

Technical Committee on Automotive Controls

From: Luigi Glielmo, TC Chair, glielmo@unisannio.it

Date: November 2003

The TC on Automotive Controls has so far based its activities and its network of members on a web site and a newsletter. The website includes links to various members and automotive research groups, and the newsletter reports announcements of new articles, future conferences, open positions. It has to be said that in 2003 the activities of these two media have slowed down: less people entered the web site and no issue of the newsletter was published, mainly because of difficulties in getting by colleagues information to be published!

Yet I believe some further effort is worthwhile to maintain the TC alive: first, because the above problems are probably common to many TCs and, second, because the field of automotive controls is indeed alive and will remain alive for years to come. A possibility to make the committee active again, and perceived as such, is the institution of working groups (WGs) and, more importantly, the selection of volunteers to take care of them. So far I managed to find two colleagues who are willing to take responsibility of the *WG on driveline control* and the *WG on engine control*. By the BoG meeting at Maui I count to have the names of colleagues in charge of the *WG on hybrid electric vehicles*, the *WG on vehicle control*, and the *WG on control software*. The goal of WGs, particularly of the colleagues chairing them, will be the organization of sessions, or events such as tutorials, at our main conferences (i.e., CDC, ACC, and CCA) and special issues on archival journals.

Members of the TC took part in the organization of conferences. In particular, as chairman of the TC, I offered help to the organizers of the CCA'03 (which was held in Istanbul) and took care of a number of reviews that I distributed to a few TC members. Further, I am co-chairing the *IFAC Symposium on Advances on Automotive Control*, which will be held in next April 2004 in Salerno, Italy, and part of the review work was accomplished by TC members. Regarding this latter conference I wish to inform the BoG that, contrarily to my expectations and to common sense, I found a strong opposition on IFAC side to accept an IEEE technical co-sponsorship of the conference and, hence, I had to drop the idea. I was greatly disappointed of this position, also because it based on political factors, and I hope the matter can be discussed at the BoG meeting.

Technical Committee on Computer Aided Control System Design

From: Andras Varga, Chair, andras.varga@dlr.de

Date: 05 November 2003

The activities in the last 12 months were oriented towards:

1. **Editing a CSM Special Issue on “Numerical Awareness in Control”**

To increase numerical awareness in control, one of my suggestions was (see Minutes of BoG meeting of May 7, 2002) to prepare a special issue of the CSM on numerical methods for control. As Guest Editor for this issue of the CSM, I invited some of the best experts in the control numerics field to contribute. All four papers have been accepted after thorough reviews. The special issue is scheduled for February 2004.

2. **Preparation of CACSD'2004 Symposium**

On behalf of the TC on CACSD I was involved in supervising the organization of the joint CCA/CACSD/ISIC'2004 event. During the whole preparation phase I was in close contact with the CACSD'04 General Chair Michael Sebek and Program Chair Sebastian Engel. Among the issues to be solved were preparing the proposal of budget for final approval, nominating the CACSD PC for Invited Sessions (Didier Henrion), nominating the CACSD International Program Committee, preparation of the conference web-site, preparation of a Call for Papers, advertising the conferences in various ways.

3. **Preparing a proposal for a joint CCA/CACSD 2006 Symposium**

Preparations started to organize a joint CCA/CACSD event in 2006 in Germany. For the first time, it was proposed to organize these two conferences with a single General Chair and two Program Chairs, one for CCA and one for CACSD. A proposal was worked out jointly with Roberto Tempo, VC Conferences, by proposing a General Chair and two Program

Chairs and will be submitted to be approved by the Executive Committee and BoG of CSS. It is also in discussion that ISIC will join CCA/CACSD 2006.

4. New Action Group on “Symbolic Methods for Control”

A new Action Group has been started to cover research and software development activities in the field of “Symbolic Methods for Control”. A very informative home page for this Action Group has been prepared by Prof. Antonis Vardulakis and Prof. Nikos Karampetakis from the University of Thessaloniki at <http://anadralis.math.auth.gr/cacsd/Home.htm>, with links to active groups, current projects, available software, and people working in this field.

5. Maintaining and updating the TC web pages

This is a regular maintenance activity and has been done both at the level of the TC homepage as well as at the level of the seven Action Groups.

6. Activities within Action Groups

A standard activity for all groups was the updating/maintenance of web pages and networking within each group. Additionally, the following specific activities took place:

Control Numerics and Software – Chair Andras Varga

- Editing a CSM Special Issue on Numerical Methods for Control: the 4 submitted papers have been sent out for reviews, the reviews have been collected, and the requests for performing revisions according to reviewers request have been sent to the authors towards end of June. The revised versions have been received around the end of August and have been checked. A second request for revision involving many minor corrections has been sent out to the authors during September and the final versions, including the copyediting proposals of the CSM Editor Dennis Bernstein have been submitted by October 31. The Special Issue will appear as scheduled in February 2004.
- Editing a Special Issue of Linear Algebra and Its Applications on “Model Reduction”: I served as Guest Editor for this special issue, being involved in collecting submissions and coordinating the reviewing of submitted paper. The special issue is scheduled to appear in September 2004.

Interval Method for Control – Chair Josep Vehi

- Preparing an intensive (30 hours) international course on Interval Methods for Control (addressed mainly to PhD students in control, to be held in spring 2004)

Hybrid Systems - Chair Peter Mosterman

- Starting the preparations for a special session for the CACSD’04 in Taiwan on computer automated multi-paradigm modeling;
- Editing a special issue of the IEEE Transaction on Control Systems Technology on “Computer automated multiparadigm modeling” (in final publication phase)

Symbolic Methods for Control - Chairs A.I. Vardulakis and N.P. Karampetakis

- Organizing two invited sessions during the 11th Mediterranean Conference on Control and Automation (MED’03), Rhodes, Greece, June 17-20,2003:
 - a session on “Computational Toolboxes in Control Design”
 - a session on “Advanced Numerical Methods in System and Control Theory”It is planned to organize an invited session on “Computational Methods for CACSD” during the next MED’04 Conference (12th Mediterranean Conference on Control and Automation (MED’04), Kusadasi, Turkey, June 6-9, 2004).
- Announcement of the Action Group in Issue 183, November 2003 of the E-Letter.
- Preparing a home page for this Action Group with links to active groups, current projects, available software, and people working in this field. The goal of this site is to provide up-to-date information to support an informed selection and usage of the most appropriate symbolic algorithms and software tools to solve practical control problems. Many results on developing new symbolic algorithms, software, and computer algebra servers for CACSD are available electronically. Links are also provided to research groups as well as to individuals active in this area.

Evolutionary Computation – Chair: to be reassigned

- The former chair, Professor Yun Li, will step down from this activity at the end of this year. I hope to be able to find a suitable expert to replace him and continue this activity. The homepage of this site is temporarily frozen.