

IEEE CSS TC SIAC meeting CDC 2019, Nice, France

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Outline

- 1 Introduction
- 2 Reports on TC 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...)



TC membership

- IEEE-CSS bylaws state that membership in a TC is available to any member in good standing, upon request (CV + proof of IEEE membership).
- PhD students can become TC members as well.
- Currently, the TC SIAC consists of 84 members.
- Last *TC SIAC and TC HSM meeting* at the 2019 ACC in Philadelphia had 17 members in attendance.
- Feel free to invite your PhD or Post-doc students during the TC meeting.



TC SIAC: completed/on-going/future activities

- Control System Magazine column on SIAC has been published (in June).
- Conference organization of the 2019 Quantum Science, Engineering and Technology Conference (April 8-11 2019, Canberra, Australia)
 - General Chair: Daoyi Dong
- Conference organization of the 2019 Workshop on Linear Parameter Varying Systems (November 4-6, 2019, Eindhoven, The Netherlands)
 - General Chair: Roland Toth



- Invited sessions
 - 2019 Conference on Information Sciences and Systems (March 20-22, 2019)
 - Estimation and Learning in Stochastic Systems
 - Organizer: James Spall
 - 2019 American Control Conference (July 10-12, 2019)
 - Analysis, Design, and Control of Systems in Neuroscience I and II
 - Organizers: Fabio Pasqualetti, Warren Dixon, Alexander Medvedev, Sergio Pequito
 - Human-closed loop system interactions for uncertain Systems
 - Organizers: Yildiray Yildiz and Tansel Yucelen
 - 2019 International Conference on Systems, Man, and Cybernetics (October 06-09, 2019)
 - Quantum Cybernetics and Machine Learning
 - Organizer: Daoyi Dong

- Invited sessions
 - 2019 Conference on Decision and Control (December 10-13, 2019)
 - Theoretical foundations for the representation and identification of dynamic networks
 - Organizers: Sean Warnick and Paul van den Hof
 - Dynamics, control and information processing of quantum systems
 - Organizer: Daoyi Dong
 - Machine Learning in Control, Theory and Applications I and II
 - Organizers: Joseph E. Gaudio, Seyed Mehran Dibaji, Travis E. Gibson, and Anuradha M. Annaswamy
 - Recent Advances in Iterative and Repetitive Learning Control
 - Organizers: Ying Tan, Tom Oomen, Bing Chu, Christopher Freeman and Kira Barton



- Invited sessions
 - 2019 IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (April 23-26, 2019)
 - Sensors, models and control algorithms in drug delivery systems
 - Organizers: Clara Ionescu and Julio E. Normet-Rico
 - 2020 IFAC World Congress (July 12-17, 2020)
 - Modelling, Identification and Control of Quantum Systems
 - Organizer: Daoyi Dong
 - Results on Nonlinear System Identification Benchmarks
 - Organizer: Maarten Schoukens
 - Data-driven Modeling and Learning in Dynamic Networks
 - Organizers: Paul M.J. Van den Hof, Alessandro Chiuso and Jorge Goncalves

- Workshops
 - March 7, 2020, Nanjing, China
 - Workshop on Quantum Cybernetics and Machine Learning
 - Organizer: Daoyi Dong
 - April 20-22, 2020, Eindhoven, The Netherlands
 - Workshop on Nonlinear System Identification Benchmarks
 - Organizer: Maarten Schoukens

- Spring schools
 - April 14-17, 2020, Eindhoven, The Netherlands
 - Mini-Course on Nonlinear System Identification
 - Organizer: Maarten Schoukens
 - April 14-17, 2020, Ecully, France
 - Spring School on Data-driven Model Learning of Dynamic Systems
 - Organizer: Xavier Bombois
- Special session during the International Conference on Automatic Control and Soft Computing (CONTROLO2020) (July 1-3, 2020, Bragança, Portugal)
 - Title: Control Engineering and Industrial Automation Education (deadline: February 1, 2020)
 - Organizers: Paulo Moura Oliveira, Filomena Soares, Anthony Rossiter, Ramón Costa-Castelló



- SYSID will take place in Padova, Italy
- Dates: July 14-16, 2021
- Subtitle: Learning Models for Decision and Control
- Main organizer: Alessandro Chiuso

- Novara, Carlo and Formentin, Simone (ed.): Data-Driven Modeling, Filtering and Control: Methods and applications, IET Control, Robotics and Sensors, 2019

- “New Trends in Modeling and Control of Hybrid Systems”
 - International Journal of Robust and Nonlinear Control
 - Guest Editors: Dario Piga and Alberto Bemporad
- “Learning From Adaptive Control Under Relaxed Excitation Conditions”
 - International Journal of Adaptive Control and Signal Processing
 - Guest Editors: Yongping Pan, Alexey Bobtsov, Mohamed Darouach, and Young-Hoon Joo

- “System Identification and Control in Biomedical Applications”
 - IEEE Transactions on Control Systems Technology
 - Guest Editors: Guillaume Mercère, Bayu Jayawardhana, Alexander Medvedev, Daniel E. Rivera, Caterina Scoglio
- “Recent Advances in Control and Verification for Hybrid Systems”
 - IET Control Theory and Application
 - Guest Editors: Dr. Weiming Xiang, Prof. Guisheng Zhai, Prof. Taylor T. Johnson, Prof. Simone Baldi, and Prof. Chengzhi Yuan

Discussion: TC budget

- IEEE, via the Technical Activities Board (TAB), can financially support the TC activities up to 3000 \$ per TC and per year.
- A priority may be put on workshops organized during ACC or CDC.
- If you want to organize any event (like a social event involving TC members, PhD students, Master students,...) during ACC or CDC, it can be a good way to get funds.



Discussion: new initiatives

- Special Issue of a journal on system identification and data-driven modeling in neuroscience. Relevant journals?
- A joint SIAC-HMS workshop at CDC20 highlighting the impact of estimation in medical applications
 - Different angles and end use: black-box, grey-box, individualized therapies, pharmacometrics, population modeling, machine learning, deep learning
 - Larger audience: open problems for theoreticians and new methods for practitioners
 - Interactive mode to keep the audience awake



- 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).

Discussion: how to share the teaching material?

- Project managed by Steffi Knorn and Damiano Varagnolo.



Announcement: new TC chairman

- 3 excellent applications.
- 1 laureate: Simone Formentin.

