

IEEE CSS TC-SIAC meeting CDC 2016, Las Vegas, USA

Guillaume Mercère

<http://system-identification.ieeecss.org/tc-system-identification/home>



ARIA Resort & Casino, Las Vegas, NV
Tuesday, December 13th, 2016



Outline

- 1 Introduction
- 2 Reports on TC-SIAC membership and general items
- 3 Report on recently completed/on-going activities
- 4 Discussion, brainstorming and new initiatives



Round table

- Please introduce yourself (name, affiliation, research interests in system ID and/or adaptive control...)



TC-SIAC membership

- Reminder: IEEE-CSS bylaws state that membership in a TC is available to any member in good standing, upon request (CV + proof of IEEE membership).
- Currently, the committee consists of 64 members.
- Last TC meeting at the 2016 ACC in Boston had 16 members in attendance.
- Reminder: Materials are accessible on the TC website.



Recently completed/on-going activities

- Workshop at CDC 2016
 - “Realization theory and its role in system identification”
Organizer: *Mihaly Petreczky*
Speakers: Mihaly Petreczky, Anders Lindquist, Jan H. van Schuppen, Bernard Hanzon, Alessandro Chiuso, Jana Nemcova
- Invited session at CDC 2016
 - “System identification and control in cancer”
Organizers: Vanessa Jonsson and Claire Tomlin
 - “Dynamic network identification”
Organizers: Arne Dankers and *Paul M. J. van den Hof*



Recently completed/on-going activities (cont'd)

- Special issues in International Journal of Control
 - “Applied Fractional Calculus in Modeling, Analysis and Design of Control Systems”
Guest Editors: Yang Quan Chen and *Clara Ionescu*
Paper submission finalized. Publication expected: end of this year or beginning of next year.
 - “Identification and Control of Nonlinear Electro-Mechanical Systems”
Guest Editors: Alexandre Janot, *Hugues Garnier*, Peter Young, Françoise Lamnabhi-Lagarrigue
45 papers have been submitted. 15 papers have been selected for this special issue. Publication expected: end of this year or beginning of next year.



Recently completed/on-going activities

- Workshop at IFAC WC 2017
 - “Bottlenecks, challenges and solutions for control and data-driven modelling in biomedicine”
Organizers: *Clara Ionescu* and *Levente Kovacs*
 - “Data-driven filtering and control”
Organizers: *Simone Formentin* and *Ivan Markovsky*
 - “Iterative learning control and repetitive control: theoretical advances and emerging applications”
Organizers: *Bing Chu*, *Christopher Thomas Freeman*, *Tom Oomen*, *Kira Barton* and *Ying Tan*
- Invited session at IFAC WC 2017 (open invited tracks)
 - “Precision mechatronics - advanced motion control”
Organizers: *Andrew Fleming*, *Marcel Heertjes* and *Tom Oomen*



Future invited sessions and workshops (cont'd)

- Invited session at IFAC WC 2017 (open invited tracks)
 - “Iterative learning control and repetitive control: theoretical advances and emerging applications”
Organizers: Kira Barton, Sandipan Mishra, Bing Chu, Christopher Freeman and *Tom Oomen*
 - “Linear Parameter Varying systems: modelling, analysis, observation, control, diagnosis and applications”
Organizers: *Roland Toth* and Olivier Sename
 - “Control and data-driven modelling in biomedicine”
Organizers: *Clara Ionescu* and Levente Kovacs
- Invited session at ACC 2017
 - “Precision Mechatronics I and II - SPM and High-Speed Control”
Organizers: Andrew Fleming, Marcel Heertjes and *Tom Oomen*



- SIAC education depository currently available at <http://system-identification.ieeecss.org/tc-system-identification/educational-material>
- We have (and are still looking for)
 - collections of syllabi, presentations, and class notes in support of system identification and adaptive control topics,
 - peer-reviewed data and models,
 - software/algorithm depositories and virtual and/or interactive labs.
- Important to improve the web-page with review or tutorial documents (paper, web links,...).
- **We continue to solicit contributions actively!!!**

Ideas, suggestions??



CSS Wikipedia project

- For several years now, many efforts have been made to improve the Wikipedia pages dedicated to control science and technology.
- Since then, the task of taking care/improving the Wikipedia pages has been assigned to the TCs.
- Our TC was invited to take care of the most important pages related to system identification and adaptive control.
- Girish Chowdhary and Tansel Yucelen are the leaders of the TC-SIAC working group.
- This project is conducted in collaboration with the IFAC TC on System Identification and Signal Processing.



CSS Wikipedia project (cont'd)

- Main tasks to perform as soon as possible
 - find on Wikipedia all the pages dedicated to data-driven modeling, system identification and/or adaptive control, list them and describe shortly their content,
 - create a page template to help and guide the contributors write the wiki pages,
 - ask the TC members if they want to be contributors, then if then can describe the main items we want to see in each page,
 - share these results during the TC meetings (during ACC, CDC,...), then use these brainstorming sessions to end up with a list of pages and contributors.



- First contributors feedback
 - Roland Toth: identification and control of LPV systems
 - Diego Regruto: set membership methods for system identification
 - Messaoud Amairi: set membership methods for identification and control and fractional systems identification and control



Upcoming submission deadlines

- CDC 2017 (12-15 December 2017, Melbourne, Australia)
Draft Manuscripts: 10 March 2017
Workshop Proposals: 1 May 2017
- SYSID 2018 (9-11 July 2017, Stockholm, Sweden)
Draft Manuscripts: ?? 2018
Workshop Proposals: ?? 2018

Ideas, suggestions??



- Special Issue for IEEE Transactions on Control Systems Technology

System identification and control in biomedical applications

- Guest editors: Alexander Medvedev, Daniel Rivera, Guillaume Mercère (TC-SIAC), Caterina Scoglio (TC-HMS), Bayu Jayawardhana (TC-SB) (with the help of Diego Re-gruto)
- Scheduling still under discussion.

New journal special issues (cont'd)

- TC-SIAC members are invited to suggest ideas for new special issues/sections in
 - IEEE Control System Magazine,
 - IEEE Transactions on Control of Network Systems,
 - Automatica,
 - other high quality journals.

Ideas, suggestions??



Promoting System Id. and Adaptive Control

- How can we promote our research and results towards
 - Master students (who are future PhD students),
 - PhD students,
 - manufacturers?
- Video Clip contest?
- Can we develop a better tool than a standard webpage?
LinkedIn? Facebook? Twitter?

Ideas, suggestions??

