

IEEE CSS TC-SIAC meeting CDC 2017, Melbourne, Australia

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



Melbourne Convention Center, Melbourne, Australia
Wednesday, December 13th, 2017



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 73 members.
- Last TC meeting at the 2017 ACC in Seattle had 15 members in attendance.
- Feel free to invite your PhD or Post-doc students during the TC meeting.



Recently completed/on-going activities

- Control System Magazine column on SIAC is available soon (Issue 4, Aug. 2017).
- Invited sessions at ACC 2017
 - “Precision Mechatronics I - SPM and High-Speed Control”
Organizers: Andrew Fleming, Marcel Heertjes, *Tom Oomen*
 - “Precision Mechatronics II - Precision Motion Control”
Organizers: Andrew Fleming, Marcel Heertjes, *Tom Oomen*
 - “Identification in Dynamic Networks”
Organizer: *Paul van den Hof*
- Invited session at ICCA 2017
 - “Identification and Control of Cyber-Physical Systems”
Organizer: *Simone Baldi*
- Invited session at CSMC 2017
 - “Quantum cybernetics, quantum computing and AI”
Organizer: *Daoyi Dong*



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

- Invited sessions at 2017 IFAC WC
 - “Modelling, identification and control of quantum systems”
Organizers: *Daoyi Dong*, Naoki Yamamoto, Rebing Wu
 - “Precision Mechatronics - Advanced Motion Control”
Organizers: Andrew Fleming, Marcel Heertjes, *Tom Oomen*
 - “Iterative Learning Control and Repetitive Control: Theoretical Advances and Emerging Applications”
Organizers: Kira Barton, Sandipan Mishra, Bing Chu, Christopher Freeman, *Tom Oomen*
 - “Linear Parameter Varying Systems: modelling, analysis, observation, control, diagnosis and applications”
Organizers: *Roland Toth*, Olivier Sename
 - “Control and data-driven modelling in biomedicine”
Organizers: *Clara Ionescu*, Levente Kovacs



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

- Workshop at ACC 2017
 - “Control Engineering in Julia: Modelling, Control Design and Optimization”
Organizers: *Cristian Rojas*, Mikael Johansson, Madeleine Udell
- Workshops at 2017 IFAC WC
 - “Bottlenecks, Challenges and Solutions for Control and Data-Driven Modelling in Biomedicine”
Organizers: *Clara Ionescu*, Levente Kovacs
 - “Iterative Learning Control and Repetitive Control: Theoretical Advances and Emerging Applications”
Organizers: *Tom Oomen*, Bing Chu, Christopher Freeman, Kira Barton, Ying Tan



Future invited sessions and workshops

- Invited sessions at CDC 2017
 - “Adaptive and Networked Systems”
Organizers: *Simone Baldi*, Ji Liu
 - “Estimation, Identification and Control in Quantum Systems”
Organizer: *Daoyi Dong*
- Invited session at AIAA Science and Technology Forum and Exposition 2018
 - “Verification and validation of adaptive systems”
Organizers: *Tansel Yucelen*, Jonathan Muse
- Invited sessions, workshops and tutorials at ACC 2018, CDC 2018?



Future conferences

- SYSID 2018
 - Will be held on July 9-11, 2018 at the AlbaNova University Center in the heart of Stockholm, Sweden
 - General Conference Chair: *Håkan Hjalmarsson*
- 2018 IFAC Conference on Advances in Proportional-Integral-Derivative Control
 - Will be held on May 9-11, 2018 at the Het Pand Convent and Meeting Centre in the heart of Ghent, Belgium
 - Main Conference Chair: *Clara Ionescu*
- 2018 IFAC Conference on Cyber-Physical and Human System
 - Will be held on December 14-15, 2018 in the Hyatt Regency, Downtown Miami, Florida, USA
 - Local Arrangements Chair: *Tansel Yucelen*



On-going/future special issues

- Special Issue in International Journal of Adaptive Control and Signal Processing
 - Topic: “Learning From Adaptive Control Under Relaxed Excitation Conditions”
 - Guest Editors: *Yongping Pan*, Mohamed Darouach, Young-Hoon Joo
 - Deadline for paper submission: May 2018
- Special Issue in the IEEE Transactions on Control Systems Technology
 - Topic: “System identification and control in bio-medical application”
 - Guest Editors: Caterina Scoglio, *Guillaume Mercère*, *Alexander Medvedev*, *Daniel Rivera*, Bayu Jayawardhana
 - New deadline for paper submission: March 2018



- 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
 - announcements of invited sessions, workshops,
 - a list of job opportunities,
 - recommended books and papers (links).



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, **DONE**
 - create a page template to help and guide the contributors write the wiki pages, **DONE**
 - 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, **DONE**
 - 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.



Machine olfaction applications

- Project managed by José Ramos (jr1284@nova.edu)
- Goal: using system identification and machine learning in machine olfaction applications
- See Flyer for details



New journal special issue (cont'd)

- System identification and adaptive control are both essential in industry (see “Systems and Control for the future of humanity, research agenda: Current and future roles, impact and grand challenges” in Annual Reviews in Control 2016).
- My new idea: a journal special issue entitled
Dear companies, you can make money with system
identification and adaptive control
- Step 1: a 2 day workshop during CDC 2018
- Step 2: a special issue in a journal



Miscellaneous

- CEB membership: **DONE**. Next round: end of 2018
- IEEE keywords list dedicated to SIAC: **DONE**

