

IEEE CSS Technical Committee on
Automotive Control
Meeting
2018 ACC

June 28th, 2018
Milwaukee WI

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IEEE CSS Technical Committee on Automotive Control

The scope of interests of the IEEE CSS Technical Committee (TC) on Automotive Control (AC) covers modeling, simulation, identification, estimation, control, optimization, and diagnostics of present and future automotive systems.

Joint Organization of Invited Sessions at ACC with ASME Automotive Transportation Systems TC

Invited session organization at CCTA, CDC, CCA and IFAC.

Outline

- Round Table Introductions (Please Sign-in)
- Summary of current activities
 - Invited sessions – get involved.
- Upcoming activities
 - IFAC CPS Workshop.
 - CSS Conference
 - Publishing Proceedings of the Workshop
 - Nomination for CEB (1)
 - Webpage Updates
 - Plan for next invited Workshop
- Outreach: Emerging Trends in Automotive Controls
 - Wiki- column for CSM

2018 ACC – Invited Sessions

Invited sessions organized by Dr. Yan Chen (Arizona State - Lead), Dr. Qadeer Ahmed (Ohio State), Dr. Reza Amini (Univ. of Michigan), Dr. Ali Borhan (Cummins), Dr. Mehran Bidarvatan (Karma Auto.), Dr. Carrie Hall (Illinois Inst. of Tech.), Dr. Pinggen Chen (Tennessee Tech), Dr. Sara Dadras (Ford Motor), Dr. Satadru Dey (Univ. of Colorado Denver), Dr. Hamid-Reza Ossareh (Univ. of Vermont), Dr. Simona Onori (Clemson Univ.), Dr. Nima Lotfi (Southern Illinois Univ. Edwardsville), Dr. Selina Pan (Ford Motor), Dr. Yasha Parvini (Univ. of Detroit Mercy), Dr. Jason Siegel (U of Michigan), Dr. Annalisa Scacchioli (Steven Inst. of Tech), and Y-Y Wang (General Motors).

The invited sessions were jointly organized with ASME ATS and the IEEE CSS Technical Committee on Automotive Controls

Received a total of 56 papers and selected 54 for the proposal submission (finally submitted 9 invited session proposals);

After the ACC review process, 7 out of 9 invited sessions were accepted, with 47 papers accepted, 5 papers rejected, 2 paper withdrawn;

The summary of the accepted invited sessions is as follows:

1. Efficient and Resilient Control of Connected Vehicles (6 papers); FrB02
2. Control of Engine Breathing; Advances in Control of the Air-Path for Internal Combustion Engines (6 papers); ThA01
3. Energy/Fuel Efficient Powertrains (6 papers);
4. Vehicle Dynamics Estimation and Control (4 papers); ThB02
5. Advanced Control of Internal Combustion Engines (6 papers)
6. Control of Engine Exhaust and Aftertreatment Systems (6 papers)
7. Avoidance and Accident Mitigation Systems for Ground Vehicles (5 papers) FrA02

Acceptance: 90.7% acceptance rate

2019 ACC – Philadelphia, PA, July 10 - 12

Invited Sessions Co-Sponsored with ASME ATS-TC

- Conference venue is the **Philadelphia Marriott Downtown**, located in the heart of Center City, Philadelphia.
- Organizers (current): Dr. Yan Chen (Arizona State - Lead), Dr. Qadeer Ahmed (Ohio State University), Dr. Reza Amini (Univ. of Michigan), Dr. Ali Borhan (Cummins), Dr. Carrie Hall (Illinois Institute of Technology), Dr. Pinggen Chen (Tennessee Tech), Dr. Zhaojian Li (Michigan State Univ.), Dr. Hamid-Reza Ossareh (Univ. of Vermont), Dr. Selina Pan (Toyota Research Institute), Dr. Yasha Parvini (Univ. of Detroit Mercy), Dr. Annalisa Scacchioli (Rutgers University), Dr. Jason Siegel (Univ. of Michigan), Chen Zhang (Univ. of Minnesota). Youngki Kim
- Draft papers due **September 10nd** to be considered for invited sessions (submission on Paperplaza will be due on September 17th);
- CFP for ATS-TC invited sessions to come out by August 10th.
- Additional organizers welcome.

CDC 2018
Fontainebleau, Miami Beach, USA

57th IEEE Conference on Decision and Control
December 17-19, 2018



Upcoming Conferences

 **IEEE CCTA 2018**

2018 IEEE Conference on
Control Technology and Applications

August 21-24, 2018
Copenhagen, Denmark

2018 IEEE Conference on Control Technology and Applications.

August 21-24, 2018, The Scandic Hotel Copenhagen,
Copenhagen, Denmark

Invited Session: “Control and Diagnostics of Powertrains and Vehicle Dynamics”
Satadru Dey*, Qadeer Ahmed, Jason B. Siegel, Qilun Zhu, Simona Onori

CDC 2018
Fontainebleau, Miami Beach, USA

57th IEEE Conference on Decision and Control
December 17-19, 2018



57th IEEE Conference on Decision and Control.

Dec. 17-19, 2018, Fontainebleau, Miami Beach, FL, USA

CDC 2018 Invited Session Title: **Modeling and Control of Autonomous and Connected Vehicles** Dr. Jason Siegel, Dr. Qadeer Ahmed,
Dr. Simona Onori, Dr. Mohammad Reza Amini



INTERNATIONAL FEDERATION
OF AUTOMATIC CONTROL

2nd IFAC Conference on Cyber-Physical & Human Systems

December 14-15, 2018, Miami, USA

www.cphs2018.org

Neera Jain proposes to hold a mini-workshop on December 15, from 1 to 2pm, as a part of the upcoming 2nd IFAC Conference on Cyber-Physical & Human Systems (to be held Dec 14-15, 2018 in Miami, FL – see cphs2018.org for more details).

The goals of this workshop are to

- 1) facilitate networking among researchers in both engineering and the social sciences.
- 2) Discuss strategies for successful collaboration across disciplines,
- 3) Identify critical cross-disciplinary research topics as they relate to the topics mentioned above.

Given the significant intersection between the scope of this workshop, Neera asked if we can identify a member of the TC who is interested in participating in the workshop by speaking briefly (5-10 minutes) on the need for identifying mutual research questions and forging successful collaborations across the two disparate communities of engineering and social science (neerajain@purdue.edu)



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The topic area I envision we could contribute to the discussion include.

Autonomous Vehicle control and handoff between driving modes.

Path planning and vehicle (velocity) trajectory optimization for minimization of fuel consumption and emissions reduction.

Interfaces and vehicle communication with infrastructures for enhanced safety (driver assist technology) such as traffic signals and automated braking.

(please let me know if you are interested in presenting on the Panel)

Neera is also looking for hands-on Demos that could be brought to the conference.

CEB Nomination

The main charge of the Conference Editorial Board (CEB) is to ensure the technical quality of major conferences sponsored or co-sponsored by the Society.

The CEB coordinates the receiving, logging, acknowledging, distributing, collecting and collating reviews, and evaluating Regular papers submitted to the Society (co-)sponsored conferences: the IEEE conference on Decision and Control (CDC), the American Control Conference (ACC), and the IEEE Conference on Control Technology and Applications (CCTA).

Our TC can recommend 1 member for the CEB, if you have time and are interested to volunteer, or would like to suggest a nomination please contact me.

TC Member Announcements

- Congratulations to Antonella Ferrara, Simona Sacone, and Silvia Siri, on their book titled "**Freeway Traffic Modelling and Control**" which has just been published by Springer as part of the series on Advances in Industrial Control.

- ACC special sessions related to Automotive Controls organized by TC members.

"Challenges in Advanced diagnostics of complex industrial systems" WC202E

and

"The Future of Battery Controls: Beyond 2018" WC202B

Both sessions will be held on Thursday, June 28 2018 from 6pm to 7pm at the ACC in Milwaukee.

Open Discussion

Email Frequency?

Website Updates. Roster-

Where to post Job Updates? Linked-in vs CCS?

Plan for next Invited Workshop on Challenges and Open Problems in
Control of Automotive Systems at CDC 2019

Outreach: What can we do to educate the broader community about
Emerging Trends in Automotive Controls?

Interested to help with organizing invited sessions for 2019 CDC and
CCTA, please email me.