

# CURRICULUM VITAE

## Farshid Mehrdoust

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### PERSONAL INFORMATION

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### RESEARCH INTERESTS

- Financial Mathematics
- Stochastic Algorithms for Scientific Computations
- Monte Carlo methods and algorithms for Linear Algebra, Computational Finance, and Performance Computing Encompassing Stochastic Modeling

### EDUCATION

- **University of Guilan, Rasht, Iran, Ph.D. in Applied Mathematics and Computer Sciences**  
Thesis title: " Robust Monte Carlo algorithm for generalized eigenvalue problem and its application in multivariate statistical methods"
- **Sharif University of Technology, Tehran, Iran, M.Sc. in Applied Mathematics**, Thesis title: "On the existence of periodic solutions for second order ODE"
- **University of Guilan, Rasht, Iran, B.Sc. in Applied Mathematics**

### HONORS

- Ranked 5th in the entrance examination for graduate studies in Applied Mathematics, Iran, 1999.
- Outstanding researcher of the Faculty of Mathematical Sciences, University of Guilan, 2013.

## **PROFESSIONAL EXPERIENCES**

- Teaching, University of Guilan, Fall 2004–present.

Some Courses: Mathematical Modeling for Finance, Data Mining, Advanced Stochastic Processes, Advanced Programming, Data Structure, Advanced Computer Simulation, Statistics and Probability, Numerical Analysis, Advanced Statistical Methods, Compiler, Automata, Theory of Computations

## **SKILLS**

Proficient in C#, Java, C++, Pascal, MATLAB, Maple, SPSS, Python; Clementine Software  
Familiar with HTML, Network (LAN), Hardware

## **EXECUTIVE ACTIVIETS**

- Director of the Entrepreneurship Center, University of Guilan, September 2012- September 2014
- Director of the e-Learning Center of University of Guilan, Since September, 2014- present

## **PUBLICATIONS**

1-Some results on the fractional Heston model with transaction costs, submitted, 2016

2-Block-pulse operational matrix method for solving fractional Black-Scholes equation, submitted, 2016

3- Pricing European options under fractional Black-Scholes model, submitted, 2016

4- On pricing multiple assets American options under Heston's stochastic volatility model, submitted, 2016

5- LSM algorithm for pricing American option under Heston-Hull-White's stochastic volatility model, Computational Economics (ISI), 2016

6- Modeling asset price under two-factor Heston model with jumps, submitted, 2015

7- Pricing arithmetic Asian option under two-factor stochastic volatility model with jumps, Journal of Statistical Computation and Simulation (ISI), 2015

8-Efficient Monte Carlo option pricing under CEV model, Communications in Statistics - Simulation and Computation (ISI), 2015

9-A new hybrid Monte Carlo simulation for Asian options pricing, Journal of Statistical Computation and Simulation (ISI), 2015

10- On approximate-analytical solution of generalized Black-Scholes equation, Sci. Bull., Series (ISI), 2015

11-On analytical solution of the Black-Scholes equation by the first integral method, Applied Mathematics and Physics (ISI), 2014

12-A randomized algorithm for estimating the condition number of matrices, Mathematical Reports (ISI), 2014

13- Markov Chain Monte Carlo Model, Encyclopedia of Social Network Analysis and Mining, ESNAM Project, Springer, 2014

14-On pricing European options under HCIR model: A comparative study, Advanced Modeling and Optimization, 2014

15-Modeling asset prices based on two-factor stochastic volatility, Advanced Modeling and Optimization, 2014

16-On option pricing under double Heston model with jumps (in Persian), Journal of Advanced Mathematical Modeling, 2014

17-Numerical simulation for multi-asset derivatives pricing under Black-Scholes model, Chiang Mai Journal (ISI), 2013

18- On the numerical solutions of Heston partial differential equation, Math. Sci. Lett., 2014

19-Accelerated Simulation Scheme for Solving Financial Problems, International Journal of Information Technology and Computer Science, 2014

20- A robust and accurate quasi-Monte Carlo algorithm for estimating eigenvalue of homogeneous integral equations, ISRN Computational Mathematics, 2013

21- A reliable stochastic algorithm for estimating eigenvalue of homogeneous integral equations, Journal of Advanced Research in Applied Mathematics, 2013

22- A computational approach to financial option pricing using quasi Monte Carlo methods via variance reduction techniques, Journal of Mathematical Finance, 2012

- 23- Analytical study on linear systems of distributed order fractional differential equations, *Le Matematiche*, 2012
- 24- A new approach to improving the estimate of Delta under European option, *International Journal of Applied Mathematical Research*, 2012
- 25- On finding the smallest generalized eigenpair using Markov chain Monte Carlo algorithm, *Applied Mathematics*, 2012
- 26- Monte Carlo simulation for numerical integration based on antithetic variance reduction and Halton's sequences, *Journal of Mathematics and Computer Science (ISC)*, 2012
- 27- Variance estimation of simple linear regression coefficient using Markov chain Monte Carlo simulation, *International Journal of Nonlinear Sciences*, 2012
- 28- A new efficient method for nonlinear Fisher type equations, *Journal of Applied Mathematics (ISI)*, 2012
- 29- MCMC-PCA based compression algorithm for images, *Journal of Advanced Research in Scientific Computing*, 2012
- 30- Variational Monte Carlo algorithm for solving one dimensional harmonic oscillator problem, *Journal of Mathematics and Computer Science*, 2012
- 31- New hybrid Monte Carlo methods and computing the dominant generalized eigenvalue, *International journal of computer mathematics (ISI)*, 2011
- 32- Quasi Monte Carlo algorithm for computing smallest and largest generalized eigenvalue, *ANZIAM Journal (ISI)*, 2011
- 33- Partitioning IMCI algorithm for finding three smallest eigenpairs of generalized eigenvalue problem, *Advances in numerical analysis*, 2011
- 34- Matrix balancing and robust Monte Carlo algorithm for evaluating dominant eigenpair, *Computer Science Journal of Moldova*, 2010
- 35- Some new advantages on Monte Carlo integration using variance reduction procedures, *International journal of Advanced Research in Computer Science*, 2010
- 36- Modified Brownian motion simulation and calculating Itô and Stratonovich integrals, *Journal of the Applied Mathematics, Statistics and Informatics*, 2011
- 37- On computing generalized dominant eigenpair by Markov chain Monte Carlo method, *Proceedings of The First International Conference on Mathematics and Statistics*, American University of Sharjah, UAE, March 18-21, 2010

38- Some numerical results on European option pricing under Heston model, 5th Conference on Applied Mathematics, BU-Ali Sina University, Iran, 2013

39- Robust mean conditional value at risk portfolio optimization, 3th conference on Financial Mathematics, Semnan University, Iran, 2013

40- Pricing European options under the double Heston model with jumps, 5th Conference on Applied Mathematics, BU-Ali Sina University, Iran, 2013

### **M.Sc. SUPERVISED**

1-Some results on multiple stochastic volatility models, University of Guilan, 2016

2- Option pricing under mean reverting process, University of Guilan, 2015

3- Option pricing and regime-switching model, University of Guilan, 2015

4- Some results on American option under Heston model with stochastic interest rate, University of Guilan, 2015.

5- Jump process and its application in mathematical finance, University of Guilan, 2014

6- A Fast algorithm for Bermudan option pricing, University of Guilan, 2014

7- A fast support vector machine algorithm and its application in image processing, University of Guilan, 2014

8-Some results on option pricing in Heston model, University of Guilan,2013.

9- Option pricing and hedging under a stochastic volatility Levy process model, University of Guilan, 2013

10- Fast and accurate pricing of barrier options under Levy processes, University of Guilan, 2013