

# Minutes of the Annual Meeting of the Sensory Systems Technical Committee of the IEEE Circuits and Systems Society

ISCAS 2020, Wednesday, October 21, 2020

15:00-16:00 CEST @Virtual Room (Zoom)

Seville, Spain

## SSTC Officers 2019-21

- **Chair:** Amine Bermak [abermak@hbku.edu.qa](mailto:abermak@hbku.edu.qa)
- **Chair Elect:** Chen Shoushun [eechenss@ntu.edu.sg](mailto:eechenss@ntu.edu.sg)
- **Secretary:** Ricardo Carmona-Galán [rcarmona@imse-cnm.csic.es](mailto:rcarmona@imse-cnm.csic.es)
- **Secretary Elect:** W. Daniel León-Salas [wleonsal@purdue.edu](mailto:wleonsal@purdue.edu)
- **Past Chair:** Tim Constandinou [t.constandinou@imperial.ac.uk](mailto:t.constandinou@imperial.ac.uk)

Minutes prepared by the SSTC's Secretary Ricardo Carmona-Galán

## List of attendees

Please refer to Annex I of these minutes

Apologies: Maurizio Valle, Kea-Tiong (Samuel) Tang, Andrew Mason, Alejandro Linares Barranco and Nicola Massari.

## Agenda

1. Our TC Membership
2. Confirmation/Approval of 2019 TC Meeting Minutes and 2020 Annual Report
3. Updates:
  - SSTC activity @ ISCAS 2020
  - IEEE CAS Society Activities
  - IEEE Distinguished Lecturer Program
4. Upcoming events:
  - IEEE BioCAS 2020, IEEE Sensors 2020, IEEE AICAS 2021, IEEE ISCAS 2021
5. SSTC track best paper award 2020
6. Updates on the TC Officers
7. AOB?

## Meeting minutes

### 1. Our TC Membership

The Chair, Amine Bermak, welcomed all the attendees to the meeting. This was followed by a round of presentations. We are currently 67 members, 37 of them attended the meeting and other 5 excused for not attending.

There were also 2 nominations for new members. As usually, this point is moved to the first place of the agenda, in order for the new members, if accepted, to participate in the discussions.

The potential new members whose proposition have been placed in due time are:

- Milin ZHANG, Tsinghua University – nominated by Amine Bermak
- Hongjie LIU, Rexeen Technology – nominated by Shoushun Chen

Their CVs can be found in Annex II. Before leaving the room to vote on their membership, the new members introduced themselves and explained their motivations to join the Committee. Dr. Hongjie LIU highlighted her potential role for increased industrial representation/collaboration given her background and Dr. Milin ZHANG expressed her willingness to contribute into promoting CAS and SSTC in China using the wide network available to her at Tsinghua University (one of the very top universities in Asia).

After the introduction, the new members waited for the deliberations on their committee membership.

The suitability of the proposed new members was recognized and they were accepted by unanimous vote. The two newly selected members joined again the meeting and were informed of their recently acquired membership.

### 2. Confirmation/Approval of Minutes from 2019 SSTC Annual Meeting and 2020 SSTC Annual Activity Report

The Chair, Amine Bermak, presented the Minutes from 2019 SSTC Annual Meeting, that were distributed to the members prior to the meeting. These minutes were approved with no objection.

The 2020 SSTC Annual Activity Report has been compiled by the Chair and the Secretary from the contribution of 34 members and distributed to all the members prior to the meeting. The report was approved by the committee with no objection.

Before moving to the next point in the Agenda, the Chair summarized the contributions of the SSTC members with the help of the table below:

#	Description	Total
1	CAS/IEEE sponsored conferences TPC/chairs/organizers	56
2	IEEE Journal editorships	45
3	Awards, honours and recognitions	13
4	Keynote speeches/invited talks	58
5	Other distinguished IEEE services (e.g. CAS BoG, Region leadership, TC chairs/secretary)	26
6	Patents	28
7	TC Significant Technical Leadership and Innovations	11

In the Chair’s opinion, the contributions of the SSTC members are significant and highly impactful specially considering journal editorship, distinguished services to IEEE and the number of patents contributed. It is without a doubt a very active and highly impactful TC. The chair thanked contribution by all members and reiterated that the Committee is doing really well in terms of impact and he is confident on its good course.

### 3. Updates

The Chair reported on the SSTC’s most relevant activities that has been achieved during the past year

#### 3.1. SSTC Activity @ ISCAS 2020

This year, the TPC Chair, Ricardo Carmona, is also a member of the SSTC. Amine Bermak and Shoushun Chen were the Sensory Circuits and Systems Track Chairs. The distribution of submissions and accepted papers for the different sub-tracks in the ISCAS 2017 and 2018, is depicted in the table below:

SSTC sub-track (submissions)	2017	2018
7.1 Imagers and Vision Sensors	29	27
7.2 Acoustic Sensing	0	3
7.3 Chemical, Organic, and MEMS Sensing	6	11
7.4 Neuromorphic and Bioinspired Sensing	4	5
7.5 Autonomous and Self-powered Sensors	3	6
7.6 Other Areas in Sensory Circuits and Systems	13	13
<b>Total (accepted/submitted and %)</b>	<b>25/55 (45.5%)</b>	<b>33/65 (50.8%)</b>

Last year, the sub-tracks were re-defined. The table below shows the submission statistics for ISCAS 2019 and 2020:

SSTC sub-tracks (submissions)	2019	2020
7.1 LF electromagnetic sensors	2	2
7.2 Electromagnetic sensors	1	3
7.3 Electrochemical sensors	5	3
7.4 Electromechanical sensors	2	3
7.5 Electro-physical sensors	6	8
7.6 Image sensors & sensor arrays	9	20
7.7 Distributed sensors	3	1
7.8 Smart sensory systems	13	26
7.9 Other areas	2	0
<b>TOTAL (accepted/submitted and %)</b>	<b>20/43 (46.5%)</b>	<b>35/66 (53.0%)</b>

The Chair comments that, in view of these numbers, we are growing but steadily. This year was the highest submission on the series and the highest final contribution to ISCAS. He wants to thank, on behalf of the Committee, the 19 members that contributed as RCMs:

Iraklis Anagnostopoulos, Víctor Brea, Shoushun Chen, Tim Constandinou, Timir Datta-Chaudhuri, Abe Elfadel, Pantelis Georgiou, Matthew Law, Juan Antonio Leñero-Bardallo, Daniel Leon-Salas, Paula López, Nicola Massari, Nicole McFarlane, Christos Papavassiliou, Themis Prodromakis, Venkat Rangan, Milutin Stanacevic and Maurizio Valle.

The number of sessions organized in this year program were 4 lecture sessions (2 on Image Sensors, 1 on Neuromorphic Circuits and Systems and 1 on Sensory Systems for IoT) and 2 poster sessions (on Smart Sensors and Sensory Systems). All the 35 papers were presented at ISCAS and only one needed the display of the pre-recorded presentation because of technical reasons.

Amine then made an analysis of the participation in the track with respect to the rest of the regular tracks in ISCAS. According to the figures offered by the TPC, our track is in line with the average acceptance rates in regular tracks (53% vs. 55.6%). In terms of average reviews per paper, we are on the highest end, with nearly 4 reviews per paper, vs. 3.79 average. Overall we represent 5% of the contributions to regular tracks. The Chair thinks that there is room to grow, because of the relevance of sensors in all emerging areas: biomedical, IoT, AI, etc. He envisions a target of 10% in the future. SSTC contribution is in the midsize behind the largest contributors namely: the Analog and Digital Circuit tracks.

There was a small debate (Shih-Chii, Amine, Ricardo, Sandro) concerning submission to other tracks of papers that fit in our sub-tracks. It was pointed out that this is based on the will of the authors, that very few papers are moved from one track to another. The main problem, if this is a problem at all, is that SSTC is a multi-disciplinary field and can serve many other tracks such as '6.0 Biomedical Circuits and Systems' and '8.0 Neural Networks and Neuromorphic Engineering', to name a few. Many papers leak to these tracks, probably because the authors feel contribution of their papers lies in the crossroad of other disciplines, which is acceptable. There is a petition however not to consider only the final application for the best fit of the paper. Every aspect related to sensors should be welcome in this Committee, no matter what the final application is. Although the situation should not be seen as a problem as SSTC is a multi-disciplinary field, the Chair proposes to promote the organization of special sessions by our community and to actively submit our best papers to ISCAS in order to promote our TC.

### *3.2. IEEE CAS Society Activities*

The Chair announced several new and relatively new initiatives within the Society.

IEEE AICAS 2020 was celebrated in Aug. 31-Sept. 4 at Genoa, Italy, as a virtual event. It counted on an important contribution from members of this Committee in the organization. It was chaired by Chiara Bartolozzi and Shih-Chii Liu, and Tobi Delbruck and Maurizio Valle, were part of the TPC.

Also UKCAS was celebrated in Dec. 2019, organized by SSTC member Hadi Heidari.

It is also mentioned that the IEEE CASS has successfully launched a new open access journal, named IEEE Open Journal on Circuits and Systems (OJCAS), already publishing its first volume (2020). The Editor in Chief is Gabriele Manganaro, and there is also an important presence of SSTC members at the Editorial Board. At this moment, publication fees and article processing charges for the accepted papers are completely subsidized by the CAS Society. Hence these publications will be completely free of charge to the authors.

There has been several initiatives around COVID-19, two competitions, whose final phase has been developed at ISCAS 2020:

- 2020 CASS COVID-19 Entrepreneurs Competition
  - Young start-ups working on topics related to the COVID pandemic
  - US\$ 10,000 for the top selected idea and US\$ 5,000 for two runners up
  - Received 12 projects covering a larger spectrum of topics aligned with CASS Strategic Plan
- 2020 CASS COVID-19 Special Student Design Competition
  - Low cost technologies geared for diagnostics, treatment, surveillance, and prevention
  - Received 9 projects covering a larger spectrum of topics aligned with

## CASS Strategic Plan (All IEEE Regions)

And also the organization of IEEE CAS Society Virtual Distinguished Lecturer Webinars, in order to comply with the restricted travel regulations that are consequence of the pandemic. Attendance to these events, both live and recorded has been high.

### 3.3. IEEE Distinguished Lecturer Program

The talks delivered in this program by SSTC members are:

- **Man-Kay (Matthew) Law**
  - “Switched-Capacitor DC-DC Converter: An Algorithmic Topology Generation Approach,” IEEE CASS Virtual DL, Online, Sep. 2020.
  - “Ultra-low Power/Energy Efficient High Accuracy CMOS Temperature Sensors for Passive RFID Applications,” IEEE CASS Shenzhen Chapter DL, Shenzhen University, Shenzhen China, Nov. 2019, and IEEE CASS Portugal Chapter DL, Universidade Nova de Lisboa, Lisbon, Portugal, Jun. 2019.
- **Andrew Mason**
  - Lecture 1: Augmented Perception: Next Generation Wearables and Human-Machine Interfaces. IEEE CASS Virtual DL, Online, Aug. and Oct. 2020.

Amine announces that CASS is seeking nominations for the new roster of the DLP program, corresponding to the term of duty 2021-2022 term of duty. We are invited to submit up to three nominations using the online webform (Chair of CASS DLP: Krishnendu Chakrabarty).

Due to the impact of COVID-19 on the DL program, the CASS Board of Governors has agreed to extend the terms of each current DL class by one year. Because of this extension, we will only be appointing up to five DLs as part of the 2021-2022 class. Each new DL class will be expected to offer talks virtually as well as travel to CASS Chapters once travel restrictions have been lifted.

The deadline for submitting the nominations is set to 16 November 2020. Submission on-line at: <https://ieee-cas.org/forms/2021-2022-term-dl-speaker-nomination-form>  
The results of the selection, to be performed by a CASS Committee, will be published no later than 30 December 2020. Nominations to be submitted on-line by 16 November.

## 4. Upcoming events

Some upcoming events of interest for this Committee are:

No.	Conference	Dates	Venue
1	IBM IEEE CAS/EDS – AI Compute Symposium	21-22 Oct 2020	Virtual event

2	IEEE ICCD 2020	18-21 Oct 2020	Virtual event
3	IEEE ICICM2020	23-25 Oct 2020	Virtual event
4	IEEE ICECS 2020	23-25 Nov 2020	Virtual event
5	IEEE APCCAS 2020	8-10 Dec 2020	Blended, Vietnam
6	IEEE LACAS 2021	21-25 Feb 2021	Virtual event
7	IEEE AICAS 2021	28-30 March 2021	Virtual event
8	IEEE ISCAS 2021	23-26 May, 2021	Daegu, Korea
9	IEEE NEWCAS 2021	13-16 June 2021	Toulon, France
10	IEEE BioCAS 2020/21	October 2021	Berlin, Germany

All events in the coming months are moving to a virtual format. There are plans for mixed format, in person and virtual, although no decisions have been taken at higher levels in IEEE CASS BoG. Amine recommends participation of the members of the SSTC in the upcoming events sponsored by the Society.

#### 5. Best Paper Award of the Sensory Circuits and Systems Track 2020

Best papers have not been finalized yet. The 10 papers top ranked in the reviews will be considered by a committee. Amine is asking for volunteers for this committee for selecting the best paper.

This will be solved in a few days after the Conference.

#### 6. Updates on the TC Officers

The current organigram of the SSTC is:

Responsibility	2019-21
Past Chair	Tim Constandinou
Chair	Amine Bermak
Chair-elect	Shoushun Chen
Secretary	Ricardo Carmona
Secretary-elect	W. Daniel Leon-Salas

The SSTC has a 2-year cycle for officers. New officers are elected on odd years (2017, -19, -21, etc). The current Chair becomes Past Chair, while the Chair-elect becomes Chair, the Secretary becomes Chair-elect and the Secretary-elect becomes Secretary. That makes a 10-year service in total. In the next annual meeting we will be electing a new Secretary-elect for the 2021-23 term.

**7. AOB**

No.

Without AOB to be discussed the meeting concluded at 16:05 CEST.



## Annex I: List of attendees

Members of SSTC who attended the Annual Meeting:



Name	Affiliation	Email
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Members of SSTC who apologized for not attending the Annual Meeting.

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New Members of SSTC who attended the Annual Meeting.

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## **Annex II: CVs of New Members**