

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

ISCAS 2019, Wednesday, May 29, 2019

11:30-13:00 @Seminar Room 2 (Sapporo City Industrial Promotion Center - 3F)

Sapporo, Japan

SSTC Officers 2017-19

- **Chair:** Tim Constandinou t.constandinou@imperial.ac.uk
- **Chair Elect:** Amine Bermak eebermak@ee.ust.hk
- **Secretary:** Chen Shoushun eechenss@ntu.edu.sg
- **Secretary Elect:** Ricardo Carmona-Galán rcarmona@imse-cnm.csic.es
- **Past Chair:** Piotr Dudek pdudek@umist.ac.uk

Minutes prepared by the SSTC's secretary-elect Ricardo Carmona-Galán

List of attendees

Please refer to Annex I of these minutes

Agenda

1. New members Election
2. Confirmation/Approval of Minutes from 2018 SSTC Annual Meeting and 2018 SSTC Annual Report
3. Updates:
 - SSTC Activity @ ISCAS 2019
 - IEEE CAS Society Activities
 - IEEE Distinguished Lecturers Program
 - Cross Society/Council Activities
4. Upcoming events:
 - IEEE BioCAS 2019, IEEE Sensors 2019, IEEE AICAS 2020, IEEE ISCAS 2020
5. SSTC track best paper award 2019
6. New Officer Elections (Secretary-elect)
7. AOB

Meeting minutes

1. New Members Election

The Chair, Tim Constandinou, welcomed all the attendees to the meeting. As in the previous year, this point was moved up 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 nine:

- Yingyan (Celine) LIN, Rice University, USA – Self-nomination
- Cheng-Ta CHIANG, National Chia Yi University, Taiwan – Self-nomination
- Runchun WANG, University of Western Australia – nominated by Andre van Schaik
- Yan LIU, Imperial College London, UK – nominated by Timothy Constandinou
- Xiaoyang ZENG, Fudan University, China – nominated by Yong Lian
- Yuanqi HU, Beihang University, China – nominated by Pantelis Georgiou
- Josep M. Margarit TAULE, ETH/UZH – nominated by Shih-Chii Liu
- Xiaojin ZHAO, Shenzhen University – nominated by Amine Bermak
- Mohamad SAWAN – nominated by Tim Constandinou

Their CVs can be found in Annex II. Before they abandoned the room, they introduced themselves and explained their motivations to join the Committee. After that, they abandoned the room for the deliberations on their acceptance.

Several issues were then risen. In the first place, seniority concerns were pointed out. Chair Tim Constandinou warned that if we were to implement this type of criteria, a modification of the SSTC Charter is required. A scheme inspired by BioCAS TC was suggested to implement membership levels. This scheme has the mission of encouraging early career researchers to get involved, as they usually arte the most active members. Also it is meant to limit thee access by experience, but not preventing the incorporation of willing volunteers. The proposed member categories are:

- Associate members: early career researchers. Would be assessed by SSTC officers after 2 years and upgraded to regular members if found appropriated. They will have limited participation to RCM, BP award panel, guest editor TBioCAS, voting and chairing.
- Regular members: independently established researchers. This is the category of all current members.
- Life members: distinguished members that maybe now inactive but whose contribution can be accounted for in a broader sense.

There was a discussion about the benefits and drawback of such scheme. It was the feeling of the majority that the benefits were not worth the effort.

In any case, the suitability of the proposed new members was recognized and they were accepted by unanimous vote, except Runchun Wang who was not present. It is mandated by article 4.1 of the SSTC Charter that “All new member nominees should attend the TC meeting at ISCAS and express their interest to be active members.”

The eight newly selected members incorporated to the meeting and were informed of their recently acquired membership.

2. Confirmation/Approval of Minutes from 2018 SSTC Annual Meeting and 2018 SSTC Annual Activity Report

Minutes from the 2018 Annual Meeting of the SSTC were prepared by Secretary-elect Ricardo Carmona-Galán. The Chair, Tim Constandinou, presented the document, that were distributed to the members prior to the meeting. The Minutes of the 2018 SSTC Annual Meeting were approved with no objection.

The Chair also mentioned that the 2018 SSTC Annual Activity Report still needs to be distributed. It has been compiled by Secretary, Shoushun Chen, from the contributions of 25 members of the SSTC. It was not made public yet because it contained the result of the selection of the Best Paper of the 2019 ISCAS Sensory Systems Track. Therefore, the document will be presented to the members after the meeting and approved in the following meeting.

3. Updates

At this point, the Chair updates the SSTC on the most relevant activities that has been developed during the past year

3.1. Highlights of ISCAS 2019

This year, 23 members served as RCM’s for the Sensory Circuits and Systems track. Tim Constandinou express his thanks to these members:

Tim Constandinou, Themis Prodromakis, Paula Lopez, Pantelis Georgiou, Gert Cauwenberghs, Venkat Rangan, Nicole McFarlane, Milutin Stanecevic, Juan Leñero-Bardallo, Maurizio Valle, Ibrahim Elfadel, Ricardo Carmona, Shoushun Chen, Matthew Law, Nicola Massari, Christoph Posch, Christos Papavassiliou, Timir Datta-Chaudhuri, Iraklis Anagno, Victor Brea, Shii-Chii Liu, Piotr Dudek, Alex Serb.

The distribution of submissions and accepted papers for the different sub-tracks in the previous two past ISCAS, 2017 and 2018, is depicted in this table:

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
Total (accepted/submitted and %)	25/55 (45.5%)	33/65 (50.8%)

This year, the sub-tracks have been re-defined and the result is depicted in the following table:

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

One noticeable consequence is that the number of papers sent to “Other areas in Sensory Circuits and Systems” has dropped. This supports the idea that the new sub-track scheme is better reflecting the research activities of our community.

Overall ISCAS submissions and total acceptance rates for the last editions are:

ISCAS	Papers submitted	Papers accepted	Acceptance rate
2017	1666	840	50.4%
2018	1881	1118	59.4%
2019	1454	826	56.8%

The number of sessions organized in this year program were 3 oral sessions (1 on chemical/mechanical sensors, 1 on imagers and 1 on sensory systems) and 1 poster sessions (on sensory circuits and systems).

It is mentioned by some members (Ricardo, Pamela, Sandro) that this year there have been sessions that fall under the scope of this Committee that were not derived to the Sensory Systems Track. In particular, there was a session from the Analog and Mixed Signal Circuits and Systems Track dedicated to sensor interface circuits. This

overlapping might be just casual, as authors that are expert in analog design may find themselves better evaluated within this track. Our Committee appeals to the next ISCAS TPC Chair to pay attention to any intentional overlapping.

In some journals, manuscripts proceed through the review system attending to a number of keywords suggested by the authors. The possibility of incorporating this keyword-driven assignment will be evaluated.

3.2. IEEE CASS Activities

The Chair announced several new and relatively new initiatives within the Society. IEEE AICAS 2019, a new CASS conference, was celebrated in March 18-20 at Hsinchu, Taiwan, with 74 papers accepted out of 137 submissions. Next year's edition will be held in Genoa, Italy. It will be chaired by Chiara Bartolozzi, Shih-Chii Liu and Tobi Delbruck. In March 2021, it will be held in Washington DC.

A number of industry-led workshops have been celebrated as well, namely:

- the 2018 CASS/EDS (sponsored by IBM) Workshop on AI/ML. Next year they will repeat with this topic
- the 2018/19 (sponsored by Intel) Silicon Valley AI for Industry Forum
- 2019 SMR/BRAIN/CASS (sponsored by Galvani Bioelectronics) Workshop on Bioelectronic Medicine

The Chair announced that the IEEE CAS Society is about to launch new open access journal named OPCAS.

He also mentioned that the IEEE CAS Society is developing a 10-year strategy.

3.3. IEEE CASS EDICS update

This year the EDICS, the entries in the Editors Information Classification Scheme, have been updated. This concerns TCAS-I and TCAS-II. Inputs from all the Technical Committees have been requested. The new SSTC-related EDICS, that will be implemented in 2019 are:

- ACS500 - Sensor systems
 - ACS500A0 - Sensor arrays: either single mode, or multi-modal (incl. imagers)
 - ACS500A5 - Distributed sensors: combining power, communication, processing
 - ACS500B0 - Smart sensory systems: calibration, signal conditioning, processing, autonomous systems
- ACS510 - Sensor/actuator interface circuits
 - ACS510A0 - Low frequency electromagnetic
 - ACS510A5 - Optical

- ACS510B0 - Electromagnetic: infrared, terahertz
- ACS510B5 - Electrochemical: amperometric, potentiometric, conductometric
- ACS510C0 - Electromechanical, MEMS, NEMS: acoustic, inertial, pressure/flow
- ACS510C5 - Electrophysical: temperature, gas/humidity, radiation

3.4. IEEE Distinguished Lecturer Program

The Chair, Tim Constandinou, announces that there are three SSTC members in the 2019-20 roster of distinguished lecturers, namely:

- **Andrew Mason**
 - Lecture 1: Augmented Perception: Next Generation Wearables and Human-Machine Interfaces
- **Man-Kay (Matthew) Law**
 - Lecture 1: High Efficiency Capacitive Piezoelectric Energy Harvesting Interfaces
 - Lecture 2: Ultra-low Power/Energy Efficient High Accuracy CMOS Temperature Sensors for passive RFID Applications
 - Lecture 3: Reconfigurable Fully Integrated Switched-Capacitor DC-DC Converter for IoT Applications
- **Andreas Andreou**
 - Lecture 1: Architectures in 14nm FinFET CMOS for Computational Memories and Imagers
 - Lecture 2: Circuits in 14nm FinFET CMOS for Computational Memories and Imagers

The benefits of participating in such program were explained in detail by Pantelis Georgiou, who was a distinguished lecturer in Circuits and Systems before.

It is pointed out that IEEE CASS is providing some funds for travelling but accommodation is usually provided by those institutions appointing some of the DLP fellows.

Chair Tim also asked for any nominations for the 2020-21 roster. At this moment there are no additional proposals.

3.5. Fellows and Cross-Society Activities

At this point, the Chair wants to congratulate, on behalf of all the Members of the Committee, to our colleague Maysam Ghovanloo because of his distinction as IEEE Fellow. He has been elevated to IEEE Fellow for contributions to implantable wireless

The ISCAS 2018 SSTC Best Paper Award (Winner) is:

"A Compact 4-Decade Dynamic Range Readout Module for Gamma Spectroscopy and Imaging", by Giovanni L. Montagnani, Luca Buonanno, Davide Di Vita, Carlo Fiorini, Marco Carminati

6. Officer election

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. Therefore, we needed to elect a new Secretary-elect for the 2019-21 term. The candidate was Walter Daniel Leon-Salas, who has been nominated by Shii-Chii Liu, seconded by Amine Bermak. He has been an active member of the Committee for the last years and wants to take this responsibility.

There was no other nominations. The candidate introduced himself for those who did not know him yet and after that retired to allow the Committee to deliberate. He was elected by unanimous vote of the present members.

The organigram of the SSTC in the past and the new terms is finally:

Responsibility	2017-19	2019-21
Past Chair	Piotr Dudek	Tim Constandinou
Chair	Tim Constandinou	Amine Bermak
Chair-elect	Amine Bermak	Shoushun Chen
Secretary	Shoushun Chen	Ricardo Carmona
Secretary-elect	Ricardo Carmona	W. Daniel Leon-Salas

7. AOB

At this point, members of the Committee talked about the Plan S, an initiative of a group of national and international research funding organizations to accelerate the transition towards full and immediate Open Access to research publications. "S" stands for shock. IEEE is joining the major publishers in a coordinated response to this plan. Hybrid access do not comply to the requirements so further advances might be needed.

Prior to meeting conclusion of the meeting, all the Members of the Committee want to unanimously express their gratitude for the work of the Chair of the SSTC, Tim Constandinou, who is now leaving his duties and becoming Past Chair. A general applause was offered in recognition of his work.

Without AOB to be discussed the meeting concluded at 13:00.

Annex I: List of attendees

Members of SSTC who attended the 2019 Annual Meeting.

Name	Affiliation	Email
ABSHIRE, Pamela	Univ. of Maryland	pabshire@umd.edu
BASU, Arindam	NTU, Singapore	arindam.basu@ntu.edu.sg
BERMAK, Amine	HKUST	eebermak@ust.hk
BLAIN CHRISTEN, Jennifer	Arizona State University	jennifer.blainchristen@asu.edu
BREA, Víctor	Univ. Santiago de Compostela	victor.brea@usc.es
CARMONA-GALÁN, Ricardo	CSIC-Univ. Sevilla	rcarmona@imse-cnm.csic.es
CARRARA, Sandro	EPFL	sandro.carrara@epfl.ch
CHAKRABARTTY, Shantanu	Washington Univ. St. Louis	shantanu@wustl.edu
CHEN, Jie	Univ. of Alberta (Canada)	jc65@ualberta.ca
CHEN, Shoushun	NTU, Singapore	chenshoushun@gmail.com
CONSTANDINO, Tim	Imperial College London	t.constandinou@imperial.ac.uk
DATTA, Timir	Feinstein Institute	tdatta@northwell.edu
ELFADEL, Abe	Khalifa University (Abu Dhabi)	elfadel@masdar.ac.ae
GENOV, Roman	Univ. Toronto	roman@eecg.utoronto.ca
GEORGIU, Julius	Univ. of Cyprus	julio@ucy.ac.cy
GEORGIU, Pantelis	Imperial College London	pantelis@imperial.ac.uk
LEON-SALAS, W. Daniel	Purdue University	wleonsal@purdue.edu
LINARES-BARRANCO, Alejandro	Univ. of Seville	alinares@us.es
McFARLANE, Nicole	University of Tennessee	mcfarlane@utk.edu
PRODROMAKIS, Themis	Univ. of Southampton	t.prodromakis@soton.ac.uk
SERB, Alexander	Univ. of Southampton	a.serb@soton.ac.uk
VALLE, Maurizio	Univ. of Genova	maurizio.valle@unige.it

New Members of SSTC who attended the 2019 Annual Meeting.

Name	Affiliation	Email
MARGARIT-TAULÉ, Josep Maria	INI-UZM/ETH Zürich	josep@ini.uzm.ch
LIN, Yingyan	Rice University (USA)	yingyan@rice.edu
ZHAO, Xiaojin	Shenzen University	eexjzhao@szu.edu.cn
ZENG, Xiaoyang	Univ. Fudan (China)	xyzeng@fudan.edu.cn
CHIANG, Cheng-Ta	NCYA Taiwan	ctchiang@mail.nycu.edu.tw
LIU, Yan	Imperial College London	yan.liu06@imperial.ac.uk
HU, Yuanqui	Beihang University (China)	YuanquiHu@bhan.edu.cn
SAWAN, Mohamad	Westlake Univ. (China)	sawan@westlake.edu.cn

Non-members invited to the 2019 Annual Meeting

Name	Affiliation	Email
CARMINATI, Marco	Politecnico di Milano	marco1.carminati@polimi.it
BUONANNO, Luca	Politecnico di Milano	luca.buonanno@polimi.it

Annex II: CVs of New Members