

Hybrid Systems

Chair: Ricardo Sanfelice

Summary

The focus of the IEEE Control Systems Society Hybrid Systems Technical Committee is to promote research and education on hybrid systems. The TC is dedicated to providing informational forums, meetings for technical discussion, and information over the web to researchers in the IEEE CSS who are interested in the field of hybrid systems and its applications. The main events dedicated to Hybrid Systems are the Hybrid Systems: Computation and Control Conference (HSCC), which is part of the Cyber-Physical Systems Week, sponsored by IEEE, and the Analysis and Design of Hybrid Systems Conference (ADHS), which is organized by IFAC. The TC on Hybrid Systems has currently 57 members. Since January 1 of 2016, the TC chair is Ricardo Sanfelice (UC Santa Cruz) and the TC co-chair is Alessandro Abate (University of Oxford). A TC meeting was held at the American Control Conference (ACC) in Boston. Another TC meeting is scheduled at the IEEE Conference on Decision and Control (CDC) in Las Vegas.

Membership

The Hybrid Systems TC has currently 62 members. Currently, of the 62 active members, 59 are from academia and 3 from industry.

Invited Sessions

The TC is part of the organization of invited sessions and workshops at conferences annually. During 2016, members of the TC organized invited sessions at the American Control Conference, the NOLCOS, and the CDC. In particular, during the NOLCOS the invited session “Recent Advances in Stability and Control of Hybrid Systems” featured presentations by many of the TC members and allowed for fruitful interactions with members of the IFAC TC 1.3 Discrete Event and Hybrid Systems. An invited session entitled “Variational Analysis in Dynamics and Control” will be offered during the IEEE CDC in December 2016.

Other Activities

The TC meets annually at IEEE sponsored conferences. This year, the TC meeting took place during the American Control Conference in Boston. The meeting brought together previous and new TC members for the discussion of potential activities that the TC could organize in the near future. The discussions during this meeting included logistics, special issues in journals, and a workshop sponsored by the TC.

During the TC meeting at the 2016 ACC, the idea of frequently issuing a newsletter for the TC was determined as an efficient method to distribute and document information of

interest to the TC members, such as announcements, events, etc. The first issue of the TC newsletter was published in October 2016 and is available at the following URL in the TC website: <http://hybrid-systems.ieeecss.org/tc-hybrid/newsletter>

Lead by co-chair Alessandro Abate, the TC is working on updating the information in the hybrid systems entry hosted by Wikipedia.org at

https://en.wikipedia.org/wiki/Hybrid_system

This particular entry will be expanded to provide a much more complete summary of the hybrid systems literature, one that not only provides an introduction to newcomers to the field but also serves as a useful resource to researchers. The initial efforts of this activity will be reported at the TC meeting during the CDC 2016.

The IEEE CSS TC on Hybrid Systems collaborates closely with its corresponding IFAC Technical Committee 1.3 Discrete Event and Hybrid Systems in organizing joint discussions during yearly IEEE and IFAC conferences.