Hassan Nojumi

Assistant Professor

Room 417, Department of Mathematical Sciences
Sharif University of Technology
P.O.Box 11155-9415
Azadi Street, Tehran, Iran

Web: http://mathsci.sharif.edu/∼nojumi,
http://sina.sharif.edu/∼nojumi
Email: nojumi@sina.sharif.edu, hnojumi@yahoo.com
Mobile: +98 912 593 7563
Phone: (+9821) 6616-5640
Fax: (+9821) 6600-5117

Research Interests

- Computational Finance
- Risk Management
- Scientific Computing

Educational Background

- B.S. in Electrical Engineering, Sharif University of Technology, Iran.
  B.S. Project Title: Electronic Interlocking Systems at Railway Stations
  B.S. Project Supervisor: Mahmoud Tabandeh
- M.S. in Computer Engineering, Sharif University of Technology, Iran
  M.S. Thesis Title: A Hardware Accelerator for Simulation of Digital Circuits
  M.S. Thesis Supervisor: Amir Hossein Jahangir
- M.S. in Applied Mathematics, Utrecht University, Netherlands
  M.S. Thesis Title: Harmonic Maps in Space-Time
  M.S. Thesis Supervisor: Hans Duistermaat
- Ph.D. in Applied Mathematics, University of Delaware, USA
  Dissertation Title: An Extended Model of Asset Price Dynamics
  Dissertation Supervisor: George Hsiao
  Dissertation Committee: George Hsiao, Robert Gilbert, Zuhair Nashed
  External Referee: Xiang-Gen Xia (Electrical Engineering/Signal Processing)
- Postdoctoral Study, Pennsylvania State University, USA
  Mentor: Andrew Belmonte
- Postdoctoral Study, Sharif University of Technology, Iran
  Mentor: Bijan Zohouri-Zangeneh

Journal Publications

- Hassan Nojumi, Stochastic analysis of the market price of risk, Submitted.
- Hadi Minooei, and Hassan Nojumi, Performance evaluation of a new backoff method for IEEE 802.11, Accepted for publication in *Computer Communications*.
- Hassan Nojumi, A hardwired discrete simulation algorithm, Accepted for publication in *Scientia Iranica*.
- Hassan Nojumi, Computational finance and risk management (in Persian), Accepted for publication in in *Nashr-e Riyaazi*.
- Hassan Nojumi, An extended model of asset price dynamics, *Iranian International Journal of Science*, Vol.6 (2005), pp. 83-95.
- Hassan Nojumi, Persian Translation of David Applebaum, Levy processes - from probability theory to finance and quantum groups, Notices of the American Mathematical Society, 51 (2004), pp. 1336-47 , *Farhang va Andisheye Riyaazi*, No. 34, Spring 2006, pp. 7-32.
- Hassan Nojumi, Paul Levy (in Persian), *Farhang va Andisheye Riyaazi*, No. 34, Spring 2006, pp. 87-89.
- Hassan Nojumi, Persian Translation of Paul Halmos, How to write Mathematics, *Farhang va Andisheye Riyaazi*, No. 33, Fall 2005, pp. 43-75.
- Bahman Mehri, and Hassan Nojumi, On the behavior of solutions of a certain ordinary differential equation, *Nasir Journal of Science and Engineering*, 1(1) (2005), pp. 6-13.
- Bahman Mehri, and Hassan Nojumi, Unique solvability of a linear problem with perturbed boundary values, *Czech. Math. Journal*, 49(124) (1999) No. 2, pp. 351-362.

Conference Publications

- Hassan Nojumi, Amirreza Shafaat, Hamidreza Golmakani, and Hossein Salimi, Modeling dynamics of oil supply-demand shock effects on stock market returns, *Proceedings of the 18th International Conference of the Association for Global Business*, Newport Beach, CA, USA, November 2006.
- Nima Darabi, Navid Hamed Azimi, and Hassan Nojumi, Recognition of dastgah and maqam for Persian music with detecting skeletal melodic models, *Proceedings of The second annual IEEE BENELUX/DSP Valley Signal Processing Symposium, Belgium, SPS-DARTS 2006*, DSP Valley, Belgium, March 2006.
- Hassan Nojumi, Differential equations, from stochastic to deterministic, an example, *Proceedings of the Sixth Conference on Differential Equations and Dynamical Systems*, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, September 2004.

- Hassan Nojumi, Interest rate derivatives and the market price of risk, *Proceedings of the Sixth World Multiconference on Systemics, Cybernetics, and Informatics*, SCI 2002, Orlando, Florida, USA, July 2002.
- Ruppa Thulasiram, Lubomir Litov, Hassan Nojumi, Christopher Downing, and Guang Gao, Multithreaded algorithms for pricing a class of complex options, *Proceedings of the International Parallel and Distributed Processing Symposium*, IPDPS 2001, San Francisco, CA, USA, April 2001.
- Hassan Nojumi, Spatiotemporal events in distributed systems, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications*, PDPTA 2000, Las Vegas, Nevada, USA, June 2000.
- Hassan Nojumi, The classical solution to the network flow problem, *Proceedings of the 26th Annual Iranian Mathematical Conference*, Kerman, Iran, May 1995, Vol. 2, pp. 291-297.

Talks

- An Introduction to Risk Management, Research Week, Sharif University of Technology, Tehran, Iran, December 15, 2005.
- Risk Management in Financial Markets, *Iranian Mathematical Society Seminar on Financial Engineering and Risk Management*, Faculty of Mathematical Sciences, Beheshti University, Tehran, Iran, June 15, 2005.
- An Introduction to Computational Finance, *Mathematics Week*, Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, October 28, 2004.
- Differential Equations, From Stochastic to Deterministic, *Sixth Conference on Differential Equations and Dynamical Systems*, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, October 6, 2004.
- Universal Constant of American Option Pricing, Department of Mathematical Sciences, Sharif University of Technology, Tehran, Iran, May 15, 2004.
- Valuation of American Call Option, A Free Boundary Value Problem, Department of Mathematical Sciences, Sharif University of Technology, Tehran, Iran, May 8, 2004.
- Mobile Phone Networks, Department of Mathematical Sciences, Sharif University of Technology, Tehran, Iran, April 10, 2004.
- E-Commerce, An Introduction, Department of Mathematical Sciences, Sharif University of Technology, Tehran, Iran, April 3, 2004.
- An Introduction to Computational Finance, Department of Mathematics, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, November 19, 2003.
- An Introduction to Computational Finance, Department of Mathematical Sciences, Sharif University of Technology, Tehran, Iran, November 5, 2003.

Graduate Courses Taught:

- Computational Finance
- Risk Assessment and Management
- Advanced Applied Mathematics
- Advanced Mathematical Software
- Advanced Numerical Analysis
- Computational Finance Seminar
- Probability and Statistics Seminar
- Computer Science Seminar
- Numerical Analysis Seminar

Undergraduate Courses Taught:

- Stochastic Processes
- Time Series
- Regression Analysis
- Probability and Statistics
- Numerical Analysis
- Engineering Mathematics
- Engineering Probability and Statistics
- Linear Algebra
- Advanced Programming
- Calculus
- Mathematics Laboratory

Graduate Theses in Progress

- Shokoofeh Shafiei
    - Department of Mathematical Sciences
    - Sharif University of Technology
    - M.S. Thesis Title: Design and Management of Optimal Financial Portfolios

- Javad Abdi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Hedging Strategies in Financial Markets
- Samira Sadeghy
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Assessment and Management of Risk in Banking Systems
- Mahboobeh Taghadosi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Assessment and Management of Risk in Industries

B.S. Project in Progress

- None at present.

Graduate Thesis Completed

- Ramin Okhrati
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M. S. Thesis Topic: Credit Risk in Financial Markets
  - Date Completed: December 2004

B.S. Projects Completed

- Homa Kabiri
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - B.S. Project Topic: Research and Preparation of Lecture Notes for a Probability and Statistics course D
  - ate Completed: December 2005
- Hadi Minooei
  - Department of Mathematical Sciences
  - Sharif University of Technology

- B.S. Project Topic: Performance Evaluation of a New Backoff Method for Computer Networks
- Date Completed: September 2006

- Fatemeh Vakhshiteh
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - B.S. Project Topic: Research and Preparation of Lecture Notes for a Stochastic Processes course
  - Date Completed: October 2006
- Laleh Ghalami
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - B.S. Project Topic: Extreme Value Theory as a Risk Management Tool
  - Date Completed: June 2007

Graduate Committee Membership

- Elham Akbari
  - Department of Civil Engineering
  - Sharif University of Technology
  - M.S. Thesis Title: Effects of Initial Roughness of Roads on Long-Term Roughness
  - Date Defended: November 2003
- Aazam Rostami
  - Department of Mathematics
  - Tehran University
  - M.S. Thesis Title: Existence of Generic Equilibrium in Incomplete Markets
  - Date Defended: May 2004
- Aziz Hadi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Existence of Strong Solutions for Ito Stochastic Differential Equations
  - Date Defended: June 2004

- Rasoul Azizi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Interest Rate Models and Existence of a Finite Dimensional Market Realization
  - Date Defended: June 2004
- Soheila Ghofrani
  - Department of Mathematics
  - Tehran University
  - M.S. Thesis Title: Generic Characteristics of Structure of Complete Markets
  - Date Defended: June 2004
- Hamidreza Aryan
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Stochastics of Partial Derivatives
  - Date Defended: July 2004
- Karim Ebrahimi
  - Department of Mathematics Tehran University
  - M.S. Thesis Title: Roles of Money in General Market Equilibrium
  - Date Defended: September 2004
- Faraj Yaghoubi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Time Reversibility in Hyperbolic Stochastic Equations
  - Date Defended: November 2004
- Behnaz Zargari
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Option Pricing in the Stochastic Volatility Model
  - Date Defended: January 2005
- Lili Shahriari
  - Department of Mathematical Sciences
  - Sharif University of Technology

- M.S. Thesis Title: DNA Computing
- Date Defended: July 2005

- Kaveh Fouladgar
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Fractional Stochastic Analysis
  - Date Defended: August 2005
- Navid Hamed Azimi
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Algorithms for Graph Coloring
  - Date Defended: August 2006
- Ali Taherkhani
  - Department of Mathematical Sciences
  - Sharif University of Technology
  - M.S. Thesis Title: Coloring Number and Maximum Degree in Graphs
  - Date Defended: September 2006
- Ali Zengeneh
  - Graduate School of Management and Economics
  - Sharif University of Technology
  - M.S. Thesis Title: Applications of Index Futures in the Stock Market
  - Date Defended: June 2007