# IEEE CSS Technical Committee Hybrid Systems

Meeting at the 2019 American Control Conference

#### **Ricardo Sanfelice**

Department of Electrical and Computer Engineering Hybrid Systems Laboratory University of California, Santa Cruz





Ricardo Sanfelice - University of California, Santa Cruz

# Agenda

- 1. Introduction
- 2. Membership information
- 3. TC Webpage and Google Group
- 4. TC Activities
  - Update from TAB meeting
  - Update on upcoming TC report and CSM column
  - Update on CDC18 pre-CDC workshop organized by TC members
  - Book on computationally aware CPS in Birkhauser series Maria Prandini
  - Compendium of tools for hybrid systems Majid Zamani
  - TC Social for Grad Students and Postdocs

R. Jungers

#### 5. Announcements

Journal: Nonlinear Analysis: Hybrid Systems A. Giua

### **TC** Info and Activities

The Technical Committee on Hybrid Systems is dedicated to providing informational forums, meetings for technical discussion, and information over the web to researchers in the IEEE CSS who are interested in the field of hybrid systems and its applications.

### TC Info and Activities

- The Technical Committee on Hybrid Systems is dedicated to providing informational forums, meetings for technical discussion, and information over the web to researchers in the IEEE CSS who are interested in the field of hybrid systems and its applications.
- Membership: 78 active members (previously 68)
  - 75 from academia
  - 3 from industry

### **TC Info and Activities**

- The Technical Committee on Hybrid Systems is dedicated to providing informational forums, meetings for technical discussion, and information over the web to researchers in the IEEE CSS who are interested in the field of hybrid systems and its applications.
- Membership: 78 active members (previously 68)
  - 75 from academia
  - 3 from industry
- This is our first TC meeting this year

Link

http://hybrid-systems.ieeecss.org

Link

```
http://hybrid-systems.ieeecss.org
```

Updated regularly with new members and reports

Link

http://hybrid-systems.ieeecss.org

Updated regularly with new members and reports

Links to TC Google Group

Link

http://hybrid-systems.ieeecss.org

Updated regularly with new members and reports

- Links to TC Google Group
- Newsletter tab

#### TC Google Group

TC Google group

HybridSystems TC@googlegroups.com

#### TC Google Group

TC Google group

HybridSystems TC@googlegroups.com

Members encouraged to email announcements

#### TC Google Group

TC Google group

 $HybridSystems {\sf TC}@googlegroups.com\\$ 

- Members encouraged to email announcements
- Quarterly newsletter

# Agenda

- 1. Introduction
- 2. Membership information
- 3. TC Webpage and Google Group
- 4. TC Activities
  - Update from TAB meeting
  - Update on upcoming TC report and CSM column
  - Update on CDC18 pre-CDC workshop organized by TC members
  - Book on computationally aware CPS in Birkhauser series Maria Prandini
  - Compendium of tools for hybrid systems Majid Zamani
  - TC Social for Grad Students and Postdocs

R. Jungers

#### 5. Announcements

Journal: Nonlinear Analysis: Hybrid Systems A. Giua

#### Summary from Technical Activities Board Mtg

- Funding for TC activities (3K/year per TC)
- Dissemination: position paper/issue in CSM?
- CEB nominations
- Questions raised at the meeting:
  - How to make TC?s useful for the broad professional community?
  - How to make TC?s useful for the CSS membership?
  - How to reward volunteer work within the TCs?

#### TC Activity: CSM article

 Every 16 months, the TC is required to write an article for the IEEE Control Systems Magazine (CSM) summarizing the work done during the year

Published in CSM December 2018 Issue

#### TC Activity: CSM article

 Every 16 months, the TC is required to write an article for the IEEE Control Systems Magazine (CSM) summarizing the work done during the year

Published in CSM December 2018 Issue

- Sample activities:
  - Organization of invited sessions at conferences
  - Organization of workshops, symposiums, and conferences
  - Special issues in journals
  - Service to the field, such as Editor/AE of journals, active role in professional societies, etc.
  - Outreach activities

#### TC Activity: CSM article

 Every 16 months, the TC is required to write an article for the IEEE Control Systems Magazine (CSM) summarizing the work done during the year

Published in CSM December 2018 Issue

- Sample activities:
  - Organization of invited sessions at conferences
  - Organization of workshops, symposiums, and conferences
  - Special issues in journals
  - Service to the field, such as Editor/AE of journals, active role in professional societies, etc.
  - Outreach activities

#### Log relevant activity via our TC form at

https://docs.google.com/forms/d/1HD3qCaQa5ME8lTwYTObtM4vzIPED6jd2GHX0LG8fFwY/edit

Ricardo Sanfelice - University of California, Santa Cruz

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems
- Key details:
  - Most research in cyber-physical systems considers design of algorithms and their implementation separately.

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems
- Key details:
  - Most research in cyber-physical systems considers design of algorithms and their implementation separately.
  - The designed algorithms can be compromised by the unavoidably nonzero time needed to perform computations.

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems
- Key details:
  - Most research in cyber-physical systems considers design of algorithms and their implementation separately.
  - The designed algorithms can be compromised by the unavoidably nonzero time needed to perform computations.
  - Techniques for the synthesis of algorithms should incorporate information about the computations required to be performed when implemented, and quantify the degradation of performance while guaranteeing certain fundamental properties.

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems
- Key details:
  - Most research in cyber-physical systems considers design of algorithms and their implementation separately.
  - The designed algorithms can be compromised by the unavoidably nonzero time needed to perform computations.
  - Techniques for the synthesis of algorithms should incorporate information about the computations required to be performed when implemented, and quantify the degradation of performance while guaranteeing certain fundamental properties.
  - The development of such synthesis techniques requires a radical change in the way algorithms for CPS are designed.

- IEEE CDC Workshop organized by Raphael Jungers, Maria Prandini, Majid Zamani, and myself
- Title: Computation-Aware Algorithmic Design of Cyber-Physical Systems
- Key details:
  - Most research in cyber-physical systems considers design of algorithms and their implementation separately.
  - The designed algorithms can be compromised by the unavoidably nonzero time needed to perform computations.
  - Techniques for the synthesis of algorithms should incorporate information about the computations required to be performed when implemented, and quantify the degradation of performance while guaranteeing certain fundamental properties.
  - The development of such synthesis techniques requires a radical change in the way algorithms for CPS are designed.

#### **Book collection in Birkhauser**

#### TC Discussion item: TC Social Hour

At the 2017 CDC TC meeting the idea of organizing an event for students/postdocs/recent graduates to socialize and talk about research was proposed

#### TC Discussion item: TC Social Hour

- At the 2017 CDC TC meeting the idea of organizing an event for students/postdocs/recent graduates to socialize and talk about research was proposed
- Raphael Jungers took the lead and organized this event at the CDC18 and today, after the TC meeting

#### TC Discussion item: TC Social Hour

- At the 2017 CDC TC meeting the idea of organizing an event for students/postdocs/recent graduates to socialize and talk about research was proposed
- Raphael Jungers took the lead and organized this event at the CDC18 and today, after the TC meeting
- This is not an event for faculty/advisors, but please encourage them to attend.

# Agenda

- 1. Introduction
- 2. Membership information
- 3. TC Webpage and Google Group
- 4. TC Activities
  - Update from TAB meeting
  - Update on upcoming TC report and CSM column
  - Update on CDC18 pre-CDC workshop organized by TC members
  - Book on computationally aware CPS in Birkhauser series Maria Prandini
  - Compendium of tools for hybrid systems Majid Zamani
  - TC Social for Grad Students and Postdocs

R. Jungers

#### 5. Announcements

Journal: Nonlinear Analysis: Hybrid Systems A. Giua

Other items?

 Opportunities for involvement in proposed TC activities and to start new ones

- Opportunities for involvement in proposed TC activities and to start new ones
- Let's use funding available through CSS

- Opportunities for involvement in proposed TC activities and to start new ones
- Let's use funding available through CSS
- Next meeting at the CDC in Nice

- Opportunities for involvement in proposed TC activities and to start new ones
- Let's use funding available through CSS
- Next meeting at the CDC in Nice

#### Other items?

- Opportunities for involvement in proposed TC activities and to start new ones
- Let's use funding available through CSS
- Next meeting at the CDC in Nice

#### Thank you for your support and participation!