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Saman Ebrahimi Bookani

personal

Sex: Male
Birth Date: 3 April 1983
Place of Birth : Bookan, Iran
Marital Status: Married

Education

University of Science and Research, Tehran, Iran
- Phd in Electrical Engineering –Control,2017

Shahrood University of technology, Shahrood-Iran
- M.S. in Electrical Engineering –Control, January 2009
  GPA: 18.46/20

Azad University of Orumiyeh, Orumiyeh-Iran
- B.S. Electrical Engineering -Communication,September 2005

Research Interests

- Nonlinear control
- Adaptive control
- Fuzzy control system
- Artificial neural networks
- Control and analysis of power systems
- Robot dynamics and control
- Discrete-time signal processing (DSP)
- Control of Stochastic processes
- Neural networks
- Fault detection and identification
- Control Allocation

Publications

- Saman Ebrahimi Boukani, Mohammad Javad Khosrowjerdi, Roya Amjadifard (2017) Terminal Sliding Mode Control Allocation for Nonlinear Systems. Canadian Journal of Electrical and Computer Engineering, Vol 40, Issue 3.

- Saman Ebrahimi Boukani, Mohammad Javad Khosrowjerdi, Roya Amjadifard (2017) Constrained control allocation for nonlinear systems with actuator failures or faults. Turkish Journal of Electrical Engineering & Computer Sciences. No 25,pp 3152-3163.

- Ebrahimi,Saman, Zarif, Mohammd hadad & Ahmadyan,Somayeh (2009) Vector control of Induction motor with Sliding mode Fuzzy controller Based on moving switching surface strategy. In:17th Iranian Conference on Electrical Engineering ICEE 2009_1982

- Sarghamish , Mehdi Aliagha , Ebrahimi, Saman (2011) Recursive Least Squares Fuzzy Modeling of Chemoresistive Gas Sensors for Drift Compensation. International Symposium on Innovations in Intelligent Systems and Applications, IEEE conference, June 15-18,2011,Istanbul,Turkey

- Ahmadyan, Somayeh,Ebrahimi, Saman (2011) enhancement of sliding mode control with incorporating fuzzy-sliding mode controller and controller with moving sliding surface for two-link robot manipulator. . International Symposium on Innovations in Intelligent Systems and Applications, IEEE conference, June 15-18,2011,Istanbul,Turkey

Teaching Experience

- **2006 until now:** Teaching Electronics engineering courses at Azad University(Bookan Branch)
- **2009 until now**: Teaching Electronics courses at Islamic Azad University (Mahabad Branch)

Teaching areas

- **Linear control systems**, Shahrood University of technology, Azad University (Mahabad Branch)
- **Optimal Control,** Azad University (Mahabad Branch) , Iran
- **Adaptive Control,** Azad University (Mahabad Branch) , Iran
- **Nonlinear Control,** Azad University (Mahabad Branch) , Iran
- **Electric Circuits**, Shahrood University of technology, Iran
- **Programmable Logic Controllers(PLC)**, Islamic Azad University(Bookan Branch), Iran
- **Instrumentation Sensors & transducers** , Islamic Azad University(Bookan Branch), Iran
- **Digital and analog communication systems** , Islamic Azad University(Bookan Branch), Iran
- **Transmission systems for communications** , Azad University (Mahabad Branch) , Iran
- **Industrial control** , Azad University (Mahabad Branch) , Iran

Languages

- Kurdish native speaker, Farsi (fluent), English(fluent)

Presentation

- **"Decentralized receding horizon control for large scale dynamically decoupled systems"**
  University of Science and Research, Tehran, Iran,2010
- **" advanced nonlinear control"**
  University of Science and Research, Tehran, Iran,2010
- **"fuzzy control systems** "
  Iran University of Science and Technology, Tehran,Iran, 2009
- **"Induction Motor Control "**
  Shahrood University of technology, Shahrood-Iran,2009
- **" Analysis of Multivariable control systems"**
  Shahrood University of technology, Shahrood-Iran,2008

Skills

- **Tools**:
  SPICE (HSpice, ORCAD), MATLAB & Simulink, Protel , Labview
- PLC programming

Honors and Memberships

.

- Phd Scholorship,Islamic Azad University(Mahabad Branch)
- Member of academic staff,EE Dept, Islamic Azad University(Mahabad Branch)
- Top graduate of Msc programme, Shahrood University of Technology
- Phd programme entry without entrance exam, this requiring high qualifications in Iran
- Ranked 500th among +12,000 participants in the nationwide entrance exam for Iranian universities toward M.Sc. degree in Electrical Engineering, winter 2005

PHD thesis Project

Design of Control Allocation Law with Sliding Mode Controller for a Class of Nonlinear Systems with Mismatched Uncertainties

This thesis has two main innovations. The first innovation includes the investigation of the tracking problem for a class of non-linear systems with unstable internal dynamics, control constraints and mismatched uncertainties. The proposed control strategy firstly includes finding the virtual control inputs by integral sliding mode control to guarantee the output tracking performance in the presence of mismatched uncertainties. Thereafter the virtual control signals are redistributed to the real control inputs by control allocation. Control allocation problem is solved by Lyapunov method that ensures the stability of the internal dynamics and satisfies control constraints. The second innovation of this thesis includes proposal of a combination of control allocation with terminal sliding mode control for management of faults/failures in actuators of non-linear systems. Control allocation problem is solved using a neural network which satisfies control constraints and during faults or failures redistributes the control signals to the healthy actuators. The proposed terminal sliding mode control ensures tracking and has finite converging time so that together with control allocation they guarantee the finite-time convergence of the closed-loop system.