

# Ali Rais Shaghaghi

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## EDUCATION

### 2012 University of Essex

PhD in Computational Finance (expected)  
Centre for Computational Finance and Economic agents(CCFEA)  
School of Computer Science and Electronic Engineering

Thesis Title: “ *Multi-Agent Financial Network Models for Systemic Risk from Financial Derivatives* ”.

Supervisor: Prof. Sheri Markose (Economics, Essex)

First PhD year was taught and included topics related to computational economics and finance, e.g. Computational Methods for Financial Engineering and Risk Management, Agent-Based Computational Economics and E-Markets, Topics on Financial Mathematics and Market Analysis, Fixed-Income Asset Pricing, Default Risk and Credit Ratings, Quantitative Methods in Finance

### Research Interests

Learning and Computational Intelligence, Financial Networks, Contagion and Systemic Risk Modeling, Computational Intelligence in Economics and Finance, Algorithmic Trading, Digital Modeling of Financial Contagion, Large Data Set Analysis, Evolutionary computation, Heuristic Optimisation and Constraint Satisfaction

### 2008 London Metropolitan University

MSc in Digital Communications Networks

### 2004 Tehran Azad University

BSc in Computer Engineering.

## RESEARCH & TEACHING EXPERIENCE

### Oct 2010 - Present Sch. of Comp. Science and Electr. Engineering, University of Essex

Research Assistant on BT NetDesign project (BT Innovate & Design, Research & Technology)

I am responsible for modeling and developing an intelligent system for the purposes of British Telecom's (BT) NetDesign project, which is a network optimisation tool used within BT for reducing capital expenditure. This system applies intelligent algorithms such as Genetic Algorithm, Guided Local Search and Simulated Annealing for optimisation problems.

*BT NetDesign is already being used for the London 2012 Olympic and Paralympic Games and it has been said that it's going to “make a big impact at the Games”.* For more information, see:  
<http://www.btplc.com/Innovation/Innovation/NetDesign/index.htm>

### Sept 2008 - Present CCFEA, University of Essex

Graduate Teaching Assistant.

Subjects taught: Learning and Computational Intelligence in Economics and Finance .

Level: Postgraduate

Topics covered included various artificial intelligence techniques in areas such as Portfolio Optimisation, Algorithmic Trading, Forecasting, Economic Wind-tunnels

**Sep 2008 - May 2010      Marie Curie RTN, COMISEF, University of Essex**  
Research Fellow

Developing an agent-based model of the systemic risk consequences where contagion is characterized by networks.

Successful research and development of CDS Financial Network Simulator

Agent based modelling and database design and implementation based on US FDIC database

Collecting and analysing data from public data sources

## **OTHER WORK EXPERIENCE**

**Oct 2004 - Aug 2006      AsreDanesh Group**  
Network and Systems Technical Manger.

Contributed to design and implementation of the most well known nationwide Iranian DSL network.  
Outstanding leadership abilities helped coordinate and direct all phases of project-based efforts while managing, motivating and leading project team.

**Jun 2003 - Oct 2004      IPM Research Centre-IRANET**  
Network and Systems Engineer.

Responsible for documenting technical and functional requirements with regards to the Institutes network components along with several related maintenance tasks.

## **Papers**

### **Journal**

Markose, S., Giansante, S., Rais Shaghaghi, A., "Too Interconnected To Fail" Financial Network of US CDS Market: Topological Fragility and Systemic Risk , Journal of Economic Behavior & Organization(forthcoming)

### **Conference and Works in Progress**

Markose, S., Giansante, S., Gatkowski, M., Rais Shaghaghi, A., 2010, "Too Interconnected To Fail: Financial Networks of CDS and Other Credit Enhancement Obligations of US Banks", Technical Report in "Recent advances in modelling systemic risk using network analysis", European Central Bank, 7 January 2010. [The paper was featured in Securities Operations Week - a weekly publication focused on US and global securities operations, technology and compliance - 18th of January 2010.]

Markose, S., Rais Shaghaghi, A., Giansante, S., "A Network Analysis of Financial Contagion and the Eigen-Pair Approach in the Management of Systemic Risk and Design of Super-Spreader Tax : Too Interconnected to Fail Financial Intermediaries in Global Financial Derivatives" (Working Paper)

Rais Shaghaghi, A., Markose, S., "A Genetic Algorithm for Reconstruction of Global Financial Derivatives Network" (working paper)

Rais Shaghaghi, A., Glover, T., Kampouridis, M., Tsang, E., "Guided Local Search for Optimal GPON/FTTH Network Design", (under review)

Kampouridis, M., Glover, T., Rais Shaghaghi, A., Tsang, E., "Using a Genetic Algorithm as a Decision Support Tool for the Deployment of Fiber Optic Networks", Proceedings of the IEEE World Congress on Computational Intelligence (WCCI) 2012, Brisbane, Australia (2012)

Kampouridis, M., Glover, T., Rais Shaghaghi, A., Tsang, E., "Deciding the optimal roll-out plan for the deployment of fiber optic networks", Engineering Optimization (under review)

### **Conference Presentations**

Jan 2011 winter School in Network Theory and Applications, Warwick Mathematics Institute, Poster Presentation: "Financial Network Contagion"

Feb 10 CCFEA Workshop 2010, Title of the Talk: Large-scale Agent-based Model of Financial Systems (Financial Contagion)

Jun 09, Birkbeck College(University of London), COMISEF Fellows Workshop, Title of the talk: CDS Networks: Too Interconnected to Fail

Jul 09, Université de la méditerranée - Aix Marseille II, (Financial market Microstructure and Contagion Summer School) Title of the talk: "Contagion Pricing Model for CMOs (Collateralized Mortgage Obligations): An Agent Based Approach"

### **SKILLS**

#### **Computers**

**Programming Languages:** Java, C, C++, JSP, SQL, XML

**Software:** Matlab, Stata, Excel, L<sup>A</sup>T<sub>E</sub>X, Pajek

**Other:** Eclipse, Eclipse Rich Client Platform , JAS, JASA, JUNG

#### **Languages**

**English:** Excellent

**Persian:** Native

### **ACADEMIC REFERENCES**

#### **Professor Sheri Markose**

Professor of Economics Department of Economics  
University of Essex  
Wivenhoe Park  
Colchester CO4 3SQ, United Kingdom  
Telephone: +44 (0) 1206 87 2742  
Email: scher@essex.ac.uk

#### **Professor Edward Tsang**

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