IEEE Circuits and Systems Society: Technical Committee Review

IEEE CASS Technical Committee on Multimedia Systems & Applications TC
Review Scheduled:

Information request to TC: TC Response received: Review performed:	Draft Review Panel report to TC: Report comments returned by TC: Final report submitted to ExCom:

PART 1 – IEEE CASS TC REVIEW PROCEDURE

In 2012, the IEEE Circuits and Systems Society established a formal process of periodic reviews of Technical Committees to ensure the ongoing health of the Society's technical community and the excellence of its technical activities. Reviews are a positive vehicle to ensure that all the Technical Committees continue to maintain the highest of standards. They provide a way of identifying and sharing best practices across TCs and of informing the CASS leadership of the needs of the technical communities.

The review process yields snapshots of the membership, and a record of and commentary on each TC's activity, operation, vision for their field of interest, and future plans. The documents comprising the review should provide a useful and comprehensive introduction to the TC for all CASS members.

TC Review Committee

1. **Duties**. The TC Review Committee shall guide the formal review process of the Technical Committees. The TC Review Committee will meet annually to review the Technical Committees; it will report to the CASS Executive Committee.

2. **Composition**. The Chair of the TC Review Committee shall be the Vice President for Technical Activities. The committee members shall be appointed for two-year terms by the Vice President for Technical Activities from among the current and former Executive Committee and Members-at-Large on the Board of Governors.

Technical Committee Reviews

Each Technical Committee will undergo a formal review at least, and typically, every 4 years.

The next review cycle is:

2020 – Yr 1
Multimedia Systems & Applications (MSA)
Nanoelectronics and Gigascale Systems (Nano-Giga)
Power and Energy Circuits and Systems (PECAS)
Visual Signal Processing and Communications (VSPC)

2021 – Yr 2
Cellular Nanoscale Networks and Array Computing (CNNAC)
Neural Systems and Applications (NSA)
Nonlinear Circuits and Systems (NCAS)
Sensory Systems (SS)

2022 – Yr 3
Analog Signal Processing (ASP)
Circuits and Systems Education and Outreach (CASEO)
Digital Signal Processing (DSP)
VLSI Systems and Applications (VSA)

2023 – Yr 4
Biomedical and Life Science Circuits and Systems (BIOCAS)

IEEE Circuits and Systems Society: Technical Committee Review

Circuits and Systems for Communication (CASCOM)
Computer-Aided Network Design (CANDE)

The review process starts with the TC Chair submitting responses to a Review Questionnaire. The Questionnaire provides a snapshot of the TC's membership and activities, including, though not limited to, the TC membership, sponsored/co-sponsored workshops; paper review for sponsored/co-sponsored major conferences; session organization for major sponsored/co-sponsored conferences; awards nominations; associate editor nominations by EDICS and journal; distinguished lecturer nominations; TC elections; TC bylaws; number of TC meetings, attendance and quorum; diversity of membership; Web page address and date of last update; relationship to other TCs in CASS, other IEEE Societies and non-IEEE groups; vision/mission statement; and future plans.

Description of the Review Steps

The Technical Committee Review process comprises the following steps:
- The questionnaire template is transmitted to the TC Chairs at least 7 weeks before the start of ISCAS of the scheduled review year.
- The completed TC Review Questionnaire and any other relevant information must be submitted to the TC Review Committee by the TC Chair no later than 2 weeks in advance of the Review meeting.
- The Review Meeting, in which the TC Review Committee meets with two TC representatives, usually the TC Chair and Vice-Chair, to discuss the review questionnaire response, is scheduled during ISCAS or, if that is not practical, at another time soon thereafter, either face-to-face or by tele/video conference,.
- The TC Review Committee submits a recommendation report to the TC Chair for comment within a month of the Review Meeting. The TC Chair has two months to respond to the TC Review Committee's comments/recommendations and return the report with requested revisions.
- A final report, which includes the TC Review Committee's comments and the TCs response, is submitted to the Executive Committee before the November BoG meeting, where the report becomes an archival record of the Review, to be referenced in future Reviews, and to be posted on the Society Web site (password protected).

2020 Review Timetable

The 2020 Technical Committee Review process will comprise the following stages:
- **18 MAY 2020**   Review Questionnaire template emailed to TC Chairs.
- **30 SEP 2020**   Final date for submission of the completed Review Questionnaire and other relevant information
- **10 OCT 2020**   Face-to-face TC review at ISCAS 2020
- **31 OCT 2020**   The TC Review Committee submits a recommendation report to the TC Chair for comment.
- **31 DEC 2020**   TC Chair has two months to respond to the TC Review Committee's comments and recommendations and return the report with any requested revisions.
- **15 JAN 2021**   Final report, including the TC Review Committee's comments and the TCs response, is submitted to the Executive Committee for ratification.

IEEE Circuits and Systems Society: Technical Committee Review

PART 2 – TC NOMINATED OFFICERS FOR REVIEW MEETING
(To be completed by TC)

Please list the names, current TC officer role, affiliation and location (during the review meeting period) of the TC Officers who will attend the Review Meeting (typically the TC Chair and Chair Elect):

Chair Samson Cheung (University of Kentucky and University of California, Davis) will be attending the review meeting from Davis, CA, USA. Chair-elect Wen-Huang Cheng (National Chiao Tung University) will be attending the review meeting from Hsinchu City, Taiwan.

PART 3 – TC GENERAL INFORMATION
(Sections A-M to be completed by TC)

A. TC Officers for last 5 years

For each current Officer, please list names, affiliation, TC role, term start date and term end date (date format yyyy-mm-dd)

2019-09-01 to 2021-08-31
Chair: Dr. Samson Cheung
Chair-elect: Dr. Wen-Huang Cheng

2017-09-01 to 2019-08-31
Chair: Dr. Shao-Yi Chien
Chair-elect: Dr. Samson Cheung

2015-09-01 to 2017-08-31
Chair: Dr. Zicheng Liu
Secretary: Dr. Shao-Yi Chien

B. SCOPE OF TC

1. Date TC was formed:
   2000

2. Please provide a summary of the TC's scope (mission and vision)

   The mission of the MSA TC is to promote the exchange of information pertaining to the research, development, and practice of multimedia technologies, systems, and applications.

   The vision of the MSA TC is to champion multimedia research and technologies for the advancement of different systems and applications in the broad areas of circuits and systems.

3. Please explain how the TC's mission and vision connect with the CASS mission and vision, which focus on pioneering circuits and systems solutions that address humanity's grand challenges. (see http://ieee-cas.org) Comment on the overlap of scope with other CASS TC's.

   The overarching vision of CASS in delivering solutions to UN's Sustainable Development Goals (SDG) underlines the importance of MSA TC's missions -- all circuits and systems developed for interdisciplinary applications require a user-friendly interface for human operators and proper visualization tools to distill and present useful and actionable analytics from data. These interfaces and visualization can only be accomplished and enhanced through sustained research and development of multimedia technologies. For example, the significant advancements in multimedia-rich wearables delivers personalized medicine that plays a pivotal role in SDG3 on "Good Health and Well-being". The revolutionary developments in the usage of artificial intelligence on multimedia data permeate most SDG goals, especially in the usage of aggregating diverse multimodal data from a variety of sensors for climate modeling, agriculture, livestocks and other biological and medical sciences. The focus on the capture, manipulation and presentation of multimodal high-dimensional data differentiate our TC from our sister TC "Visual Signal Processing &

Communications," which has a more narrow focus on visual medium. In addition, MSA TC has a broader scope in the areas of computer architecture and circuits that target the delivery of multimedia signals. This area of interests are in line with the strong focus of CASS in the circuit and system design. There have been many collaborations between our TC and other CASS' TCs as evidenced by the many co-organized conferences and special issues as well as shared editorship in journals. More details are provided in Sections F and G.

4. Comment on the overlap of scope or collaboration with other IEEE Societies' TCs.

Besides CASS' own VSPC-TC, MSA-TC also works very closely with TCs from IEEE SPS, Computer, and Communication Societies. In terms of scope, IEEE SPS' Multimedia Signal Processing (MMSP) TC has the most overlap with our missions - both of us share a strong interest in promoting multimedia research and applications. The main difference is that MMSP has a stronger focus on algorithmic aspects while MSA has more expertise in architecture and system development. The simple fact that emerging applications require both pillars has prompted many collaborations between the two TCs. Many of our TC members also have served or are currently serving in MMSP. Together with IEEE Computer Society, we coordinate in the management of IEEE Transactions on Multimedia and the TC chairs serve on the steering committee with many of our TC members as associate editors. Along with IEEE SPS, Computer, and Communication Societies, we co-organize the largest technical multimedia conference, IEEE Conference on Multimedia Expo, annually.

5. Comment on the overlap of scope or collaboration with other Professional Societies, and Technical or Scientific Groups.

Outside of IEEE, the group with the largest overlap with our technical interest is ACM's Special Interest Group on Multimedia (SIGMM). As the only group in ACM targeting multimedia, SIGMM has a much broader scope than our TC and sponsors over 10 conferences and workshops, 6 journals and 2 local chapters. Our TC members have broad participation in various SIGMM's activities, and have taken on leadership roles in SIGMM, including TC member Nicu Sebe serving the Vice Chair and Steering Committee Chair and TC member Tao Mei serving as their MMAsia Steering Committee chair.

C. BYLAWS, POLICIES AND PROCEDURES

1. Please append copies of current Bylaws and Policies and Procedures

See attached.

D. CASS MEMBERSHIP ENGAGEMENT

1. How do CASS members learn about and get involved in the TC activities?

CASS members can learn about and get involved in the TC activities via our CASS TC website, our LinkedIn group, our Facebook page, our WeChat group:
Web:https://ieee-cas.org/community/technical-committees/multimedia-systems-applications-technical-committee-msatc
LinkedIn: http://www.linkedin.com/groups?home=&gid=4232509&trk=anet_ug_hm
Facebook: https://www.facebook.com/groups/605360706193237/
Any CASS members can also directly contact any TC members or officers and join as a member affiliate.
We also actively recruit members and member affiliates during all the conferences, especially ISCAS and ICME, in which the TC is active.

2. It is desirable for the TCs to build communities of interest among the broad CASS membership. What methods are used to receive input from CASS members?

There are two primary forms of inputs: top-down and bottom-up. The top-down approach relies on the meetings with the leadership from the Technical activities division and other TC's representatives during the

annual meetings. New initiatives and strategic directions are then communicated to our TC membership during our meetings and through email reflectors, which usually lead to interesting discussions and directions to be taken by members and affiliates. Through social networks and online discussions, various projects from special issues to new workshops are organically proposed with TC providing logistic support and networking infrastructure.

3. Describe methods used to assess how well the TC serves the technical membership of CASS in the TC area.

Since the mission of the TC is to promote the exchange of information pertaining to the research, development, and practice of multimedia technologies, systems, and applications, the metrics of success measure how well our TC members are achieving these goals by (1) the involvement in IEEE conference/even organization, (2) IEEE Journal Editorships, (3) awards, honors, and recognition, (4) delivered keynote speeches and invited talks, and (5) other distinguished IEEE services.

4. Describe how the TC is meeting demands for industrial/commercial applications-related activities.

The main method that the TC uses to meet the demand of industry is to recruit high calibered academic researchers to join our TC in order to attract impactful paper submissions to CASS's sponsored journals, conferences, and workshops. Furthermore, to provide a continued stream of talents to meet the needs of industry, our TC members have also been organizing a myriad of student programs at ICME to broaden the networking with industries for all the stellar multimedia researchers of the future.

5. Describe any mechanisms to attract CASS industry member involvement in the TC.

Due to the TC's emphasis on systems and applications, participation from industry is essential to the overall mission of the TC. The TC has been engaging industry members primarily with three approaches: first, TC members and officers have been actively recruiting members from industry to join the TCs. Our current roster as shown in E.2 has 10 (out of a total of 50) members from industry. Second, the TC seeks active involvement from industry in sponsoring our flagship conferences ISCAS and ICME, as well as organizing special workshops and/or demo to attract submissions and participation of industry. Third, the TC supports and promotes special initiatives such as CAS Emerging and Selected Topic Industry Forums (CASIF) that are specially designed to facilitate interaction with industry.

E. MEMBERSHIP

1. Describe the types of membership (Member, Associate Member, etc.), function of each, number of members, and make-up (for example, geographic distribution, academic or industrial, gender, and so forth) of the TC members.

There are three types of members: TC Members, TC Affiliates, and TC Emeritus Members. Any CASS or IEEE member of good standing and willing to perform the duties of membership may seek to join the MSA TC. Membership requires nomination by a current member and is approved by a majority of voting members after at least two-week notice either present at the Committee's Annual Meeting or by internet ballot of the membership. All Technical Committee Members have voting rights. The Technical Committee may have up to 50 elected members.

Technical Committee Affiliates are an integral part of the Technical Committee and carry the same responsibilities as Technical Committee Members, but do not have voting rights. The main purpose of the Technical Committee Affiliates is to engage the broader multimedia community in the activities of the Technical Committee, while still enabling an efficient voting and decision-making process among a smaller set of elected members. The number of TC Affiliates is unlimited

Past Technical Committee Members with distinguished service to the TC may be recognized as Technical Committee Emeritus Members. Emeritus Members serve the TC in an advisory role, e.g., contributing to

long-term planning and strategic directions, and are welcome to participate in TC activities, such as reviewing papers or participating in subcommittees.

The makeup of the current TC members is answered in the following question.

2. Please provide the current TC roster (please order alphabetically)

Last Name	First Name	IEEE Region	Academic/Industry	Gender
Agostini	Luciano Volcan	9	A	M
Anagnostopoulos	Iraklis	4	A	M
Bajic	Ivan	7	A	M
Bao	Bing-Kun	10	A	F
Chen	Zhibo	10	A	M
Cheng	Wen-Huang	10	A	M
Cheung	Samson	3	A	M
Chien	Shao-Yi	10	A	M
Chu	Wei-Ta	10	A	M
Cui	Peng	10	A	M
Duan	Ling-Yu	10	A	M
Ebrahimi	Touradj	8	A	M
El Saddik	Abdulmotaleb	7	A	M
Gabbouj	Moncef	8	A	M
Hou	Junhui	10	A	M
Hsu	Winston	10	A	M
Hu	Wei	10	A	F
Hua	Xian-Sheng	10	I	M
Kang	Li-Wei	10	A	M
Kim	Chang-Su	10	A	M
Li	Shipeng	10	I	M
Li	Ying	1	I	F
Liang	Jie	7	A	M
Lin	Chia-Wen	10	A	M
Liu	Wu	10	I	M
Liu	Dong	10	A	M
Liu	Jiaying	10	A	F
Lu	Jiwen	10	A	M
Luo	Chong	6	I	F
Mei	Tao	10	I	M
Meng	Jingjing	1	A	F
Mrak	Marta	8	I	F
Nie	Liqiang	10	A	M
See	John	10	A	M
Sun	Jiande	10	A	M
Tan	Yap-Peng	10	A	M

Tian	Dong	1	I	M
Velisavljevic	Vladan	8	A	M
Wan	Shuai	10	A	F
Wen	Yonggang	10	A	M
Xu	Jizheng	6	I	M
Yuan	Junsong	1	A	M
Zeng	Wenjun	6	I	M
Zeng	Dan	10	A	F
Zhai	Guangtao	10	A	M
Zhang	Xiao-Ping	7	A	M
Zhang	Lei	6	I	M
Zheng	Wei-Shi	10	A	M
Zhou	Jiantao	10	A	M
Zhu	Che	10	A	M

3. What do the classifications of TC members as "active" and "inactive" mean?

A member is said to be active if s/he participates at least once every two years in one of the followings: (i) attending the TC meeting; (ii) submitting a write-up for inclusion in the TC's annual report; (iii) serving as Review Committee Member or Reviewer for ISCAS paper submissions; and (iv) actively contribute to an activity carried out by the TC.

A member is said to be inactive if they have not participated in one of the four activities for two consecutive years. The Chair-Elect will email all inactive members to encourage them to become active. Members who do not respond or who give sufficient cause for a 2-year absence yet fail to contribute for a 3rd consecutive year will automatically be removed from the Committee.

4. Describe the process for nomination and election of TC members, and their term of membership.

Members will serve a term of four-years, starting 1 September. The election of new members shall be finalized by 15 July of the election year. The election of the members is done according to the following process. An open call for new member nominations shall be made. New members of the Technical Committee are nominated by at least one of the existing members of the Technical Committee. Past members of the Technical Committee are eligible to be nominated for a second term. Current members of the Technical Committee may also be nominated for a second consecutive term but are not eligible to vote in that new member election. Additional terms are allowed, but at least a 1-year gap in service is required. The Chair of the Technical Committee needs to circulate the bio and position statement from the candidates and conduct a vote within the Technical Committee. A simple majority vote is needed for the acceptance of the new members. If there are more nominations than open slots, the most preferred by the Technical Committee members responding to the ballot will be elected as new members, provided a quorum of the Technical Committee members responded to the ballot. In the event of a tie, the Chair will break the tie.

5. Describe the process for nomination and election of TC Officers and their terms of office.

The Committee shall have three officers: Chair, Chair-Elect, and Past Chair. Each will serve a two-year term. All Technical Committee Officers have voting rights. The Chair is normally not directly elected and is filled by transition of the Chair-Elect at the end of their two-year term. An out-of-sequence election for the Chair can be held should the Chair-Elect be unable to assume the role of Chair. At the end of the term, the Chair will become the Past Chair. The Chair-Elect is elected by the Committee members and must be a member of the Committee. The election of the Chair-Elect is done according to the following process. An open call for nominations for the Chair-Elect position shall be made. Nominations for Chair-Elect shall be restricted to individuals who are currently serving or have previously served as committee members within

the past 5 years. Chair-Elect elections will take place every two years and results shall be finalized by 15 July of the election year. The term of the Secretary starts on 1 September of the election year. The Secretary automatically succeeds to the position of Chair then Past Chair of the Technical Committee.

6. If your TC has some additional structure (such as subcommittees or administrative committees) please describe them and their purpose.

The Technical Committee shall normally have subcommittees to accomplish the duties of the TC. The Chair shall appoint TC Members to the subcommittees. The TC Chair may also appoint Technical Committee Affiliates and Technical Committee Emeritus Members to subcommittees. The Chairs of each subcommittee are typically Technical Committee Members. Currently, the TC has the following subcommittees:
   - Technical Exchange – to facilitate information exchange and focused discussions on technical topics of interest
   - Technical Vision – to review and revise the technical vision and directions of the TC.
   - Membership and Election – to solicit and process new member nominations and oversee the election process.
   - Award and Nomination – to increase the visibility of the TC and its activities by proactively seeking opportunities to nominate members of the multimedia community for awards.
   - Policies and Procedures – to review and revise the policies and procedures of the TC.
   - Online Community – to recommend and use the latest social platforms in creating forums for the TC and multimedia community to interact and exchange ideas.

F. JOURNAL ACTIVITY/ACCOMPLISHMENTS

1. Identify the CAS Society Journals with which the TC is significantly associated.

IEEE Transactions of Multimedia (TMM)
IEEE Transaction on Circuits and Systems Video Technology (T-CSVT)
IEEE Transactions on VLSI Systems (T-VLSI)
IEEE Transactions on Circuits and Systems – Part I and II (T-CAS, Part I & II)
IEEE Open Journal of Circuits and Systems (OJCAS)

2. For each Society Journal mentioned above, state whether the TC provides the Editor-in-Chief/DEIC

The TC does not provide the Editor-in-Chiefs of any of the journals.

3. For each Society Journal mentioned above, where available, provide the EDICS (Editors' Information Classification Scheme) that fall under the TC.

The entire EDICS of TMM and T-CSVT fall under the TC.
Related EDICS for T-CAS Part I & II:
   - DCS230A0 - Digital hardware implementations for multimedia
Related EDICS for T-VLSI: (CAN'T FIND EDICS)

4. For each Society Journal mentioned above, list the Associate Editors from the TC in the last four years.

IEEE Transactions of Multimedia (TMM)
- Ivan Bajic
- Jianfei Cai
- Chang Wen Chen (EiC)
- Wen-Huang Cheng
- Samson Cheung
- Ling-Yu Duan
- Winston Hsu
- Benoit Huet
- Chang-Su Kim
- Zhu Li
- Zicheng Liu

- Enrico Magli
- Tao Mei
- Marta Mrak
- Joern Ostermann
- Susanto Rahardja
- Yap-Peng Tan
- Qi Tian
- Jingdong Wang
- Yi-Hsuan Yang
- Dan Zeng
- Cha Zhang
- Jian Zhang
- Lei Zhang
- Wenwu Zhu (EiC)

IEEE Transaction on Circuits and Systems Video Technology (T-CSVT)
- Luciano Agostini
- Tian Sheuan Chang
- Lap-Pui Chau
- Shao-Yi Chien
- Shipeng Li (Deputy EiC)
- Zhu Li
- Jie Liang
- Weisi Lin
- Jiwen Lu
- Alexander Louie
- Siwei Ma
- Enrico Magli
- Tao Mei
- Jingjing Meng
- Yap-Peng Tan
- Qi Tian
- Jingdong Wang
- Meng Wang
- Feng Wu (Deputy EiC)
- Junsong Yuan
- Lei Zhang
- Xiao-Ping Zhang
- Ce Zhu

IEEE Transactions on Circuits and Systems – Part I and II (T-CAS, Part I & II)
- Luciano Agostini
- Lap-Pui Chau
- Bing-Da Liu

IEEE Open Journal of Circuits and Systems (OJCAS)
- Samson Cheung
- Shao-Yi Chien
- Luciano Agostini

5. List the CAS Society Journals special issues that are edited by the TC members.   Please include journal title, special issue title, the guest editors, the year, and the month, the number of submissions, the number of papers published, and the total number of citations/full text views so far for that special issue.

   The special issues organized by TC members are listed below. Due to the large volume of papers in this collection, we were unable to provide citations of all the papers within.

TC members Yonggang Wen, Pascal Frossard, and Wenjun Zeng are part of the GE team of T-CSVT's Special Issue on Visual Computing in the Cloud: Mobile Computing (Vol. 27, No. 1, Jan. 2017): # submissions = ?, # published papers = 17

TC members Q. Tian and N. Sebe were part of the GE team of TMM's Special Issue on Large-Scale Multimedia Data Retrieval, Classification, and Understanding (Vol. 19, No. 9, Sept. 2017): # submissions = 47, # published papers = 13.

TC member Yu-Gang Jiang was one of the GEs of TMM's Special Section on Video Analytics: Challenges, Algorithms, and Applications (Vol. 20, No. 5, May 2018): # submissions = 18 ; # published papers = 3

TC member Lei Zhang was one of the GEs of T-CSVT's Special Issue on Large Scale and Nonlinear Similarity Learning for Intelligent Video Analysis (Vol. 28, No. 10, Oct. 2018): # submissions = 120; # published papers = 54

TC member Jingdong Wang was one of the GEs of TMM's Special Issue on Multimedia Computing with Interpretable Machine Learning (Vol. 22, No. 7, July 2020): # submissions = 102; # published papers = 17

TC member Wen-Hsiao Peng was one of the GEs of T-CSVT's Special Section on Learning-Based Image and Video Compression (Vol. 30, No. 7, July 2020): # submissions = ?; # published papers = 12

TC member Jiwen Lu was one of the GEs of T-CSVT's Special Section on Representation Learning for Visal Content Understanding (Vol. 30, No. 9, Sept. 2020): # submissions = 100, # published papers = 15

Tao Mei is the Lead GE of TCSVT Special Section on "Video and Language"

- The goal of this special section is to call for a coordinated effort to understand the opportunities and challenges emerging in video and language, identify key tasks and evaluate the state of the art, showcase innovative methodologies and ideas, introduce large scale real systems or applications, as well as propose new real-world datasets and discuss future directions. The video data of interest cover a wide spectrum, ranging from first-person wearable videos, web videos (aka user-generated content), commercial video programs, to surveillance videos. We solicit submissions in all fields of video and language that explores the synergy of video understanding and language processing techniques. The paper submission was September 1, 2020 and the estimated publication date will be in September 2021.

G. CONFERENCES AND WORKSHOPS

Identify all Conferences and Workshops, which are technically and financially co-sponsored by the CAS Society and/or the TC. Please copy and complete the form below for each conference and workshop, insofar as the TC records allow.

All the conferences co-sponsored by CAS with involvements from TC members between 2017 and 2020 are listed as follows. As all of them are major flagship conferences that often require more efforts beyond that from our TC, the numbers of presentations and attendees do not necessarily reflect the impact of our TC and therefore are not included.

Name of Conference/Workshop: ISCAS 2017
Date: May 28, 2017 - May 31, 2017
Location: Baltimore, MD, USA
Organizing committees from the TC: Shao-Yi Chien, Samson Cheung, Jianfei Cai (Track Co-chair), Ying Li (Area Chair)

Name of Conference/Workshop: ICME 2017
Date: July 10, 2017 - July 14, 2017
Location: Hong Kong
Organizing committees from the TC: Zicheng Liu (Steering Committee member), Chia-Wen Lin (Steering Committee member), Ce Zhu (Technical Program Co-Chair), Gwo Giun Chris Lee (TPC Track Chair), Enrico

Magli (Area chair), Samson Cheung (Area Chair), Anthony Vetro (Hot3D Workshop Co-Chair), Jiaying Liu (workshop Co-chair), Lei Zhang (Area Chair)

Name of Conference/Workshop: VCIP 2017
Date: December 10, 2017 - December 13, 2017
Location: St. Petersburg, FL, USA
Organizing committees from the TC: Jianying Liu (Registration Chair), Marta Mrak (Area Chair)

Name of Conference/Workshop: ISCAS 2018
Date: May 27, 2018 - May 30, 2018
Location: Florence, Italy
Organizing committees from the TC: Shao-Yi Chien, Samson Cheung, Jianfei Cai (Track Co-chair), Ying Li (Area Chair)

Name of Conference/Workshop: ICME 2018
Date: July 23, 2018 - July 27, 2018
Location: San Diego, CA, USA
Organizing committees from the TC: C.-C. Jay Kuo (General Chair), Wenjun Zeng (General Chair), Yap-Peng Tan (Program Chair), Junsong Yuan (Program Chair), Qi Tian (Panel Chair), Yonggang Wen (Special Session Chair), Chia-Wen Lin (Special Session Chair), Lei Zhang (Grand Challenges Chair). Area Chairs: Jiaying Liu, Ivan Bajic, Jiwen Lu, Tao Mei, Wen-Huang Cheng, Marta Mrak, Samson Cheung, Lingyu Duan, Qi Tian, Lei Zheng, Chang-Su Kim, Cha Zhang, Xiao-Ping Zhang, Zhu Li, Wangqing Li, Ce Zhu

Name of Conference/Workshop: VCIP 2018
Date: December 10, 2018 - December 12, 2018
Location: Taichung, Taiwan
Organizing committees from the TC: Chia-Wen Lin (General Chair), Wen-Huang Cheng (Technical Program Chair), Jie Liang (Panel Chair), Shao-Yi Chien (Panel Chair), Homer Chen (Paper Award Chair), Tao Mei (Paper Award Chair), Jiaying Liu (Publicity Chair), Benoit Huet (Publicity Chair), Area Chairs: Ivan Bajic, Jie Liang, Vladimir Stankovic, Jiaying Liu, Jiantao Zhou

Name of Conference/Workshop: ICECS 2018
Date: December 9, 2018 - December 12, 2018
Location: Bordeaux, France
Organizing committees from the TC: Luciano Agostini (TC Member)

Name of Conference/Workshop: PCS 2018
Date: June 24, 2018 - June 27, 2018
Location: San Francisco, CA, USA
Organizing committees from the TC: International Steering Committee members: Touradj Ebrahimi, Pascal Frossard, Jorn Ostermann

Name of Conference/Workshop: AICASS 2019
Date: March 18, 2019 - May 20, 2019
Location: Hsinchu, Taiwan
Organizing committees from the TC: Shao-Yi Chien (TP Chair), YK Chen (Plenary Co-chair, Area Chair), Zicheng Liu (Plenary Co-Chair), Chia-Wen Lin (Panel Session Co-chair), Wen-Huang Cheng (Area Chair)

Name of Conference/Workshop: ISCAS 2019
Date: May 26, 2019 - May 29, 2019
Location: Sapporo, Japan
Organizing committees from the TC: Shao-Yi Chien, Samson Cheung (Track Chair)

Name of Conference/Workshop: ICME 2019
Date: July 8, 2019 - July 12, 2019
Location: Shanghai, China

Organizing committees from the TC: Marta Mrak (Lead TPC Chair), Samson Cheung (Area Chair), Ivan Bajic (Area Chair), Jingjing Meng (Area Chair), Peng Cui (Area Chair), Dong Tian (Demo Chair), Yonggang Wen (Award Committee Chair), Ce Zhu (Steering Committee member)

Name of Conference/Workshop: VCIP 2019
Date: December 1, 2019 - December 4, 2019
Location: Sydney, Australia
Organizing committees from the TC: Jian Zhang (General co-chair), Jiaying Liu (Program Chair), Guang-Tao Zhai (Special Session Chair), Marta Mrak (Industry Liaison Chair), Zhu Li (America Liaison Chair), Jianfei Cai, Chia-Wen Lin (Asia Liaison Chairs), Lingyu Duan (China Liaison Chair),

Name of Conference/Workshop: ICECS 2019
Date: November 27, 2019 - November 29, 2019
Location: Genova, Italy
Organizing committees from the TC: Luciano Agostini (Track chair)

Name of Conference/Workshop: PCS 2019
Date: November 12, 2019 - November 15, 2019
Location: Ningbo, China
Organizing committees from the TC: Zhibo Chen (TP Chair), Touradj Ebrahimi (International Steering Committee)

Name of Conference/Workshop: ISCAS 2020
Date: October 10, 2020 - October 21, 2020
Location: Virtual
Organizing committees from the TC: Samson Cheung, Wen-Huang Cheng (Track Co-chair)

Name of Conference/Workshop: ICME 2020
Date: July 6, 2020 - July 10, 2020
Location: London, UK (Virtual)
Organizing committees from the TC: Marta Mrak (General Chair), Wen-Huang Cheng (Technical Program Chair), Chuai Wan (TPC Lead Chair), Ce Zhu (TPC Co-chair, Steering Committee member), Homer Chen (Publicity Co-Chair), Jiaying Liu (Publicity co-Chair), Peng Cui (Area Chair), Samson Cheung (Area Chair), Wei-Shi Zheng (Area Chair)

Name of Conference/Workshop: VCIP 2020
Date: December 1, 2020 - December 4, 2020
Location: Macau, China (Virtual)
Organizing committees from the TC: Lap-Pui Chau (TP Co-chair), Moncel Gabbouj (Panel Session Co-chair), Homer Chen (Publicity Co-Chair)

Name of Conference/Workshop: ICECS 2020
Date: November 23, 2020 - November 25, 2020
Location: Glasgow, Scotland
Organizing committees from the TC: Luciano Agostini (Track chair)

H. OTHER ACTIVITY/ACCOMPLISHMENTS

1. Please state the number of TC meetings per year, where held, TC meeting attendance rate and was a quorum present for the last four years:

    There are two meetings per year at ISCAS and ICME. Here are the attendance rates for the meetings in the past four years and whether a meeting quorum was present. Due to technical problems, the detailed sign-in sheets of two meetings: ICME17 and ISCAS17 were lost and as such we are unable to provide precise attendance numbers.

IEEE Circuits and Systems Society: Technical Committee Review

Meeting	ISCAS16	ICME17	ISCAS17	ISCAS18	ICME18	ISCAS19	ICME19	ICME20
Attendance	23	?	?	14	13	7	14	23
Quorum	Yes	?	?	Yes	Yes	Yes	Yes	Yes

2. Please give the number of endorsements for Awards (paper awards, Fellows, other Society awards) and number and names of successful candidates (if you know them):

   2020
   ● IEEE Fellow: Samson Cheung, Lei Zhang, Touradj Ebrahimi, Yonggang Wen
   ● Best Paper Award of ICME 2020: Jiaying Liu
   ● Outstanding Area Chair Award of ICME 2019: Jiwen Lu, Wei-Shi Zheng
   ● ICME 2019 Outstanding Service Award: Marta Mrak, Wu Liu
   ● Nominated for ICME 2020 Best Paper Award and Best Student Paper Award: Jie Liang
   ● IEEE Transaction on Multimedia 2019 Prized Paper Award: Wu Liu, Tao Mei
   2019
   ● IEEE Fellow: Lee-Sup Kim, Tao Mei, Yap-Peng Tan, Cha Zhang
   ● Outstanding Area Chair Award of ICME 2018: Weiyao Lin
   2018
   ● IEEE Fellow: Chia-Wen Lin, Yihong Gong, Pascal Frossard
   ● CAS BoG: Y-K Chen
   ● Best Student Paper Award of ICME 2017: Ce Zhu
   2017
   ● IEEE Fellow: Enrico Magli, Lap-Pui Chau, Ce Zhu
   ● IEEE Leon K. Kirchmayer Graduate Teaching Award: C.-C. Jay Kuo
   ● The 2017 CSVT Transactions Best Paper Award: Marta Mrak
   2016
   ● IEEE Fellow: Qi Tian, Xian-Sheng Hua, Weisi Lin
   ● IEEE Taylor L. Booth Education Award: C.-C. Jay Kuo
   ● IEEE Circuits and Systems Society John Choma Education Award: C.-C. Jay Kuo
   Best Student Paper Candidate, the IEEE International Conference on Multimedia and Expo (ICME), July 28-July 2, 2015. J. Cai, R. Hong, M. Wang and Qi Tian, "Exploring Feature Space with Semantic Attributes," oral, Best Student Paper Candidate, IEEE International Conference on Multimedia and Expo (ICME), pp. 1-6, June 29-July 3, 2015, Torino, Italy.

3. Number of endorsements for Distinguished Lecturer and number and names of successful candidates (if you know them):

   Dr. Ce Zhu (2019 - 2020)
   Dr. Chris Gwo Giun Lee (2019 - 2020)
   Dr. Chia-Wen Lin (2018 - 2019)
   Dr. Lexing Xie (2016 - 2017)
   Dr. Jie Chen (2016 - 2017)
   Dr. Yen-Kuang Chen (2016 - 2017)
   Dr. Weisi Lin (2016 - 2017)
   Dr. Ching-Yung Lin (2015 - 2016)
   Dr. Enrico Magli (2015 - 2016)
   .
4. List the CASS Society new initiatives that are organized by the TC members, for example, but not limited to, seasonal school, industrial forums, competitions, and so on.

   [ICME Fast-Track to 4 Journals] Marta Mrak, ICME 2020 General Chair
   Collaboration between ICME and TMM resumed in the preparation for ICME 2020, this time in close collaboration with Lead Technical Program Committee Chair Shuai Wan (also MSA member). Based on the positive experience with TMM in 2019, in 2020 additional collaboration between ICME and 3 other journals

and magazines have been enabled, so that extended versions of best contributions from ICME are then fast-tracked in extended format. The 4 journals and magazines which now accept submissions of the best ICME 2020 contributions in extended versions are:

- Transactions on Multimedia (CAS, CS, ComSoc, SPS)
- Open Journal of Circuits and Systems (CAS)
- Signal Processing Magazine (SPS)
- MultiMedia Magazine (CS)

[ICME+TMM] Marta Mrak, ICME 2019 Lead Technical Program Committee Chair / TMM Associate Editor - Stronger collaboration between TMM and ICME was enabled. This means that in addition to providing the opportunity to authors of TMM papers to present recently published journal papers at ICME, now the best ICME papers can be recommended for publication in TMM, in an extended format (subject to peer review). This was successfully implemented with a fast trac review for TMM during the second half of 2019.

[ICME Special Session] MSA TC members Wu Liu and Liang Zheng, along with Lexing Xie and Yi Yang, organized the ICME 2019 Special Session on Multimedia Technologies Empowering Retail Experiences on July 9, 2019: http://www.icme2019.org/conf_sessions#collapse-5
This special session is proposed under the context of fast growing retail stores. Today's empowering retail store is undergoing a dramatic transformation. A sharpened focus on customers and their shopping is converting traditional store sites into leaders of technological innovation. The application of multimedia technologies such as unmanned convenience stores and face recognition payment in the retail industry has achieved rapid development. Meanwhile,the empowering retail experiences promote the development of new technologies. New technologies will continue to be an important driving force for new retail change. Thus, in this special session we aim to bring together the latest advance in this field to draw attention from both the academic and industrial community. There are 19 submissions and 6 published papers (Google citation:15, full text views: 700+). 50 participants attended the session.

[ICME Tutorial] MSA TC member Wu Liu and Ting Yao organized the ICME 2019 Tutorials on Human Behavior Understanding: from Human-Oriented Analysis to Action Recognition on July 8, 2019: http://www.icme2019.org/conf_tutorials#collapse-2
Analyzing human behaviour in videos is one of the fundamental problems of computer vision and multimedia understanding. The task is very challenging as video is an information-intensive media with large variations and complexities in content. With the development of deep learning techniques, researchers have strived to push the limits of human behaviour understanding in a wide variety of applications from action recognition to event detection. This tutorial will present recent advances under the umbrella of human behavior understanding, which range from the fundamental problem of how to learn "good" video representations, to the challenges of categorizing video content into human action classes, finally to multimedia event detection and

[Challenge] ICME 2019 Grand Challenge: Learning-Based Image Inpainting; Organizers: Dong Liu, Ming-Hsuan Yang. July 2019. 22 submissions, 3 published papers, 58 teams registered for the challenge.

[Virtual ICME] Marta Mrak, ICME 2020 General Chair
ICME 2020 was organized as the first fully virtual ICME with all live sessions and recording available on demand after each session. This enabled discussions and networking even though many participants were at their homes. Registrations which were not covering publication of papers were free, thus enabling wider community to participate in ICME.

[New Conference] AICAS 2019: Shao-Yi Chien (TPC Co-chair), Y-K Chen (Plenary Co-Chair), Zicheng Liu (Plenary Co-Chair), Gwo-Giun (Chris) Lee (Special Session Co-Chair), Chia-Wen Lin (Panel Session Co-Chair):
Artificial Intelligence (AI) is driving the new revolution of not only the information technology but also all other industries. New algorithms and application systems are introduced with the power of AI. New computing platforms are required to support the emerging AI algorithms and applications, from cloud servers to edge devices, from system level to circuit level. Facing this new challenge and opportunity, the 1st IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS 2019) is established to facilitate the state-of-the-art research, innovation and development activities at the frontiers of Artificial Intelligence circuits and systems. It serves as the best platform allowing scholars, technological researchers

and industry from both domestic and international communities to exchange experiences, demonstrate their studies and further advance AI technologies on circuits and systems.

[Workshop & Dataset] Jiaying Liu, Wenjun Zeng, Gang Wang, "Large Scale 3D Human Activity Analysis Challenge in Depth Videos," IEEE International Conference on Multimedia and Expo (ICME) Workshop, Jul. 2017, Hong Kong, China.

[Workshop] Ichiro Ide co-organized the 8th Workshop on Multimedia for Cooking and Eating Activities (CEA2016) in conjunction with ICME 2016
This workshop is the longest running workshop series on topics related to cooking and eating in the Computer Science field, which I have been involved in the organization from the beginning. This year, I have served as a Program Chair where I selected three oral presentations (Out of which one paper was selected as the best paper) and three poster presentations out of eight submissions.

[Conference Organization] YK Chen organized the special theme track of Internet of Video Things at IEEE International Symposium on Circuits and Systems (ISCAS) 2017.
The IoVT special theme track at IEEE International Symposium on Circuits and Systems (ISCAS) is intended to highlight new trends and technical solutions for Internet of Video Things. It includes two lecture sessions and one panel discussion.

[Special Session] ICME 2015 Special Session on "3D Imaging for Health Monitoring and Interventions," co-organized with Samson Cheung, Gene Cheung, Vladimir Stankovic, and Ju Shen
This special session aims to provide a survey of the emerging health-related applications using commodity depth sensors, which offer the unique advantage of being non-intrusive and robust against environmental changes. Four papers were selected in the final program covering non-contact heart rate measurement, wellness assessment to autism intervention.

5. Please give the address of TC Web site and date of last update:

    https://ieee-cas.org/community/technical-committees/multimedia-systems-applications-technical-committee-msatc
    It was last updated on October 4, 2020.

6. Is the TC involved in standards activities? If so, please provide details of activity.

    While there is no explicit liaison with any standard body, many of our TC members are active in international standardization. For example, one of our current TC members, Touradj Ebrahimi, is the current chairman of JPEG.

I.   NOTABLE FEATURES OF TC

Please describe notable features of the TC.

Besides many of the accomplishments of our TC members in organizing workshops, conferences, and special issues as documented in this review, another notable feature of the TC is the significant collaboration with the industry. Beyond the significant recruitment effort of TC members from industry, our TC members have also organized many events that were tailored for industry professionals. For example, TC member Chris Gwo Giun Lee co-organized the IEEE AICAS 2019 Industry Forum, titled "Influences of EDGE Device's Instant Decision: From Bio-Tech, FinTech to Sustainable Energy & Beyond." In view of aging societies, significance of digital economy and global warming, this Industry Forum was organized together with Young Professionals (YP) and Women in Engineering (WIE) within IEEE Circuits and Systems Society with industry leaders, investors, and venture capitalists invited to share their visions on how current state-of-the-art in EDGE/mobile devices, capable of near real-time decisions, may influence our daily life from the perspectives of healthcare, finance, and energy. Upon addressing the pain spots of these industry sectors, internship and potential industry-academia collaboration opportunities upon the current Technology 4.0 entrepreneur landscape were also discussed.. The TC believes in its leadership in bridging industry and academia and will continue to cross-pollinate between industry and academia in fostering innovations, internship and entrepreneurship with similar events.

IEEE Circuits and Systems Society: Technical Committee Review

J. FUTURE PLANS

1. Please describe future plans for the TC and how you will go about achieving them. (e.g., What is the plan? What is the timetable? What is the main purpose? How will you know if it is completed? etc)

One of the future directions is to identify what constitutes the rapidly evolving field of multimedia. In the past, we have adopted a T-shaped vision, striving to achieve strengths in both technical depth and breadth of systems and applications. But how do we continue to foster integrated research that takes advantage of the strong pillars we have in key areas like content, systems, human centered design, engagement, experience and others? How do we extend into new application domains including fashion, emotion analysis, smart-health, food preparation, historical restoration, and other emerging topics? Reaching out to work with other TCs will help a bit in that direction, but we need to do more.

The global pandemic has brought significant disruptions and challenges to the society at large. At the same time, from distance learning to virtual try-on, the public has begun to witness how powerful the multimedia technologies championed by the TC can be. TC members have adapted well to cope with the pandemic. For example, ICME 2020 was organized as the first fully virtual ICME with all live sessions and recording available on demand after each session. This enabled discussions and networking even though many participants were at their homes. Registrations which were not covering publication of papers were free, thus enabling the wider community to participate in ICME. Moving forward, it is important to better understand the evolving trends in travel restrictions, telecommuting, distance learning, to community building and family dynamics and how to adapt and invent multimedia technologies for these demands.

Another important goal is to improve on the number of submissions to the multimedia track (track 12) in ISCAS. The TC has witnessed a falling number of submissions in the last few years. Part of the reason is the closeness of deadlines between ISCAS and ICME. In addition, we have not yet been able to establish a core theme in ISCAS to attract high caliber submissions from fellow multimedia researchers. One of the key steps the TC has undertaken recently was to revamp the track structure in ISCAS. The new structure is as follows:
12.1 Multimedia Content Analysis, Indexing, Search, and Retrieval
12.2 Multimodal and Ancillary Information Processing in Multimedia (Location, Text, Haptics, Audiovisual, and other Joint Media Processing)
12.3 Emerging Visual Information Representation (Omnidirectional, 3D, Light Field, Point Cloud, Mesh, Depth plus Texture, Holography, and others)
12.4 Multimedia Data Compression and Storage (New Algorithms, Standards, and Applications)
12.5 Multimedia Security, Privacy, and Forensics
12.6 Multimedia Computing Architecture
12.7 Social and Web Multimedia
12.8 Human Computer Interaction and Immersive/Interactive Multimedia
12.9 Virtual and Augmented Reality
12.10 Deep Learning for Multimedia
12.11 Efficient Circuits and System Implementations for Multimedia Coding and Processing
12.12 Multimedia Big Data
12.13 Distributed or Edge/Fog-based Multimedia Delivery and Computation
12.14 Other Areas in Multimedia Systems and Applications
Other measures including possible submission requirements for TC members, special sessions, fast track to journals are currently being discussed in the TC.

2. Do you have a particular person or people with responsibility for achieving your future plans?

The TC has recently put together an excellent team for all the subcommittee to realize the future plans:
Chair-Elect: Wen-Huang Cheng (2021 – 2023)
Technical Exchange: Dong Liu, Wei-Shi Zheng, Iraklis Anagnostopoulos, and Jingjing Meng
Technical Vision: Jiwen Lu, Pascal Frossard, Ziheng Liu, and Junsong Yuan
Membership and Election: Guang-Tao Zhai, Ivan Bajic, Jiantao Zhou
Award and Nomination: Chia-Wen Lin, C.-C. Jay Kuo, Weisi Lin, Benoit Huet, and Touradj Ebrahimi
Policies and Procedures: Zhibo Chen, Chang-Su Kim, and Wen-Huang Cheng

Online Community: Jiaying Liu, Wu Liu, Chong Luo

3. How does the TC see the exploration of new research directions in action?

    While the TC does not see itself as a body to explore new research directions, it definitely strives for its best to facilitate the exchange among members and with other groups, as well as to provide the infrastructure to accomplish that.

4. How can CASS (Governance) help the TC in achieving its goals?

    The simple fact that the TC is run by volunteers makes it difficult to maintain consistency and momentum. The CASS leadership is absolutely essential in a number of different aspects: first, it makes various resources available for TC to start initiatives, operate in a consistent manner, and cultivate interdisciplinary collaboration. Second, the CASS provides guidance in terms of the global trends such as the current focus on the UN's SDG so that the TC can be more selective in terms of sponsoring projects. Finally, CASS provides the sense of belonging and traditions, particular for young professionals and members from undeveloped countries, that they are not alone in their paths to a successful career and a better future for themselves and their communities.

K. SELF ASSESSMENT

This section provides an opportunity for self-assessment of the TC. Please compose a narrative to reflect your TC viewpoints; in so doing, cite specific examples of strengths and weaknesses. Where is your Technical Committee's field going? Is there any opportunity for collaboration with other Technical Committees or groups? Any innovative ideas?

1. Comment on the strengths:

    The core strengths of our TC include (1) high calibered TC members who take on leadership role in IEEE and beyond, (2) TC members engaging in a diverse set of multimedia application and system research, (3) TC members active in editorial work for different IEEE publications and organizing workshops and conferences in multimedia, (4) TC members well-recognized in their disciplines based on the numerous awards and recognition, (5) significant engagement with industry in TC sponsored events, and (6) active participation of TC members in TC sponsored events.

2. Comment on the weaknesses:

    One of the weaknesses is with diversity and inclusion within our field, including within our TC. Going forward we will build diversity, in many of its forms, into things like how we select people for roles in our conference and in our own organisation. We will be undertaking several initiatives to improve the gender and geographical balance and diversity in our sponsored conferences, covering panel speakers, keynote speakers, raising the importance of the women and diversity lunch event, supporting our early career researchers as much as we can and examining a role for a diversity chair in our sponsored events.

L. EXECUTIVE SUMMARY

Please provide an executive summary of less than the highlight points of your TC's response to the review question in this template.

In the past several years, MSA TC members have shown strong leadership in the multimedia research community. Our TC members have played key roles (e.g. general chairs/program chairs) in organizing many CASS sponsored international conferences on multimedia including ISCAS, ICME, VCIP, ICECS and PCS. Our TC members have also been very active in serving as associate editors and EiCs in many CASS sponsored journals including TMM, T-CSVT, T-CAS I & II, and OJCAS. Collaboration and involvement from industry are strong, with 20% of our active TC members from industry and a number of industry forums sponsored by the TC. New initiatives including new conferences like AICAS, new workshops on emerging topics, and bringing the entire conference virtual due to the pandemic have been championed by our TC members. MSA TC members

have continued to advance the state of the art in multimedia by publishing high quality papers on the top journals and conferences. Many members have received prestigious society awards, paper awards, and were elevated to Fellows.

M. ANY OTHER COMMENTS

This section provides an opportunity for free form comments and concerns (any concerns you may have, such as feedback to this review or any other generic concerns about IEEE CAS Society).

No additional comments

N. REVIEW COMMITTEE REMARKS REGARDING THE TC.
(to be completed by the IEEE CAS Society TC Review Committee after the review meeting)

O. REVIEW COMMITTEE RECOMMENDATIONS FOR THE TC.
(to be completed by the IEEE CAS Society TC Review Committee after the review meeting)

CHARTER OF THE MULTIMEDIA SYSTEMS and APPLICATIONS (MSA) TECHNICAL COMMITTEE (TC) OF THE IEEE CIRCUITS AND SYSTEMS SOCIETY

1. Preamble

The Multimedia Systems and Applications Technical Committee (MSA TC) is a Technical Committee of the IEEE Circuits and Systems Society (CASS). As a subsidiary committee of IEEE CASS, the MSA TC is governed by the rules and regulations of the IEEE and by the Constitution and Bylaws of CASS, which take precedence over this Charter in case of conflict.

TCs are established by IEEE CASS in significant fields of interest of the Society, through its Technical Activities Division (TAD), to advance the state of knowledge and educate Society members and the general IEEE membership. To these ends, the MSA TC plays a major role in creating a high quality technical program for the Society's flagship conference, the International Symposium on Circuits and Systems (ISCAS). TCs also may organize or contribute to other workshops and conferences, special sessions at conferences, and tutorial programs, and undertake other activities to help better achieve their purpose.

Further, the MSA TC may act as a bridge between CASS and related IEEE Societies and Councils, and other institutions in the general area of the TC.

2. Purpose

The objective of the MSA Technical Committee (MSA TC) is to promote the exchange of information pertaining to the research, development, and practice of multimedia technologies, systems, and applications.

3. Activities

The MSA TC activities include:

a) Organizing that part of the technical program of ISCAS related to the MSA TC field; this includes review of all papers submitted to ISCAS in tracks on topics in the MSA field (appointing TPC Track Chairs, Review Committee Members [RCMs] and paper reviewers), and arranging Tutorials, Special Sessions, Workshops and other sessions
b) Assist the planning and paper review of other related CAS-sponsored conferences such as International Conference on Multimedia and Expo (ICME).
c) Assist the paper review process of Society journals including Transactions on Multimedia (TMM), Transaction on Circuits and Systems Video Technology (T-CSVT), Transactions on VLSI Systems (T-VLSI), and Transactions on Circuits and Systems – Part I and II (T-CAS, Part I & II);
d) Nominating individuals for (1) Society Awards, (2) Editorial appointments, (3) Distinguished Lecturer appointments, and (4) roles as CASS representatives for Steering and other Committees arising from joint efforts with other Societies and Councils
e) Nominating papers for CASS journal Best Paper awards
f) Preparing the TC Annual Report
g) Preparing information for periodic Review of the TC by the Society
h) Maintaining the TC website
i) Reviewing and, if needed, updating the TC Vision & Mission statements at least every 5 years
j) Assessing the quality and helping to maintain/raise the quality of any CASS-sponsored conferences in the field
k) Other activities to help achieve the Purpose

4. Membership

The MSA TC has three membership categories: Members, Affiliates, and Emeritus Members.

4.1 Technical Committee Members
Any CASS or IEEE member of good standing and willing to perform the duties of membership may seek to be elected as Members of the MSA TC.

All Technical Committee Members have voting rights. New members are elected by the existing members.

Upon election, members will serve a term of four-years, starting 1 September. The Technical Committee may have up to 50 elected members. The election of new members shall be finalized by 15 July of the election year.

The election of the members is done according to the following process. An open call for new member nominations shall be made. New members of the Technical Committee are nominated by at least one of the existing members of the Technical Committee. Past members of the Technical Committee are eligible to be nominated for a second term. Current members of the Technical Committee may also be nominated for a second consecutive term, but are not eligible to vote in that new member election. Additional terms are allowed, but at least a 1 year gap in service is required. The Chair of the Technical Committee needs to circulate the bio and position statement from the candidates at least two weeks prior to conducting a vote within the Technical Committee. A simple majority vote is needed for the acceptance of the new members. If there are more nominations than open slots, the most preferred by the Technical Committee members responding to the ballot will be elected as new members, provided a quorum of the Technical Committee members responded to the ballot. In the event of a tie, the Chair will break the tie.

Members have a responsibility to engage in the activities of the MSA TC. A member is said to be active if they participate at least three times every two years in any of the following: (i) attending the TC meeting; (ii) submitting a write-up for inclusion in the TC's annual report; (iii) serving as Review Committee Member or Reviewer for ISCAS paper submissions; and (iv) actively contribute to another Activity carried out by the TC, as listed in Clause 3 Activities (a) to (k) of this Charter.

A member is said to be inactive if they have not participated three times or more in any of the aforementioned four activities for two consecutive years. The Chair-Elect will email all inactive members to encourage them to become active. Members who do not respond or who give sufficient cause for a 2 year absence yet fail to contribute for a 3rd consecutive year will automatically be removed from the Committee.

The TC will maintain and publish annually the TC Roll of Members, including email addresses, a record of attendance at the Annual Meeting and participation in activities.

4.2 Technical Committee Affiliates

Technical Committee Affiliates are an integral part of the Technical Committee and carry the same responsibilities as Technical Committee Members, but do not have voting rights. They must be current IEEE and CAS members of good standing. They must be willing to review papers within the area of the TC submitted to the Society's conferences, review papers for workshops owned or co-owned by the Technical Committee, and perform other duties of membership.

The main purpose of the Technical Committee Affiliates is to engage the broader multimedia community in the activities of the Technical Committee, while still enabling an efficient voting and decision making process among a smaller set of elected members. The number of TC Affiliates is unlimited.

4.3 Technical Committee Emeritus Members

Past Technical Committee Members with distinguished service to the TC may be recognized as Technical Committee Emeritus Members. Emeritus Members serve the TC in an advisory role, e.g., contributing to long-term planning and strategic directions, and are welcome to participate in TC activities, such as reviewing papers or participating in subcommittees.

Appointment of TC Emeritus Members is done by the TC Chair with consensus of Chair-Elect and Past Chair, and considering nominations from the TC Membership and Election subcommittee. This designation is reserved for individuals that have served the TC for an extended period of time and/or in leadership roles, e.g., Past MSA TC Chair, EiC of a CASS-sponsored journal or multimedia-related IEEE journals, past CASS presidents, or past ISCAS/ICME general chairs. The number of appointments shall not exceed 2 in a given year.

5. Duties and Election of Officers

The Committee shall have three officers: Chair, Chair-Elect, and Past Chair. Each will serve a two-year term. All Technical Committee Officers have voting rights.

The Chair, supported by the Chair-Elect and Past Chair, is responsible for
(a) ensuring that the purpose of the TC is well achieved through timely and diligent execution of the activities,
(b) ensuring that the TC operates according to all other aspects of its Charter, and

(c) establishing the TC Chair as a well-known channel of communication between the TC and the CASS Board of Governors.

The Chair will preside over Committee meetings and will be responsible for all interactions with the Society. They will report on Committee activities to the CASS Board of Governors, through the CASS Vice President for Technical Activities, at least once a year, before ISCAS.

The Chair is a member of the CASS Technical Activities Division (TAD) and will attend the Annual Meeting of the TAD, normally held at the ISCAS site during or shortly before the symposium.

The Chair is normally not directly elected and is filled by transition of the Chair-Elect at the end of their two-year term. An out-of-sequence election for the Chair can be held should the Chair-Elect be unable to assume the role of Chair.

The Chair will oversee all activities of the TC, calling on assistance from the Chair-Elect and other members as necessary, and will be responsible in particular for: chairing the ISCAS TC Track; soliciting and making the TC's nominations of individuals for awards and for editorial, Distinguished Lecturer and CASS representative roles; soliciting and making the TC's nominations for Best Paper Awards; preparing the TC Annual Report; preparing material for and participating in periodic TC Reviews; and maintaining the TC vision and mission; i.e. for aforementioned Clause 3 Activities (a), (d), (e), (f), (g) and (i).

At the end of the term, the Chair will become the Past Chair.

The Chair-Elect is elected by the Committee members and must be a member of the Committee. The election of the Chair-Elect is done according to the following process. An open call for nominations for the Chair-Elect position shall be made. Nominations for Chair-Elect shall be restricted to individuals who are currently serving or have previously served as committee members within the past 5 years. Chair-Elect elections will take place every two years and results shall be finalized by 15 July of the election year.

The Chair-Elect will assist the Chair as necessary in all activities, will participate in the TC Review meeting, will attend to membership issues including maintaining the member roll of the TC, will record meeting minutes and ensure their expeditious posting on the TC website, and will be responsible in particular for: ensuring the web site is maintained; assessing and maintaining/raising the quality of CASS-sponsored conferences in the TC field; and all other activities undertaken by the TC; i.e. for aforementioned Clause 3 Activities (h), (j) and (k).

The Past Chair will act as a consultant offering advice and assistant to the Chair when needed.

6. Subcommittees

The Technical Committee shall normally have subcommittees to accomplish the duties of the TC. The Chair shall appoint TC Members to the subcommittees. The TC Chair may also appoint Technical Committee Affiliates and Technical Committee Emeritus Members to subcommittees. The Chairs of each subcommittee are typically Technical Committee Members.

The subcommittees may address the following activities:

- **Technical Exchange**: This subcommittee facilitates information exchange and focused discussions on technical topics of interest. A key task is to disseminate important multimedia technologies, systems, and applications. To achieve this, the subcommittee may organize webinars to all members or prepare. Topics of interest include but are not limited to: (1) Multimedia Indexing, Search & Retrieval for Databases & File Systems, (2) Multimedia Signal Processing (3) Multimedia Streaming & Transport, (4) Multimedia Compression & Coding, (5) Multimedia Watermarking, Encryption, & Data Hiding, (6) 3D Multimedia Processing & Presentation, (7) VLSI, ASIC, and SoC Design for Multimedia, (8) Multimedia System & Architecture Design Methodology, (9) Mobile Multimedia, (10) Multimedia Surveillance & Monitoring Systems, (11) Multimodal Human-Machine Interfaces & Interaction, (12) Social and Web Multimedia, (13) Multimedia Quality Assessment & User Experience, (14) Multimedia Healthcare, (15) Multimedia Data Analytics, (16) Multimedia for Emerging Applications (Telepresence, Crowdsourcing, Multimodal Human Behavior, etc.).

- **Technical Vision**: This subcommittee reviews and revises the technical vision and directions of the TC. This sub-committee also maintains the list of technical sub-areas of the TC and is expected to work closely with the Technical Exchange subcommittee to suggest topics for future webinars.
- **Membership and Election**: This subcommittee is responsible for soliciting and processing new member nominations and overseeing the election process. It is a key responsibility of this subcommittee to ensure that nominations include outstanding researchers in the field and a diverse

membership (e.g., in terms of area of expertise, geographic distribution, academic versus industrial, and so forth). In addition, this subcommittee is also responsible for the election of new Chair-Elect, TC representatives to various society functions and steering committees. This subcommittee should also assist in identifying individuals to become TC Emeritus Members.

- **Award and Nomination**: To increase the visibility of the TC and its activities, this subcommittee proactively seeks opportunities to nominate members of the multimedia community for awards, which includes soliciting nominations for Society awards and Distinguished Lecturer positions, and processing endorsements of the nominations received. This subcommittee will also help nominate Associate Editors to relevant Editors-in-Chief in the Society. Members of this subcommittee should preferably include IEEE Fellows or individuals that have received an award as to bring experience to the Awards nominations process.

- **Policies and Procedures**: This subcommittee reviews and revises the policies and procedures of the TC, which cover operational processes related to the endorsement of awards, technical co-sponsorship of conferences, election or appointment of representatives to committees, etc. The TC Chair or Chair-Elect would typically chair this subcommittee. Additional TC members may also be appointed to the subcommittee.

- **Online Community**: This subcommittee will recommend and use the latest technology (e.g., emails, static/semi-static web-pages, social network websites, etc.) to create forums for the TC and multimedia community to interact and exchange ideas.

7. Meetings and Conduct of Business

Business relevant to this Charter may be conducted at meetings or by ballot via the internet.

Meetings may be held in-person, typically at a conference, or by electronic means.

- A meeting quorum is Ceiling function of one third of the TC members attending the meeting.
- A minimum of two week notice of any Motions shall be provided to voting members prior to the close of voting to allow members to consider the issues, except as otherwise provided in Clause 7 of this Charter.
- A majority of the legal votes cast by the TC members attending a meeting with a quorum is necessary to approve a motion, except as otherwise provided in Clause 7 of this Charter.
- For internet ballots, voting by a minimum of one-half of the TC members is a valid ballot.
- If a quorum is not reached, tentative actions may be taken which will become effective after subsequent ratification, either by internet ballot or at a subsequent meeting.

A Technical Committee Meeting shall be held at ISCAS and at ICME each year. If necessary, interim meetings can be called by the Chair of the Technical Committee and business can also be conducted by other means such as electronic mail, online meeting applications or telephone. Any CASS or IEEE member is allowed to attend the meeting as an observer; the Chair may invite other observers to attend and speak.

At a Technical Committee meeting,
- An agenda is circulated prior to the meeting
- The MSA TC Chair will present an annual report on membership, activities and progress on achieving the TC vision and mission
- TC members will vote to elect new members and new Officers, if any
- The members may discuss any other business relevant to the TC Charter
- The members may vote on Motions provided the required notice periods are met; a quorum is needed to resolve any motions at the meeting

8. Charter Amendments

Any charter amendment, including closing the MSA TC, can be considered at a meeting provided that the Chair and Chair-Elect have been notified at least one month prior to the Meeting. Approval by the Officers is not necessary, but notification is required. An approved amendment will take effect the day following the conclusion of the ISCAS meeting when it has been approved.

Motions to Amend the Charter and to Close (i.e. shut down) the TC have special conditions to be consistent with CASS and IEEE rules. The conditions for such ballots at a meeting and by internet ballot differ:

(i) Internet Ballot: voting by a minimum of one half of the TC members is a valid ballot; a two-thirds majority is required to pass the Motion

(ii) Ballot at TC Meeting: a Special Quorum of the Ceiling function of one-half of the TC members at the meeting is required; a two-thirds majority is required to pass the Motion