

IEEE Control Systems Society

Technical Committee on Healthcare and Medical Systems

Biannual Report

TC Chair: Caterina Scoglio

Date: November 2015

SUMMARY

In the last 6 months, the TC on Healthcare and Medical systems has continued previously started activities and initiated collecting content to enrich our webpage. New members have joined the TC, and an effort to implement efficient organization of the committee is ongoing.

MEMBERSHIP

The number of members has increased in the past 6 months to a total number of 46 members. Due to the application-oriented nature of the TC, members have very diverse research interests. To organize activities efficiently, we have started gathering information from the members on their research interests. We plan to organize events and activities on topics where we see more interest. We are also considering to identify 2-3 research areas to create focused working groups, which can work in parallel.

CONFERENCES

TC-sponsored activities during the ACC 2015 in Chicago

A meeting of the TC was held on July 1, 2015, during ACC 2015 in Chicago. The topics discussed in that meeting concerned the organization of invited sessions and a special session at ACC 2016 in Boston.

TC-sponsored activities during the 54rd IEEE CDC 2015 in Osaka

The TC has co-organized with the TC on Systems Biology an invited Session titled “Biological Oscillators” (TuA17) to celebrate 50 years of Goodwin’s Oscillator. Proposers are Alexander Medvedev, Uppsala University Sweden, and Ming Cao, University of Groningen, the Netherlands. The workshop will focus on clocks, rhythms, and cycles that are ubiquitous at all levels of a biological system, from a single cell to a multicellular organism. This invited session is aimed at demonstrating the diversity of mathematical techniques that are applied in studies of biological oscillators as well as the broad scope of the ongoing research.

TC-sponsored proposed activities during the ACC 2016 in Boston

This TC has proposed two invited sessions.

Mathematical modeling of diseases and medical intervention effects. Proposers: Caterina Scoglio, Kansas State University, and Alexander Medvedev, Uppsala University Sweden. The proposed invited session is aimed at demonstrating the diversity of mathematical techniques that are applied in modeling of diseases as well as the assessment of intervention therapies and strategies.

Application of control theory in legged locomotion. Proposers: Robert D. Gregg, University of Texas at Dallas, and Koushil Sreenath, Carnegie Mellon University. Co-Endorsed by the TC on Manufacturing Automation & Robotic Control. The goal of this invited session is to bring together leaders in control of legged locomotion, from the controls, dynamics and robotics communities, to foster a single session for exchanging ideas to enable complex experimental systems to exhibit dynamic legged locomotion.

This TC is also considering the organization of a special session titled “Role of controls and systems science in health-related research”, with the participation of NIH and NSF program directors in this field.

WEBPAGE

We have plans to add more content to our webpage in terms of links of books and papers that are relevant in our scientific community. We have started this collection and will continue it.

OTHER ACTIVITIES

A column for the Control Systems Magazine has been written, describing the activities and history of the TC. The column is currently in press.