



## ***Hussein Eliasi***

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University of Birjand, Birjand, Iran*

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### **Public information:**

**Date of Birth:** 03-28-1979

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### **Educations:**

- B.S., 1996-01, Electrical Engineering, Ferdowsi University of Mashhad (FUM)  
Major: Control Engineering  
Thesis: "Adaptive Noise Cancellation and Control"  
Thesis grade: 19.5  
Total Average: 14.99  
Supervised by: Dr A. Khalouzadeh  
Special course in: Intelligent control, computer networks,  
A Special Course in: Electric Power Networks and High Voltage Posts (at MPC Office, Khorasan Region Electric Co, Mashhad).
- M.S., 2002-05 , Electrical Engineering/Nuclear Engineering, Amir Kabir University of Technology (AUT), Tehran  
Major: Reactor Engineering, Specialization in Control Systems  
Thesis: "Generalized Fuzzy Predictive Adaptive Control of a Nuclear Steam Generator".  
Thesis grade: 19  
Total Average: 17.2  
Supervised by: Dr. M. B. Menhaj & Dr. H. Davilou
- Ph.D., 2006-2011, Electrical Engineering/Nuclear Engineering, Amir Kabir University of Technology (AUT), Tehran  
Major: Robust Control, Model Predictive Control & Load Following by Power Plants  
Thesis: "Predictive Control for Nuclear Reactors in Load Following Operations"  
Thesis grade: A  
Total Average: 17.74  
Supervised by: Dr. M. B. Menhaj & Dr. H. Davilou

### **Research Fields:**

Nonlinear Dynamics Systems Identification, Robust Control, Parameter Optimization of Model Predictive Control, Predictive Control with Using Multi-agent Concepts and Load Following by Nuclear Power Plants

## **Industrial Interests:**

Automation technology, PLC programming, Field-Bus Designing and Industrial Large Scale Control by using Computer Networks

## **Research & Projects**

- 2005-06, “Design Crisis Intelligent Management for Gas Transporting Networks”, Automation & Artificial Intelligent Lab, AUT, Tehran.
- 2001, "Develop a Method for Active Vibration Control of Tall Buildings in Strong Earthquakes", Earthquake prediction group, Ferdowsi University, Mashhad.
- 2001, “Design an Active Noise Cancellation System for a High Voltage Transformer 63/20”, Bahar Power Distribution Station, Mashhad.
- 2000, “Develop an Interface Board for a CNC System”, CAD-CAM Lab, Ferdowsi University, Mashhad.
- 1999, “Design a data-base system for distributed high voltage posts of Khorasan State.”, Khorasan Region Electric Co., Mashhad.

## **Research Assistantship:**

- **University of Birjand, Birjand, Iran** **Fall 2017-Fall 2018**  
Consultant supervisor of Aerospace Engineering scientific society
- **University of Birjand, Birjand, Iran** **2011-2013**  
Supervisor of Shahed Robotic Team,
- **University of Birjand, Birjand, Iran** **Fall 2011-Fall 2012**  
Consultant supervisor of Electrical Engineering scientific society
- **Amir Kabir University of Technology, Tehran** **Spring 2006-2011**  
Robotic & Control Group, Computation Intelligence Lab, (Prof. M.B. Menhaj)
- **Amir Kabir University of Technology, Tehran** **Spring 2004-Fall 2006**  
Automation Lab, (Prof. M.B. Menhaj)
- **Ferdowsi University , Mashhad** **Spring 1998-Spring 2001**  
Robotic Team of Engineering Faculty of FUM, (Dr. Khademi)

## **Research Activities:**

- 2006- 2011, CI\_LS Research Group, Automation Lab, AUT.
- 2005- 2007, Cooperation with Dr. Menhaj in MSc. Thesis entitled: "Design a Predictive Controller and Performance Stability Analysis of Controller for a Polymerization Reactor", Moghaddam, University of Shahrood
- 1998-2001, Member of Robotic Team of Engineering Faculty, FUM.
- 1999, Member of Earthquake prediction group, FUM.

## **Lectures:**

- ✓ “Employment of Tactile Sensors for Grippers of Robots”, Ferdowsi University, Mashhad.
- ✓ “Importance of Noise Cancellation in Industrial Environments”, Ferdowsi University, Mashhad.
- ✓ “Active and Passive Noise Cancellation”, Ferdowsi University, Mashhad.
- ✓ “Stability Analysis for Natural Circulation type of Nuclear Reactors”, Amirkabir University of Technology, Tehran.
- ✓ “Employment of Computational Intelligence for Nuclear Power Plants”, Amirkabir University of Technology, Tehran
- ✓ “Analysis of Water Level Control Problem for Nuclear Steam Generators”, Amirkabir University of Technology, Tehran.
- ✓ “Application of Model Predictive Control for Industrial Plants”, Amirkabir University of Technology, Tehran.

- ✓ “Concerns on Load Following with PWR Power Plants”, Amirkabir University of Technology, Tehran.
- ✓ “Model Predictive and Identification”, Electrical and Computer Engineering Faculty, Tehran University, Tehran.
- ✓ “Robust Adaptive Control: A survey”, Department of Mechanical Engineering, Amirkabir University of Technology, Tehran.
- ✓ “Robust Nonlinear Predictive Control: Robustness and Stability”, Department of Electrical Engineering, Amirkabir University of Technology, Tehran.
- ✓ “A New Design of Robust Nonlinear Observer”, Department of Electrical Engineering, Amirkabir University of Technology, Tehran.
- ✓ “History of Control Engineering”, Faculty of Electrical and Computer Engineering, University of Birjand, Birjand.

## Publication:

### Conference Papers:

- [1]. H. Eliasi and A. Khaloozadeh, “*Active Noise Cancellation for High Voltage Transformer with LMS and FXLMS Algorithm*”, Iranian Electrical Engineers Conference, Apr. 2004. (Farsi)
- [2]. A. Abdolalipoor, H. Davilou, H. Eliasi, “*Analytical Study of Single-Phase Rectangular Thermosyphon Loops*”, 2nd International Physics Conference, Tehran, Iran, Nov. 2004.
- [3]. A. Abdolalipoor, H. Davilou, H. Eliasi, “*Stability Analysis of Natural Circulation in a Closed Loop Cooling System*”, Nuclear Engineering Conference, Shiraz, Iran, Apr. 2005.
- [4]. H. Eliasi and H. Khalafi, “*Designing a Controller for Research Reactor of Tehran Based on Pole Placement Approach*”, Iran Nuclear Engineering Conference, Mashhad, Iran, May 2006. (Farsi)
- [5]. R. Khaniki, M.B. Menhaj and H. Eliasi, “*Generalized Predictive Control of Batch Polymerization Reactor*”, ICCISSE 2007, April 25-27, 2007.
- [6]. Z. Alavi, , M. B. Menhaj, H. Eliasi, "Model Reference Adaptive Control of a Nuclear Reactor", Proc. IEEE Conf. International Conference on Mechatronics and Automation, August 9 - 12, Changchun, China, 2009.
- [7]. R. Barzamini, H. A. Talebi, A. R. Yazdizadeh, H. Eliasi, "A New Adaptive Control of a Double-electromagnet Suspension System", 4th International Symposium on Communications, Control and Signal Processing, Limassol, Cyprus, 3-5 March 2010.
- [8]. S. Jafari, H. Abdolmohammadi, H. Eliasi, M. B. Menhaj, “A new intelligent data mining method for modeling”, 16th Iranian Conference on Electrical Engineering (ICEE2019), Tehran, Iran, 2008. (Farsi)
- [9]. R. Shirkhani, A. Ardeshir, H. Eliasi, H. Karami, “An Intelligent Model to Predict the Width and Depth of Sand Bed Rivers Using Neural Networks”, 2th Iranian Conference on comprehensive water resources management, Kerman, Iran, 2010 (Farsi).
- [10]. F. Shafiee, V. Molaiee, M. Farshad, H. Eliasi, “Design of a fuzzy controller for energy management in a parallel hybrid Electric Vehicle”, 11th Conference on Electrical Engineering, Iranian Student, 2012.
- [11]. M. Ghafoorian, N. Sargolzaiee, H. Eliasi, “Designing a Distributed Supervised Model Based Predictive Control Algorithm to Improve Traffic Control”, Fifth Iranian National Conference on Electrical and Electronics Engineering, Gonabad, Iran, 2013.
- [12]. H. Javaherifard, H. R. Najafi, H. Eliasi, “Types of Configuration and Model Predictive Controller Based on Photovoltaic Inverter”, 4th Annual Clean Energy Conference (ACEC2014), Kerman, Iran, 2014.
- [13]. O. Maktabdar, M. A. Shamsinezhad, H. Eliasi, “The effect of reaction plate on performance of one-way linear induction motor at different speeds and frequencies using

- finite element method”, 9th Symposium on Advances in Science & Technology (9th SASTech 2014), Mashhad, Iran, 2014.
- [14]. O. Maktabdar, M. A. Shamsinezhad, H. Eliasi, “Investigation of performance of one-way linear induction motor at different frequencies and speeds using finite element method”, 9th Symposium on Advances in Science & Technology (9th SASTech 2014), Mashhad, Iran, 2014.
  - [15]. O. Maktabdar, M. A. Shamsinezhad, H. Eliasi, “Evaluation of Primary and Secondary Nucleus Gender Change on Performance of Unilateral Linear Induction Motor Using Finite Element Method”, 9th Symposium on Advances in Science & Technology (9th SASTech 2014), Mashhad, Iran, 2014.
  - [16]. H. Javaherifard, H. R. Najafi, H. Eliasi, “Direct Predictive Control Strategy of Active and Reactive Power Applied to AC / DC / AC Converter in a Wind Turbine-Based Two-Power Induction Generator”, 4th Annual Clean Energy Conference (ACEC2014), Kerman, Iran, 2014.
  - [17]. A. Behzadpour, H. Eliasi, “Fuzzy based controller design for parallel hybrid electric vehicle: An approach to fuel consumption and emission reduction”, 2nd International Conference on Knowledge-Based Engineering and Innovation (KBEI), Tehran, Iran, 2015.
  - [18]. H. Javaheri Fard, H. Najafi, H. Eliasi, “Design and Implementation of the Predictive Current Control Strategy in the Form of Laboratory on Single Phase Photovoltaic Grid-Connected Inverter Based on Microcontroller TMS320LF2407A”, 30th Power System Conference - Tehran, Iran, 2015.
  - [19]. H. Javaheri Fard, H. Najafi, H. Eliasi, “Implementation of Predictive Direct Control Strategy on Photovoltaic SystemDc/Ac Inverter by Accessing to Two Tunable Capabilities of Active and Reactive Powers and Minimize the Switching Frequency”, 30th Power System Conference - Tehran, Iran, 2015.
  - [20]. S. Rahmati, H. Eliasi, V. Naghavi, Y. Koohmaskan, “Robust Predictive Control of Discrete LTI Systems in the Presence of Nonlinear Bounded Disturbances”, The 5th International Conference on Control, Instrumentation, and Automation (ICCIA2017), Shiraz, Iran, 2017.
  - [21]. H. Eliasi, “Supervisory control based on dynamic fuzzy cognitive maps for a complex dynamic system”, 6th Iranian Joint Congress on Fuzzy and Intelligent Systems, Kerman, Iran, 2018.
  - [22]. M. Kiyani, H. Eliasi and M. A. Shamsinezhad, "A new adaptive control method for three phase UPS inverter", 26<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE2018), Mashhad, Iran, 2018.
  - [23]. M. Pakdel, H. Eliasi and M. Ebadian, "Dynamic Sliding Mode Control for Power Flow Control with UPFC," 26<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE2018), Mashhad, Iran, 2018.
  - [24]. M. Toghyani, H. Eliasi, “Voltage and current control of an island microgrid using high order sliding mode control”, The 4th National Conference of New Achievements in Electric, Computer, and Industrial Engineering, Esfarayen, Iran, 2018.
  - [25]. H. Eliasi, “Fuzzy-Adaptive Receding Horizon Control of a Nonlinear Dynamic System”, 7th Iranian Joint Congress on Fuzzy and Intelligent Systems, Bojnord, Iran, 2019.
  - [26]. F. Azizi, H. Eliasi, S. R. Goldani, “Short-term electricity price prediction using a hybrid model based on neural network Metaheuristic algorithm”, 7th Iranian Joint Congress on Fuzzy and Intelligent Systems, Bojnord, Iran, 2019.
  - [27]. S. Rahmati, H. Eliasi, Y. Koohmaskan, “Distributed Robust Predictive Control of a Class of Large Scale Systems in the Presence of Nonlinear Internal Connections”, 27th Iranian Conference on Electrical Engineering (ICEE2019), Yazd, Iran, 2019.
  - [28]. M. Toghiani, H. Eliasi, “Terminal Sliding Mode Controller for Voltage Control of Island Microgrid”, 27th Iranian Conference on Electrical Engineering (ICEE2019), Yazd, Iran, 2019.
  - [29]. F. Azizi, H. Eliasi, S. R. Goldani, “Providing a Model for Finding Early Weighting Coefficients and Optimal Neural Network Structure for Simultaneous Forecasting of

- Electricity Price”, 27th Iranian Conference on Electrical Engineering (ICEE2019), yazd, Iran, 2019.
- [30]. M. Toghiani, H. Eliasi, “Fast nonsingular terminal sliding mode controller for voltage control of an island microgrid”, International Conference on Renewable Energy and Distributed Generation of Iran (ICREDG 2019), Tehran, Iran, 2019.

#### **Journal Papers:**

- [1]. H. Eliasi, H. Davilu, M.B. Menhaj, “Adaptive Fuzzy Model Based Predictive Control of Nuclear Steam Generators”, Nuclear Engineering and Design, vol. 237, pp. 668–676, 2007.
- [2]. R. M. Khaniki, M. B. Menhaj, H. Eliasi, Generalized Predictive Control of Batch Polymerization Reactor. World Academy of Science, Engineering and Technology, vol. 1, pp. 51-56, 2008.
- [3]. S. Jafari, H. R. Abdolmohammadi, H. Eliasi, M. B. Menhaj, M. R. Rajati, "A Novel Intelligent Method of Experiment Design for Modeling", Journal of Applied Sciences, 2008.
- [4]. R. Barzamini, A. R. Yazdizadeh, H. A. Talebi, H. Eliasi, "Adaptive Control of a Double-Electromagnet Suspension System", Journal of Applied Sciences, Vol. 9, No. 7, pp. 1201-1214, 2009.
- [5]. H. Eliasi, M. B. Menhaj, H. Davilu, " Robust Nonlinear Model Predictive Control for Nuclear Power Plants in Load Following Operations with Bounded Xenon Oscillations," Nuclear Engineering and Design, vol. 241, pp. 533-543, 2011.
- [6]. H. Eliasi, M. B. Menhaj, H. Davilu, "Robust Nonlinear Model Predictive Control for a PWR Nuclear Power Plant," Progress in Nuclear Energy, vol. 54, no.1, 2012.
- [7]. H. Javaheri Fard, H. Najafi, H. Eliasi, “Design and Implementation of the Predictive Current Control Strategy in the Single Phase Photovoltaic Grid-Connected Inverter Based on Microcontroller”, International Journal of Smart Electrical Engineering, Vol.4, No.3, pp. 161-167, 2015.
- [8]. H. Javaheri Fard, H. Najafi, H. Eliasi, “Active and reactive power control via currents of a rotor’s d and q components with nonlinear predictive control strategy in a doubly fed induction generator based on wind power system”, Energy Equipment and Systems, vol. 3, no. 2, pp. 143-157, 2015.
- [9]. H. Javaheri Fard, H. Najafi, H. Eliasi, “Novel design and simulation of predictive power controller for a doubly-fed induction generator using rotor current in a micro-hydropower plant”, Energy Equipment and Systems, vol. 5, no. 1, pp. 43-58, 2017.
- [10]. S. H Zahiri; M Nasiri; R Havangi; H. Eliasi, “Design an Optimized Nonlinear Integration Filter based on Particle Swarm Optimization algorithm for INS/GPS navigation system”, Iranian Journal of Marine Technology, vol. 5, No. 3, pp. 1-17, 2018.
- [11]. R. Zahmati, R. Shariatinasab, H. Eliasi, “A Method for the Calculation of Frequency-Dependent Transmission-Line Smooth Transformation Matrix”, Tabriz Journal of Electrical Engineering, Article in Press.
- [12]. H. Eliasi, M. Ghoreyshi, “A new control strategy for energy management in Plug-in Hybrid Electric Vehicles based on Fuzzy Cognitive Maps”, Energy Engineering & Management, Article in Press.
- [13]. H. Eliasi, “Design an anti-windup controller for a PWR power-level control in the presence of control rod speed saturation”, Annals of Nuclear Energy, vol. 132, pp. 415-426, 2019.

- [14]. S. Rahmati, H. Eliasi, "Robust Model Predictive Control for a Class of Discrete Nonlinear systems", Journal of Nonlinear Systems in Electrical Engineering, Article in Press.

**Books:**

- [1]. H. Eliasi, "*A Collection of Nuclear Engineering Questions for M.Sc. Admission Exam*", Azadeh Publisher, Tehran, Iran, May 2003.