

Special session on: "Recent results in Takagi-Sugeno based control and observation"

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Organizers:

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Short Bio:

Jun Yoneyama received the B.Engr. and M.Engr. degrees in electrical engineering from Waseda University, Tokyo, Japan, and the Ph.D. degree in electrical engineering from University of California, Los Angeles, Los Angeles, USA in 1996. He is currently an Associate Professor in the Department of Electrical Engineering and Electronics, Aoyama Gakuin University, Tokyo, Japan. His current research interests include fuzzy systems, time-delay systems, robust control, sampled-data control, and their applications.

Kevin Guelton received the M.Engr. degree in 2000 from ENSIAME, Valenciennes, France, the M.Sc. degrees and the Ph.D. degree in automatic control respectively in 2000 and 2003 from the University of Valenciennes, France, and the French Habilitation degree in 2010 from the University of Reims Champagne-Ardenne, France. From 2000 to 2005, he serves as an assistant professor at ENSIAME and the University of Valenciennes. He is currently an Associate Professor at the University of Reims Champagne-Ardenne (URCA, France) and is affiliated with the "Centre of Research in Technology, Communication and Information Sciences (CReSTIC EA 3804, France). His current research interests include nonlinear control, fuzzy control and their application to robotics and biomedical systems.

Introduction to the special session:

The so-called Takagi-Sugeno (TS) fuzzy models have been the subject of intensive research these last years. Numerous literatures are now available (see for example the international journals as Fuzzy Sets and Systems, IEEE Transactions on Fuzzy Systems, International Journal of System Science, but also some papers are now appearing in Automatica, IEEE Transactions on Automatic Control, IEEE SMC...) and a lot of papers are still submitted. The area covered concerns in both continuous and discrete cases: modeling of non-linear systems, control and observation of non-linear models, including uncertainties, Hinf and/or H2 specifications, state or input delays... Among the recent results, some are concerned with theoretical aspects and

the others are concerned with applications. The goal of this special session is to get together well-known and recognized researchers to make a kind of “where are we now” meeting regarding to theoretical aspects as well as application studies of Takagi-Sugeno fuzzy model based control and observation.

Keywords:

Fuzzy systems, Takagi-Sugeno models, Controller design, Observer design, Recent theoretical results, Applications of fuzzy control theory.

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