

Amin Ramezani

Assistant Professor

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Education

- ◆ B.S., Electrical Engineering, Shahid Beheshti University of Tehran, Tehran, IRAN, 1997 – 2001.
- ◆ M.S., Electrical Engineering, Sharif University of Technology, Tehran, IRAN, 2001 – 2003.
- ◆ Ph.D., Electrical Engineering, University of Tehran, Tehran, IRAN, 2001-2011.

Research Interests

- **Process Control Analysis and Design**
- Process Dynamic Theory and Analysis Problem
- Process Modeling and Identification
- Process Monitoring and Process Assignment
- Fault Tolerant Control Systems
- Model-Based Predictive Process Control Systems
- Adaptive Process Control Systems
- **Automation and Instrumentation Analysis and Design**
- Distributed Sensor Network Analysis, Design and Applications
- Sensor Data Processing and Fusion
- Instrument Technology
- Smart Sensing Systems
- Safety Instrumented Systems
- MicroElectroMechanical Instruments (MEMs)
- Industrial Data Network (Oil and Gas, Vehicle, Cement, Food, Drugs, Metal)
- Distributed Control Systems
- Networked Control Systems
- Tele-Operation Systems
- **Discrete Event Systems**
- Theory and Analysis
- Hybrid Systems Modeling and Control
- Applications in
- ICT,
- Manufacturing ,
- Traffic,
- Power Generation
- Industrial Process modeling and Control
- **Stochastic Process Control**
- Theory and Analysis
- Identification and Estimation

- Optimal and Linear Stochastic Process Control
- Minimum Variance Process Control
- Prediction and Filtering

Authored Books



Selected Journal Papers

- 1- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ashkan Rahimi Kian, Babak Najjar Aarabi, "Segmented Vehicle Freeway Characterization via Recursive and Batch ML Estimation of Inaccurate Observation based on Sequential Monte Carlo and Particle Approaches", IEEE Transaction on Intelligent Transportation Systems (Second revised- ISI Index).
- 2- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ashkan Rahimi Kian, Babak Najjar Aarabi, "Traffic Flow and Mean Traffic Speed Mixture Model Prediction in Freeway Networks Using Consensus Filtering and Distributed Estimation Approaches", IEEE Transaction on Intelligent Transportation Systems (Second revised-ISI Index).
- 3- Amin Ramezani, Behzad Moshiri, Ehsan Jafari, Baher Abdulhai, Ashkan Rahimi Kian," The Estimation of Free Flow Speed and Critical Density in a Segmented Freeway Using Missing Data and Monte Carlo Based EM Algorithm ", IET Journal of Control Theory and Application, 2011, Vol. 5, Iss. 1, pp. 123-130 (ISI Index).
- 4- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ashkan Rahimi Kian," The Design of an Adaptive Maximum Likelihood Estimator for Key Parameters in Macroscopic Traffic Flow Model Based on Expectation Maximum Algorithm", IET Journal of Science, Measurement and Technology, doi:10.1049/iet-smt.2010.0122, To be Published in 2011 (ISI Index).
- 5- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ashkan Rahimi Kian, Babak Najjar Aarabi, " Distributed Maximum Likelihood Estimation for Flow and Speed Density Prediction in Distributed Traffic Detectors with Gaussian Mixture Model Assumption ," IET Journal of Intelligent Transportation Systems (Accepted to be published in 2011-ISI Index).
- 6- Amin Ramezani, Behzad Moshiri, Ehsan Jafari, Baher Abdulhai, Ashkan Rahimi Kian," Vehicle Freeway Characterization via Recursive and Batch Optimal Filtering of Inaccurate Observation based on Particle Computation Methods"IST Transaction on Control Engineering: Theory and Application, Vol. 2, No. No. 3(1), ISSN 1913-8342, pp. 10-21
- 7- Amin Ramezani, Behzad Moshiri, Ehsan Jafari, Baher Abdulhai, Ashkan Rahimi Kian," On-Line Traffic Parameter Estimation Using Split-Data Maximum Likelihood Approaches based on EM Algorithms for Intelligent Transportation Systems" , IST Transaction on Applied Mathematic- Modeling and Simulation, Vol. 1, No. 1 (2), ISSN 1913-8342, pp. 19-26
- 8- Ehsan Jafari, Behzad Moshiri, Karim Salahshoor, Amin Ramezani," Adaptive Freeway Traffic State Estimator Based on the Fusion of Model Parameters' Estimates", JOURNAL OF CONTROL, VOL. 4, NO. 1, Spring 2010.
- 9- A. Ashoori, B. Moshiri, A. Ramezani, M. R. Bakhtiari, and A. Khaki-Sedigh, "PH Control of Penicillin Fermentation Process using Predictive Approach," Systems-Science Journal , 35(1), pages 65-74, 2009 (ISI Index).

Selected Conference Papers

- 1- Amin Ramezani, Behzad Moshiri," The Traffic Condition Likelihood Extraction Using Incomplete Observation in Distributed Traffic Loop Detectors ", 2011 14th International IEEE Conference on Intelligent Transportation Systems - (ITSC 2011), USA05 Oct - 07 Oct 2011, The George Washington University, Washington, DC.
- 2- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ehsan Jafari, "Vehicle Freeway Characterization via Recursive and Batch Optimal Filtering of Inaccurate Observation based on Particle Computation Methods", 12th International Conference on Computer Modelling and Simulation (UKSim 2010), IEEE Computer Society, 24-26 March 2010 Cambridge, United Kingdom, pp.392-399.
- 3- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ehsan Jafari, "On-Line Traffic Flow Parameter Estimation in Intelligent Transportation Systems using Data Augmentation and EM Type Algorithms", 3rd International Conference on Intelligent and Advanced Systems Program (ICIAS 2010), 15-17 June 2010, Kuala Lumpur, Malaysia.
- 4- Amin Ramezani, Behzad Moshiri," Distributed Traffic State Estimation and Classification Using Consensus-Based Expectation Maximization Algorithm in spatially deployed traffic detectors" The 2011 International Conference on

- Computers, Communications, Control and Automation (CCCCA 2011), HongKong, China, February 20-21, 2011
Ehsan Jafari, Behzad Moshiri,
- 5- Ehsan Jafari, Amin Ramezani, Baher Abdulhai,” Adaptive Freeway Traffic State Estimator Based on Measurement Fusion Method”, 45th Conference on Transportation by Canadian Transportation Research Forum (CTRF 2010), pp. 799-814, Toronto, Canada, 30 May-2 June, 2010.
 - 6- Amin Ramezani, Behzad Moshiri, Baher Abdulhai, Ehsan Jafari, “On-Line Traffic Flow Parameter Estimation in Intelligent Transportation Systems using Data Augmentation and EM Type Algorithms”, 3rd International Conference on Intelligent and Advanced Systems Program (ICIAS 2010), 15-17 June 2010, Kuala Lumpur, Malaysia.
 - 7- Amin Ramezani, Mohamad Reza Andalibizadeh, Soheil Bahrampour, Hamed Ramezani, Behzad Moshiri,” Fusion Based Quality Control Using Intelligent Estimation and Modeling in Industrial Process Control”, Asia International Conference on Modeling and Simulation(AICMS07), December 2007: 722-727
 - 8- Amin Ramezani, Mohamad Reza Andalibizadeh, Soheil Bahrampour, Hamed Ramezani, Behzad Moshiri,” Select Reliable Strategy in Multi-Agent Systems Using Fuzzy Logic-Based Fusion” Second Asia International Conference on Modeling and Simulation(AICMS07), December 2007:13-17
 - 9- Amin Ramezani, Hamed Ramezani, Behzad Moshiri,” The Kalman Filter Information Fusion for Cement Mill Control Based on Local Linear Neuro-Fuzzy Model”4th International Conference on Innovation in Information Technology (IIT’07), Dubai, November18-20, 2007.
 - 10- Amin Ramezani, Mehdi Ahmadi, “Design of Fuzzy Programmable Logic Controller”, The 8th International Conference of Electrical Engineering, Kerman, Iran (September, 2005).
 - 11- Amin Ramezani, Mostafa Sardari, Alireza Eslami,” Fuzzy Logic Controller Design Using VHDL & FPGA”, The 8th International Conference of Electrical Engineering, Kerman, Iran (September, 2005).
 - 12- Amin Ramezani, Davood Rahimi,” Analysis of Chaos Behavior in Aviation Systems ”, The 8th International Conference of Electrical Engineering, Kerman, Iran (September, 2005).
 - 13- Majid Ghadimi, Amin Ramezani, Mohammad Mehranfar,” Soft Starter Modeling for an Induction Drive Starting Study in an Industrial Plant”, UKSim 5th European Modelling Symposium on Mathematical Modeling and Computer Simulation, EMS 2011, Madrid, 16 – 18 November 2011.
 - 14- Majid Ghadimi, Amin Ramezani, Kamyar Bozorgi, “Energy Efficiency and Power Quality Optimization Using a Modified Capacitor Bank: An Industrial Case Study”, 3rd European Modeling Symposium, EMS2009, Athens, Greece, 25-27 November 2009.
 - 15- Ehsan Asgarian, M-Hossein Moeinzadeh, Sara Sharifian-R, Amir Najafi-A, Amin Ramezani, Jafar Habibi, Javad Mohammadzadeh,” Solving MEC model of haplotype reconstruction using information fusion”, single greedy and parallel clustering approaches. AICCSA 2008: 15-19
 - 16- S. Bahrampour, S. Ghorbanpour, Amin Ramezani, “Combination of Breeding Swarm Optimization and Backpropagation Algorithm for Training Recurrent Fuzzy Neural network” Presented in 5th International Conference on Informatics in control, Automation and Robotics (ICINCO 2008), May 11-15, 2008. Funchal, Madeira-Portugal.
 - 17- Ahmad Ashoori,, B. Moshiri, Amin Ramezani, Mohammad Reza Bakhtiyari, Ali Khaki-Sedigh, “PH Control of a FED-Batch Fermentation Process USING Model Predictive Control”, 14th International Congress on Cybernetics and Systems of WOSC, Wroclaw, Poland, September 9-12, 2008.

Theses Supervision

- Advising and co-advising about 50 Master's theses and Ph.D. dissertations in the mentioned research fields.

Courses Taught

- ◆ Fault Tolerant Control Systems
- ◆ Model-Based Predictive Control Systems
- ◆ Stochastic Process Control
- ◆ Discrete Event Systems
- ◆ Advanced Instrumentation Systems
- ◆ Advanced Industrial/Process Control

- ◆ Robotics: Mechanic and Control
- ◆ Robust Control Systems
- ◆ Adaptive Control Systems

National and Industrial Research Projects

- ◆ RISC processor Design and Implementation for telecommunication Applications
Iran Telecommunication Research Center, 2001
- ◆ Programmable Logic Controller Design and Implementation in PVC Injection
Intelligent Control Systems Co., 2001-2003
- ◆ Intelligent Control Systems Application in Cement Industry
Iranian Company for Engineering Services in Cement Process., 2003-2005
- ◆ Preventative Maintenance and Condition Monitoring in Electrical Equipment for POGC
Ayandeh tadbir Control Co., 2008-2009
- ◆ Preventative Maintenance based on Data Mining for Intelligent Transportation Systems
Tehran Traffic Control Co., 2010
- ◆ National Standard for Control Valves in Process Control
Industrial Standard and Research Organization of Iran, 2010-2011
- ◆ Feasible Study for Using Foundation Fieldbus Control System in WTP of the DAMAVAND combined cycle power plant
University of Tehran, 2010-2012

Honors

- ◆ 2nd rank in the Student Scientific Olympiad, 1994
- ◆ 150th rank in the national wide university entrance exam (BS level), 1997
- ◆ 13rd rank in the national wide university entrance exam (MS level), 2001
- ◆ 1st rank in BS graduated students in Shahid Beheshti University, 2001 (17.46/20)
- ◆ 3rd rank in MS graduated student in Sharif University of Technology, 2003 (17.09/20)
- ◆ Best Paper presented in Canadian Transportation Research Forum, 2010
- ◆ IEEE member of Control Systems Society, 2004
- ◆ IEEE member of Industrial Applications Society, 2004
- ◆ IEEE member of Instrumentation and Measurement Society, 2004
- ◆ Member of Iranian Institute of Montage Design and Engineering, 2009
- ◆ Chair of “Signal Processing and Telecommunication Systems” Panel in C4I 2010
- ◆ Head of Student Branch in C4I 2010.

Work Experiences

- ◆ Consultant Engineer,
TAVANIR Co. Ahwaz, Khozestan, Iran, 2001-2002
- ◆ Electronic Design Engineer
The Electronic Design Research Lab, Tehran, Iran, 2002,
- ◆ Process Control Engineer
Intelligent Control Systems Co. Tehran, Iran, 2002-2004
- ◆ Process Control Engineer
Iranian Company for Engineering Services in Cement Process., 2003-2011

Skills and Workshops

- “1st Condition Monitoring and Fault Diagnosis Seminar and Workshop (CMFD 2007)”, Sharif University of Technology, Condition Monitoring Center, 26-27 February 2007.
- “1st CNG Kits Technology Seminar and Workshop”, Iran Khodro Company, Training and Development Center, 10-11 March 2009.06.
- “14th International Congress of Cybernetics and Systems of WOSC”, Wroctaw University of Technology, Institute of Information Science and Engineering, September 9-12, 2008.
- “High Advanced Instruments in Cement and Metal Industry: E+H Company Introduction”, PATSA SANAT COMPANY, Tehran, Iran, 22 June 2010
- “Problem Solving Seminar”, MSI academy, Tehran, Iran, 22 April 2010.