Technical Committee on Hybrid Systems (HYSCOM)

Report for the period July – December 2013

Activities up to and including December 2013:

1. The Chair of HYSCOM (Mircea Lazar) is involved in the organization (as IPC member) of the Hybrid Systems: Computation and Control Conference, which will take place in April 2014, in Berlin, Germany, as part of the cluster of conferences Cyber-Physical Systems Week.

   Conference website: http://2014.hscc-conference.org/committees.html

   The Chair of HYSCOM (Mircea Lazar) supported the initiative of Prof. John Lygeros, Co-chair of HSCC 2014, to obtain IEEE Technical Sponsorship and affiliation of the HSCC conference.

2. The Chair of HYSCOM (Mircea Lazar) together with Dr. Nikolaos Athanasopoulos have organized an invited session at the 21st IEEE MED'13 Conference, to be held in June, Chania, Greece. The focus of the invited session is on *Invariant Sets in Control Applications*. The invited session consisted of the following papers:

Article 1. Further results on merging control Lyapunov functions for linear differential inclusions.
Sergio Grammatico, Franco Blanchini and Andrea Caiti

Article 2. Further results on the linear constrained regulation problem.
George Bitsoris and Sorin Olaru

Article 3. Invariant sets for guaranteed cost control of quadratic systems.
Francesco Amato, Carlo Cosentino and Alessio Merola

Article 4. On constrained stabilization of discrete–time linear systems.
Nikolaos Athanasopoulos, Alina I. Doban and Mircea Lazar

Article 5. Constrained switching stabilization of a dc-dc boost converter using piecewise-linear Lyapunov functions.
Christos Yfoulis, Damian Giaouris and S. Papadopoulou

Article 6. Constrained state–feedback control of an externally excited synchronous machine.
Sabin-Constantin Carpiuc and Mircea Lazar

Article 7. Fault isolation using interval observers and invariant sets.
Feng Xu, Florin Stoican, Vicenc Puig, Carlos Ocampo-Martinez and Sorin Olaru

The invited session was very well attended, by both academia and industry (ABB), and it generated very interesting discussions and future collaborations among participants.

3. The Chair of HYSCOM (Mircea Lazar) has set-up the HYSCOM webpage in IEEE format. The webpage is currently available at:

   http://hybrid-systems.ieeecss.org/hybrid-page

   The current version of the website contains general information about the theme and activities of the TC, as well as about the relevant conferences to this TC.

The above report sums up all the activities of the IEEE CSS TC on Hybrid Systems for the period July – December 2013.

Dr. Mircea Lazar   November, 15, 2013