl. 8 (2017) No. 2, 169-179. (ISI listed)

2018 and 2019 Papers

58. M. Khounsiavash , R. Kazemi Matin and M. Khodabin

A divergence measure for combining super-efficiency scores in performance measurement of two-stage production systems

International Journal of Industrial Mathematics (IJIM). Vol. 11, No. 2, 2019
Article ID IJIM-0884, 12 pages. (ISC)

59. M. Fallahpour, M. Khodabin, R. Ezzati

A new computational method based on Bernstein operational matrices for solving two-dimensional linear stochastic Volterra integral equations

Differ Equ Dyn Syst (2019).

<https://doi.org/10.1007/s12591-019-00474-y>. (Scopus-ISI-listed)

60. A. A. Cheraghi, M. Khodabin, R. Ezzati

Numerical solution of linear stochastic Volterra integral equations via new basis functions

Filomat 33:18 (2019), 5959–5966 . (ISI)

<https://doi.org/10.2298/FIL1918959C>

2020 Papers

61. M. Fallahpour, M. Khodabin, K. Maleknejad

Theoretical error analysis and validation of approximation solution for two-dimensional linear stochastic Volterra integral equation by applying the Haar wavelet

INTERNATIONAL JOURNAL OF APPLIED AND COMPUTATIONAL MATHEMATICS. Accepted Manuscript. 2020

62. A. A. Cheraghi, M. Khodabin, R. Ezzati

Applying a new method to solve linear stochastic Volterra integral equations

J. Math. Computer Sci., ? (2020), 1–?. (ISI) Scopus

63. Morteza Khodabin

A short tutorial and an overview on stochastic integrals with emphasis on their confidence interval

International Journal of Industrial Mathematics (IJIM). Vol. ?, No. ?, 2020
Article ID IJIM-?, ? pages. (ISC)

64. A. R. Yaghoobnia , M. Khodabin, R. Ezzati

Numerical solution of stochastic It^o-Volterra integral equations based on Bernstein multi-scaling polynomials

Applied Mathematics-A Journal of Chinese Universities. ISI. Accepted Manuscript. 2020

65. M. Fallahpour, M. Khodabin

Theoretical error analysis and validation of approximation solution for two-dimensional linear stochastic Volterra integral equation by applying the Haar wavelet

Journal of Mathematical Sciences and Modelling, 3 (1) (2020) 38-46.

66. M. Montazer, M. Khodabin, R. Ezzati, M. Fallahpour

Non-uniform Haar wavelets method for solving linear stochastic Ito - Volterra integral equations

The Scientific Bulletin” University POLITEHNICA of Bucharest : Applied Mathematics and Physics. ISI. Accepted Manuscript. 2020

Books:

Morteza Khodabin, Mohsen Fallahpour and Khosrow Maleknejad, Numerical Solution of Two-Dimensional Stochastic Integral Equations, LAP LAMBERT Academic Publishing, 2017.

Research Projects - Place of Performance – Date

- 1- Some of nonlinear models in time series with applications : *Islamic Azad University, Karaj branch, 2008.*
- 2- Generalized Gamma Distribution with applications : *Islamic Azad University, Karaj branch, 2010.*
- 3- Using paired sample test for detecting outlier decision making units in data envelopment analysis : *Islamic Azad University, Karaj branch, 2011.*
- 4- The examination of numerical solution of stochastic differential equations : *Islamic Azad University, Karaj branch, 2012.*

International Conference

1. Nonlinear Time series : *4th Iranian International Statistics Conference, Shahid Beheshti University , 1998.*
2. Calculation and Comparison of Entropy Rate for Eherenfest and Generalized Eherenfest Markov Chain : *6th Iranian International Statistics Conference, Tarbiat Modarres University, August 26-28, 2002.*
3. Asymptotic Distribution of a Divergence Measure with Applications: *2th International Conference on Cotrol and Optimization with Industrial Applications, Baku, Azerbaijan, 2-4 June, 2008.*
4. Entropy Rate for Ehrenfest's Urn Models : *3rd International Conference on Mathematics and Statistics , ATHENS, GREECE, 15-18 June 2009.*
5. Some Properties of ADK entropy and ADK entropy rate: *World Conference on Information Technology. Bahcesehir University, 07-10 October 2010, Istanbul – Turkey*

6. Entropy, uncertainty and related concepts in Brownian motion process:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*
7. Some aspects in population growth rate:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*
8. Approximation solution of two-dimensional linear stochastic Volterra-Fredholm integral equation via two-dimensional block-pulse functions:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*
9. Numerical solution of stochastic Lotka-Volterra equations via operational matrices:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*
10. Numerical solution of stochastic SIR model by Bernstein polynomials:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*
11. Numerical solution of stochastic SIR model via split – step forward Milstein method:*The first international conference on intelligent decision science, Islamic Azad University, UAE branch 4-6 September, 2015.*

Thesis advisor and consulting advisor

Over 80 Thesis of D.V.M, Ph.D and M.sc students

Only in this University:

Advisor: 37

Consulting advisor : 50