

IEEE Control Systems Society Technical Committee on Medical and Health Care Systems Report

Submitted by Daniel E. Rivera, Chair
November 15, 2013

The IEEE CSS Technical Committee on Medical and Healthcare Systems (TC-MHCS) was officially approved by the CSS Board of Governors during the 51st IEEE CDC in Maui, and became effective on January 1, 2013. I am pleased to report on activities undertaken by the technical committee during the past six months (June – November 2013) as well as some planned activities for the future.

TC membership update:

The TC has issued an open call to CSS members to join as founding members. As of the date of this report, 34 CSS members have responded, with profiles and member information included in our TC website. We expect this number to continue to grow as information regarding the existence of the TC becomes more widely disseminated, and as upcoming conferences such as the 2013 IEEE CDC and 2014 ACC provide opportunities for outreach and recruitment.

Activities during the reporting period / upcoming activities:

1. *TC activities at the 2013 American Control Conference (Washington).*

The inaugural meeting of the Technical Committee was held on Tuesday, June 18, as part of the activities of the 2013 American Control Conference. 22 individuals were in attendance.

The TC sponsored a Special Session on *Expanding the Scope of Control Systems Science into the Domain of Human Behavior: Opportunities and Challenges* which will be held on Monday, June 17th, from 11:40 am – 1:20 pm in Room 2 of the conference hotel (Fahmida Chowdhury and Daniel Rivera, organizers). This was arguably one of the most successful special sessions held during the 2013 ACC, with standing room-only attendance. Later that day, a related invited session was held (**MoC11: Modern Control Approaches in Human Behavior, Social Networks, and Behavioral Health**; Daniel Rivera, Daniel Davison, and Fahmida Chowdhury, organizers).

2. *TC-sponsored activities at the 52nd IEEE CDC in Florence.*

Two activities proposed by the TC and organized in conjunction with the TC for System Identification and Adaptive Control (TC-SIAC; led by Diego Regruto) will be offered during the upcoming CDC. One is an invited session on PK/PD modeling for decision support in healthcare (**TuA04**, Teresa Mendonça, Universidade do Porto and Alexander Medvedev, Uppsala University, organizers). The second is a pre-conference workshop entitled, “Recent advances in semi-algebraic geometry: applications in system identification, estimation and filtering” (Diego Regruto and Daniel Rivera, organizers).

The TC will also hold a meeting during the 52nd CDC, at 4 pm on Tuesday, December 10. The exact location is to be announced.

3. *TC-sponsored activities proposed for the 2014 ACC in Portland.*

Two invited sessions were proposed for the 2014 ACC, organized in conjunction with the TC for Manufacturing Automation and Robotic Control (F. Zhang, chair). The first is, “Applications of Control Theory in Medical Rehabilitation: Assistive Devices,” while the second is “Applications of Control Theory in Medical Rehabilitation: Therapeutics.” The session organizers are R. Gregg, D.E. Rivera, and F. Zhang.

This concludes our second annual report for 2013. Looking to the future, the TC seeks to 1) create greater awareness and recruit more members, 2) write an article for the *IEEE Control System Magazine* introducing the TC to the general CSM membership, and 3) pursue high profile activities such as workshop organization and Special Issues of IEEE CSS journals.