The 2013 International Conference on Advanced Mechatronic Systems (ICAMechS 2013)
Luoyang, China, Sept. 25 - 27, 2013

Special session on : "Advanced Control Systems Design - Theory and Applications"

Session Organizers:

- Doctor Yoshihiro Ohnishi
  ohnishi@ehime-u.ac.jp
  Faculty of Education, Ehime University
  3 Bunkyo-cho, Matsuyama-shi, Ehime 790-8577, Japan
- Doctor Takao Sato
  tsato@eng.u-hyogo.ac.jp
  Graduate School of Engineering, University of Hyogo
  2167 Shosha Himeji, Hyogo, 671-2280, Japan

Session Theme and Objective:

In the recent decades, a great deal of attention has been attracted to advanced control system design for uncertain and complex practical systems due to many kinds of requirement for capability of the control on the improvement of the control performance, the costs performance and safety of the control system. With this in mind, several novel and advanced ideas in control methodology including adaptive, self-tuning, optimal and data-driven controls have been proposed and tried to apply to the practical systems. The aim of this session is to present the new research ideas and results on advanced controls which deal with control problems for uncertain and/or complex controlled systems. The results on theory and applications of advanced control methods will be shown in order to demonstrate the applicability and efficiency of the proposed advanced control strategies. Moreover, future research interests in advanced controls including adaptive type control strategy will be promoted through discussions among the attendants of this session.

The proposed special session consists of the following papers.

1. **Title:** Design of a Data-Oriented GPC
   Author: Zhe Guan*, Shin Wakitani* and Toru Yamamoto*
   Affiliation: *Hiroshima University
2. **Title:** Comparison of 2DOF GMVC-based PID Controllers
   Author: Takao Sato*, Nozomu Araki* and Yasuo Konishi*
   Affiliation: *Univerisity of Hyogo
3. **Title:** Design of a Partial Model Matching PID Controller for Time-Delay Systems
   Author: Shin Wakitani*, YUANBI ZHAO* and Toru Yamamoto*
   Affiliation: *Hiroshima University
4. **Title:** An Attitude Control of a helicopter by Adaptive PID Controller
   Author: Yoshihiro Ohnishi* and Shinnosuke Mori*
   Affiliation: * Ehime University
5. **Title:** A Direct Control Parameters Tuning Method for Random Disturbances Using CARMA Models Based on Variance Evaluation
   Author: Shiro Masuda*, Kazuma Ando*
   Affiliation: * Tokyo Metropolitan University

Subject Coverage (not limited to)

- Advanced Modeling and Control
- Robust control and robustness
- Digital control systems analysis and design
- Adaptive Control
- Mechatronics
- Robot Control
- Model predictive control
- PID Control
- Multirate control
- Nonliear system