

Ali Habibnia

Virginia Tech

Department of Economics
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Education

- 2017 Ph.D. in Statistics, London School of Economics
- 2012 M.S. in Quantitative Finance, Bayes (Cass) Business School
- 2010 M.S. in Economics, University of Tehran
- 2007 B.S. in Economics, University of Tehran

Areas of research interest

Big Data Econometrics • Nonlinear Time series Analysis • Forecasting • Deep Learning
Quantum Machine learning • Computational Finance • Financial Network Analysis

Current Appointment

- 2018- Assistant Professor, Department of Economics, Virginia Tech, USA
- 2018- Assistant Professor, Computational Modeling & Data Analytics, College of Science, Virginia Tech, USA
- 2020- Affiliated Faculty in Deep Learning, VT India Center for Advanced Research and Education
- 2022- Affiliated Faculty, The Kellogg Center for Philosophy, Politics, and Economics

Past appointments

- 2017-2019 Director, *Dataism Limited, UK*
- 2017 Advisor for Macro Planning, *Ministry of Economic Affairs and Finance, Iran*
- 2012-2017 Research Fellow, *LSE Systemic Risk Centre, UK*
- 2012-2017 Research Fellow, *LSE Time Series and Statistical Learning Group, UK*
- 2016-2018 Scientific Chair of Big Data Economics, *Tehran Institute of Advanced Studies, Iran*
- 2015 Founding member of *Tehran Institute of Advanced Studies (TeIAS), Iran*
- 2013 Quantitative Research Analyst, *Pantheon Ventures, UK*
- 2008-2011 Head of Equity Market & Research Department, *Rahbord Investment Co, Iran*
- 2009-2010 Derivatives Trading Strategist, *Wise Enterprises FZCO, UAE*
- 2009-2010 Stock Market Analyst Intern, *Nikan Capital, Iran*

Grants, honors & awards

- 2022 Kellogg Center PPE Research Fellowship for “The History and New Trends of Measuring Dependence: From Bayes, Galton, and Pearson to the 21st Century”
- 2021 Lay Nam Chang Dean’s Discovery Fund for “Deep Learning for Non-linear Common-factor Modeling and Forecasting in Economics”, with Russell J. Hewetta & Dawson Miller (VT Mathematics).

- 2015 Highly commended research prize, LSE Research Festival
- 2014 Doctoral Fellowship, ESRC & LSE Systemic Risk Centre
- 2012 PhD Scholarship, LSE Department of Statistics
- 2010 Recognized as a Scientific Elite, Iran National Elites Foundation
- 2007 Recognized as an Exceptional Talent, Iran National Organization of Exceptional Talents

Publications & Resources

- 2021 Habibnia A, Maasoumi E. “Forecasting in Big Data Environments: An Adaptable and Automated Shrinkage Estimation of Neural Networks (AAShNet)”, *Journal of Quantitative Economics* 19:363-381 01 Dec 2021
- 2018 Habibnia, A, Rahimikia, E. “Nonlinearity test for Principal Component Analysis: A MATLAB code”, MathWorks
- 2017 Etesami, J, Habibnia, A and Kiyavash, N. “Econometric modeling of systemic risk: going beyond pairwise comparison and allowing for nonlinearity”, SRC Discussion Paper (No. 66). Systemic Risk Centre, The London School of Economics and Political Science, London, UK.
- 2017 “MATLAB Tutorial for Data Science” (with E. Rahimikia), MathWorks
- 2017 “Essays in High-dimensional Nonlinear Time Series Analysis”, PhD thesis, Available at etheses.lse.ac.uk/3485/
- 2012 “Forecasting Volatility in Financial Markets by Introducing a GA-Assisted SVR-Garch Model”, Master thesis, Available at SSRN 2144922
- 2011 “Mathematical Models For Decision Making And Forecasting On Euro-Yen In Foreign Exchange Market” (with A. Haeri and M. Rabbani), *Journal of Iranian Economic Review*, Article 4, Volume 16, Issue 30, Page 67-91
- 2010 “Forecasting the World Gold Price Using Optimized Neuro-Fuzzy with Genetic Algorithm (Ga-Anfis) and Smooth Transition Regression with Long Memory (Fi-Star) Modelling”, Master thesis, Available at SSRN 2010545
- 2009 Book chapter, *Financial Economics I*, Ghadir Mahdavi, 2009, chapter 5 (Modern Portfolio Theory), Published by Iran University of Economic Science

WORKING PAPERS

- “Quantum Computing Solutions for Econometrics” *with Abolfazl Bayat*.
- “Nonlinear Forecasting Using a Large Number of Predictors: A Deep Learning Factor Model Approach”.
- “A Review Paper of Past, Present and Future of Testing for Nonlinearity in Time Series”
- “Do Blockchain-Based Assets Contribute to financial systemic risk?”.
- “New simulation methods in Econometrics”.
- “Testing for neglected nonlinearity in high-dimensional time series models: A deep neural network approach”.
- “Nonlinear Macroeconomic Forecasting: A Deep Nowcasting Approach”.
- “Policy-driven Machine Learning Objective Functions for Predictive Analysis”.

Teaching

2021-	Data Science for Quantitative Finance (ECON 4984/CMDA 4984), <i>Virginia Tech</i>
2021-	Machine & Deep Learning from Theory to Practice (Module for M.Tech Data Science), <i>NMIMS</i>
2019-	Adv Big Data Economics (ECON 5984), <i>Virginia Tech</i>
2019-	Big Data Economics (ECON 4984), <i>Virginia Tech</i>
2019-	Quantitative Economics with Python (ECON 4984), <i>Virginia Tech</i>
2019-	Machine Learning & Data Classifiers (C7: module for program In Business Analytics), <i>Virginia Tech</i>
2018	Linear Algebra & Probability for Machine Learning in Python, <i>Tehran Stock Exchange</i>
2018	Time Series Forecasting with Python, <i>Tehran Stock Exchange</i>
2017	Algorithmic Trading in Python, <i>Tehran Stock Exchange</i>
2017	Deep Learning & Machine Learning Applied to Trading, <i>Tehran Stock Exchange</i>
2014/15	Factor Models in Time Series, <i>Methods Summer Programme, London School of Economics</i>
2014/15	Time Series Forecasting (ST304), Applied Regression with R (ST211), <i>London School of Economics</i>
2015	Econometrics of Monetary Policy (postgraduate), <i>Khatam University</i>
2012/13	Elementary Statistical Theory (ST102), Quantitative Methods (ST107), <i>London School of Economics</i>
2013	Global Business Environment (MBA Course), <i>London Business School</i>
2012/15	Machine Learning Applied to Finance (graduate), <i>University of Tehran</i>
2008-2016	Technical Analysis, <i>More than 20 times in various universities and financial institutions</i>
2008-2010	Econometrics (graduate), Macroeconomics I & II (undergraduate), <i>University of Tehran</i> .

Invited talks

2021	Information Theory & Financial Network Analysis, <i>University of Tehran, Dept. of Economics</i> Shrinkage Estimation of Neural Networks, <i>41st international symposium on forecasting</i>
2020	Machine Learning for Econometricians, <i>North Carolina State University, Dept. of Economics</i>
2019	Adaptable and Automated Shrinkage Estimation of Neural Networks (AAShNet), <i>Stanford Institute for Theoretical Economics – Asset Pricing Theory and Computation Summer Workshop</i>
2019	Big Data and Machine Learning for Policymaking, <i>International Monetary Fund, SPR Department</i>
2018	Introduction and Overview of Applications of Artificial Intelligence and Machine Learning in Scientific Research, <i>Virginia Tech</i>
2018	Financial Time Series Analysis: Deep Learning Approach, <i>MathWorks Computational Finance</i>
2018	Text Mining & Sentiment Analysis in Trading, <i>Tehran Stock Exchange TSE</i>
2016	Machine Learning for Economic and Financial Forecasting, <i>The Technical Analyst</i>
2013	Foreign Exchange Rate Risk Measurement and Management, <i>IDB</i>
2012	Time Series Forecasting using Wavelet Kernel Support Vector Machine, <i>LSE</i>

Referee

Journal of Business and Economic Statistics, Econometric Reviews, Econometrics, International Journal of Forecasting, Proceedings of the National Academy of Sciences (PNAS), Risks, Entropy, Economic Modelling, Journal of Economic Behavior and Organization.

Supervision

Brian D'ORAZIO (PH.D. co-advisor), Economics, Virginia Tech
Mohammad Mahdi BANASAZ (PhD co-advisor), Economics, Virginia Tech
Mohsen Saffar (PH.D. committee), Electrical and Computer Engineering, University of Tehran
Abdolmahdi Bagheri (PH.D. committee), Electrical and Computer Engineering, University of Tehran

Dawson Miller (M.S. co-advisor), Department of Mathematics, Virginia Tech
Mahsa Rajabi (PH.D. 2017), Electrical & Control Engineering, K.N.Toosi University of Technology
Raheleh Shahrokhi (PH.D. 2017), Electrical Engineering, K.N.Toosi University of Technology
Emad Habibzadeh (M.S. 2016), Financial engineering, Khatam University
Fatemeh Ghasempour (M.S. 2016), Risk Management, Khatam University

Programming and Software

Languages: Python, R, MATLAB, C, Spark, PHP, HTML.

Econometric Packages: EViews, G@RCH, OX Metrics, Stata, JMulTi.

Financial Packages: Bloomberg Terminal, Thinkorswim, Binance, AmiBroker, MetaTrader.

Last updated: September 9, 2022