ARCAI 2024 Special Session on "Anti-Disturbance Control Theory and Its Applications for Intelligent Mechatronic Systems"

Organized by

Principal Organizer(s): Jiankun Sun, Huiming Wang, and Xiangyu Wang

Principal Organizer(s):

Prof Jiankun Sun, sunjiankun@hust.edu.cn, Huazhong University of Science and Technology, Wuhan, China

Prof Huiming Wang, wanghm@cqupt.edu.cn, Chongqing University of Posts and Telecommunications, Chongqing 400065, China

Prof Xiangyu Wang, w.x.y@seu.edu.cn, Southeast University, Nanjing, China

Call for Papers:

Various disturbances widely exist in modern industrial control systems and bring adverse effects to the performance of control systems, including disturbances/uncertainties from controlled plants and external environments. Intelligent mechatronic systems (IMS) are of great significance in today's world and are inevitably affected by disturbances. In this context, anti-disturbance control theory has attracted considerable attention over the past decades. The development of advanced anti-disturbance control algorithms has great importance in improving the control precision and of course the production efficiency of intelligent mechatronic systems. Therefore, this special session seeks to highlight and present the growing interest in emerging research and development in anti-disturbance control theory and its applications for intelligent mechatronic systems.

Topics of interest include, but are not limited to:

o Disturbance Estimation and Compensation methods
o Disturbed Nonlinear Systems
o Multi-Agent Systems with Disturbances
o Challenges Posed by Various Disturbances in IMS
o Advanced Anti-Disturbance Control for IMS
o Disturbance Observers for High-Precision Control in IMS
o Emerging Technologies: AI-Driven Anti-Disturbance Control
o Machine Learning-based Anti-Disturbance Control for IMS Optimization
o Model-Based and Model-Free Approaches in Anti-Disturbance Control
o Robust Control Methods such as Sliding Mode Control
o Disturbance rejection in industrial robotics: Case studies and best practices
o Future Directions in Anti-Disturbance Control

Accepted and presented papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements and indexed by EI Compendex and Scopus. Selected papers will be invited to SCI Journal Special Issues.