

SAM TC Meeting @ ICASSP 2017

Martin Haardt

Tuesday, March 7, 2017

07:00 AM – 08:30 AM

Hilton New Orleans Riverside

Room Commerce

Agenda

- 07:00 Welcome of new TC members
- 07:10 Report from Chair
 - ⇒ Awards
 - ⇒ ICASSP 2017 submissions
 - ⇒ TC status
 - ⇒ Archiving initiative
 - ⇒ SAM TC Review 2017
- 07:30 Workshop Reports
 - ⇒ SAM 2016 (Martin Haardt)
 - ⇒ CAMSAP 2017 (André de Almeida)
 - ⇒ SAM 2018 (Wei Liu)
- 07:50 Proposals for CAMSAP 2019
 - ⇒ TBD
- 08:00 Subcommittee Assignments
- 08:05 Interactions with AASP-TC
- 08:10 SPS Data Science Initiative (André de Almeida)
- 08:20 Discussion topics
 - ⇒ SP Cup Proposal
 - ⇒ Procedures: Awards and Voting
 - ⇒ Membership Categories
 - ⇒ Other topics?
- 08:30 End

SAM Member Ship

New Members

- ❑ Pascal Chevalier
(CNAM & Thales, France)
- ❑ Lei Huang
(College of Information Engineering, China)
- ❑ Yongwei Huang
(Guangdong University of Technology, China)
- ❑ Wei Liu
(University of Sheffield, UK)
- ❑ Vincenzo Matta
(University of Salerno, Italy)
- ❑ Karim Abed Meraim
(Université d'Orléans/ Polytech Orléans, PRISME Lab, France)
- ❑ Antonio Napolitano
(University of Napoli, Italy)



Retiring Members

- ❑ Antonio De Maio
- ❑ Jean-Pierre Delmas
- ❑ Shawn Kraut
- ❑ Pascal Larzabal
- ❑ Ali H. Sayed
- ❑ Erchin Serpedin

Returning Members

- ❑ Mónica Bugallo
- ❑ Yonina Eldar
- ❑ Braham Himed
- ❑ Jian Li
- ❑ Chong Meng Samson See
- ❑ Milica Stojanovic

Statistics

- ❑ 8 female, 33 male
- ❑ 14 R1-6, 1 R7, 17 R8, 1 R9, 8 R10
- ❑ 6 Industry/Lab, 35 Academic

2016 SAM Awards (1)

□ Young Author Best Paper Award:

⇒ Ahmed Alkhateeb and Omar El Ayach, for the paper co-authored with Geert Leus and Robert W. Heath, Jr., for „Channel Estimation and Hybrid Precoding for Millimeter Wave Cellular Systems“, *IEEE Journal of Selected Topics in Signal Processing*, Volume 8, No. 5, October 2014.

□ Signal Processing Letters Best Paper Award:

⇒ Ye Yang, Qiang Li, Wing-Kin Ma, Jianhua Ge and P. C. Ching, for “Cooperative Secure Beamforming for AF Relay Networks With Multiple Eavesdroppers“, *IEEE Signal Processing Letters*, Volume 20, No. 1, January 2013.

2016 SAM Awards (2)

- **Signal Processing Magazine Best Paper Award:**
 - ⇒ David I. Shuman, Sunil K. Narang, Pascal Frossard, Antonio Ortega and Pierre Vandergheynst, for “The Emerging Field of Signal Processing on Graphs [Extending high-dimensional data analysis to networks and other irregular domains]“, *IEEE Signal Processing Magazine*, Volume 30, No. 3, May 2013.

- **Technical Achievement Award:**
 - ⇒ Jelena Kovacevic, “for contributions to the theory and practice of signal representations.”

2017 Distinguished Lecturers of the IEEE SPS and their Topics

□ Athena P. Petropulu

- ⇒ Sparse Sensing Based MIMO Radars
- ⇒ Coexistence of Radar and Communication Systems
- ⇒ Cooperative Approaches For Physical Layer Security
- ⇒ Cooperative Approaches For Improving The Performance of Wireless Networks
- ⇒ Mobile Beamforming
- ⇒ Localization of Brain Activations Based on EEG Recordings and Sparse Signal Recovery Theory

□ Brian M. Sadler

- ⇒ Distributed Collaborative Intelligent Systems
- ⇒ Human-Autonomy Querying and Interaction
- ⇒ Autonomous Networking

ICASSP 2017 SAM Data

- ❑ 163 papers submitted (3 were transferred in from other tracks and 3 out to other tracks before the review)
- ❑ 80 accepted. This means a 49.08 % acceptance rate, as the conference organizers requested.
- ❑ Additionally there will be 11 Signal Processing Letters presented in SAM sessions.
- ❑ Four 6-paper lecture sessions, seven poster sessions with 9 to 10 papers each.

- L1 - DOA Estimation I
- L2 - Multi-Channel and Tensor-Based Signal Processing
- L3 - Sparseness and Compressed Sensing
- L4 - Source Localization and Tracking
- P1 - DOA Estimation II
- P2 - Radar Array Processing
- P3 - Acoustic Array Processing II
- P4 - Detection and Estimation
- P5 - Multi-Sensor and Multi-Modal Signal Processing
- P6 - DOA Estimation, Beamforming and Array Processing
- P7 - Radar and Sonar

ICASSP 2017 SAM Sessions (Lecture)

L1 - DOA Estimation I

Time: Wednesday, March 8, 08:30 - 10:30

Location: Grand Salon 4

Session Chairs: Xavier Mestre, CTTC, Spain and
Wie Liu, University of Sheffield, U.K.

L2 - Multi-Channel and Tensor-Based Signal Processing

Time: Wednesday, March 8, 13:30 - 15:30

Location: Grand Salon 4

Session Chairs: André L. F. de Almeida, Federal University of Ceará,
Brazil and Piya Pal, UCSD, USA

L3 - Sparseness and Compressed Sensing

Time: Wednesday, March 8, 16:00 - 18:00

Location: Grand Salon 4

Session Chairs: Gonzalo Mateos Buckstein, University of Rochester, USA
and Geert Leus, TU Delft, The Netherlands

L4 - Source Localization and Tracking

Time: Thursday, March 9, 08:30 - 10:30

Location: Grand Salon 4

Session Chairs: Brian Sadler, Army Research Laboratory, USA and
Waheed U. Bajwa, Rutgers University, USA

ICASSP 2017 SAM Sessions (Poster 1)

P1 - DOA Estimation II (9 papers)

Time: Tuesday, March 7, 16:00 - 18:00

Location: Churchill: Poster Area B

Session Chair: Yimin Zhang, Temple University; Philadelphia, USA

P2 - Radar Array Processing (9 papers)

Time: Wednesday, March 8, 08:30 - 10:30

Location: Churchill: Poster Area B

Session Chair: Hongbin Li, Stevens Institute of Technology, USA

P3 - Acoustic Array Processing II (10 papers)

Time: Wednesday, March 8, 13:30 - 15:30

Location: Churchill: Poster Area B

Session Chair: Chong-Yung Chi, National Tsing Hua University, Taiwan

P4 - Detection and Estimation (10 papers)

Time: Wednesday, March 8, 16:00 - 18:00

Location: Churchill: Poster Area B

Session Chair: Frederic Pascal, Ecole Supérieure d'Electricité,
France

ICASSP 2017 SAM Sessions (Poster 2)

P5 - Multi-Sensor and Multi-Modal Signal Processing (10 papers)

Time: Thursday, March 9, 08:30 - 10:30

Location: Churchill: Poster Area B

Session Chair: Peter Willett, University of Connecticut, USA

P6 - DOA Estimation, Beamforming and Array Processing (9 papers)

Time: Thursday, March 9, 13:30 - 15:30

Location: Churchill: Poster Area B

Session Chair: Marius Pesavento, TU Darmstadt, Germany

P7 - Radar and Sonar (10 papers)

Time: Thursday, March 9, 16:00 - 18:00

Location: Churchill: Poster Area B

Session Chair: Fulvio Gini, University of Pisa, Italy

ICASSP 2017: Special Session jointly organized by SAM and AASP

SS-L2: Speaker Localization in Dynamic Real-Life Environments

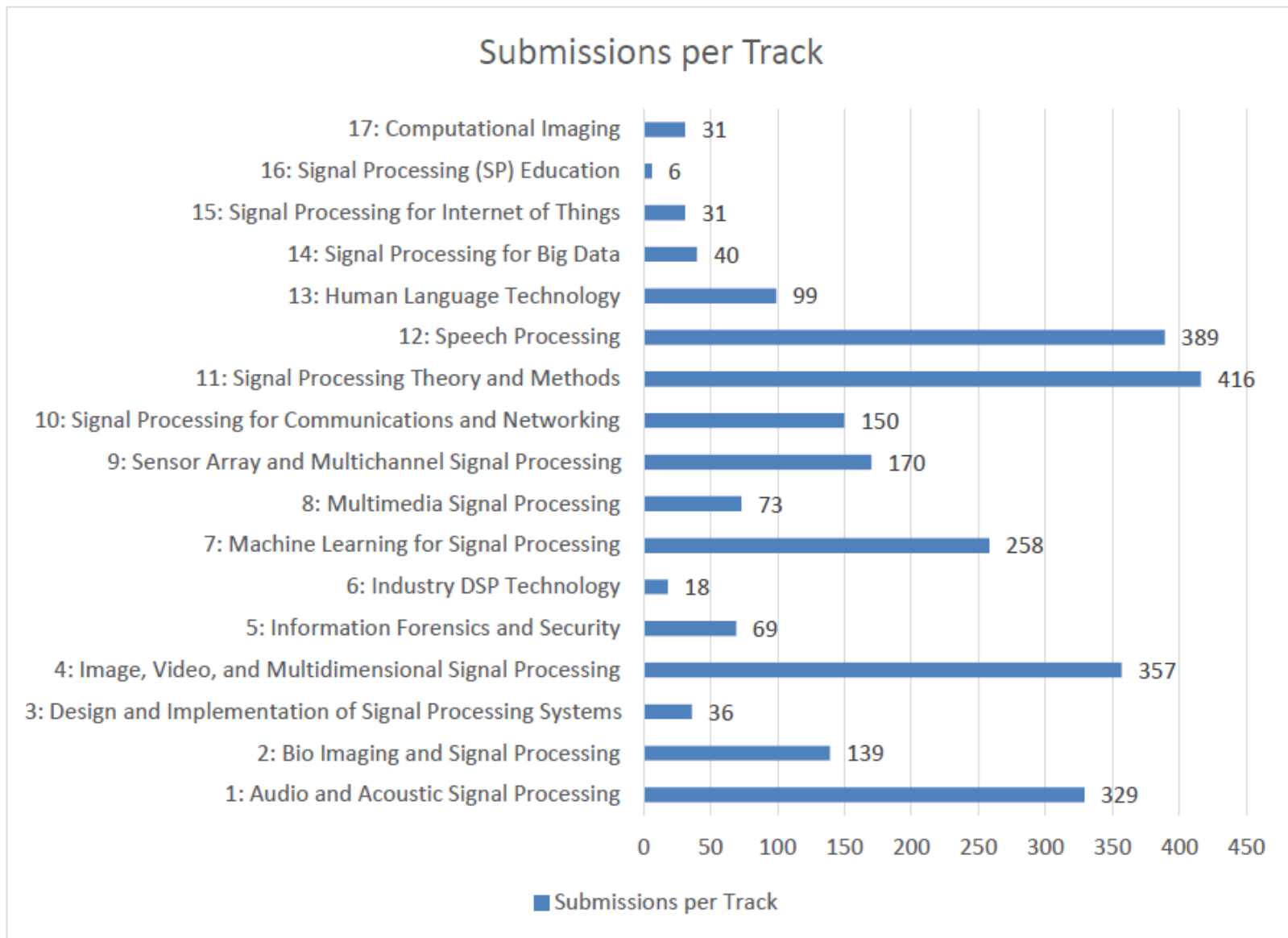
(6 papers)

Time: Monday, March 6, 13:30 - 15:30

Location: Grand Salon 15

Session Chairs: Peter Willett, University of Connecticut, and
Sharon Gannot, Bar Ilan University

ICASSP 2017 Submissions (data from TPC Chairs)



History of ICASSP SAM Submissions

- Annual figures for SAM submissions as a fraction of total ICASSP submissions:
 - ⇒ 2017: 170 / 2697 = 6.3 % New Orleans, USA
 - ⇒ 2016: 200 / 2682 = 7.5 % Shanghai, China
 - ⇒ 2015: 212 / 2322 = 9.1 % Brisbane, Australia
 - ⇒ 2014: 222 / 3544 = 6.3 % Florence, Italy
 - ⇒ 2013: 216 / 3362 = 6.4 % Vancouver, Canada
 - ⇒ 2012: 171 / 2615 = 6.5 % Kyoto, Japan
- SAM was unusually high in Brisbane (ICASSP 2015), perhaps due to the concentration of SAM surveillance topics in Australia

2017 ICASSP SAM Drilldown

Submitted Papers (including the SPL papers),
by EDICS

9.1	Sensor Array Processing	
9.1.1	Beamforming	9
9.1.2	Physics Based SAP	1
9.1.3	Inverse Methods	1
9.1.4	Array Calibration Methods	5
9.1.5	Synthetic Aperture	0
9.1.6	Signal Detection & Parameter Estimation	20
9.1.7	DOA Estimation	40
9.1.8	Localization, Classification, and Tracking	18
9.1.9	Source Separation and Channel ID	3
9.2	Adaptive Array Signal Processing	
9.2.1	Beamforming	5
9.2.2	STAP	2
9.2.3	MIMO Radar & Waveform Diversity	8
9.2.4	Computational Advances	1
9.3	Multi-Channel Signal Processing	
9.3.1	Channel Modeling & Equalization	0
9.3.2	Multi-Channel Transceiver Design	1
9.3.3	Sparsity Structures in Multi-Channel SP	5
9.3.4	Non-Wave Based Sensors	0
9.3.5	Tensor-Based SP for Multi-Sensor Systems	4

9.4	Multi-Antenna and Multi-Channel SP for Comms	
9.4.1	MIMO Systems and Algorithms	1
9.4.2	Space-Time Coding and Decoding Algorithms	1
9.4.3	MIMO Space-Time Code Design and Analysis	0
9.4.4	Multi-User MIMO Networks	0
9.4.5	Array Processing for Wireless Communications	0
9.4.6	Multi-Channel Processing for Cognitive Radios	0
9.4.7	Massive MIMO Array Processing	0
9.5	Sensor and Relay Networks	
9.5.1	Sensor and Relay Network Signal Processing	3
9.5.2	Network Beamforming and Coding	1
9.5.3	Distributed Processing and Optimization, Cooperative Algorithms	5
9.5.4	Data Fusion & Decision Fusion from Multiple Sensor Types	5
9.5.5	Multi-Sensor Processing for Smart Grid & Energy Systems	0
9.5.6	Network Agent Activity Monitoring	0
9.5.7	Wireless Acoustic Sensor Networks	2
9.6	Applications	
9.6.1	Radar Array Processing	11
9.6.2	Sonar Array Processing	2
9.6.3	Microphone Array Processing	2
9.6.4	Hyperspectral Processing and Unmixing	5
9.6.5	Integrated Multi-Model Sensing	0
9.6.6	Super-Resolution Sensing and Reconstruction	2
9.6.7	Multi-Channel Imaging	3
9.6.8	Multi-Channel Biological and Medical Model. & Proc.	0
9.6.9	Sensor Array Applications of Compressive Sensing	5
9.6.10	Fusion Techniques for Big Data Applications	0
9.6.11	Other Applications of SAM SP	3

Initiatives

❑ Archiving of SAM Workshop Websites

- ⇒ Responsible: Waheed U. Bajwa
- ⇒ Past workshops are often housed on University servers, and eventually are removed.
- ⇒ Lost TC memory (and memories).
- ⇒ IEEE is willing to house them, link from web page.
- ⇒ Presently the following workshops have been archived:
 - SAM 2016
 - CAMSAP 2015
 - SAM 2014
 - CAMSAP 2013
 - CAMSAP 2011
 - SAM 2010
 - CAMSAP 2009
 - CAMSAP 2007
 - CAMSAP 2005
 - SAM 2002
- ⇒ Still missing are: SAM 2012, SAM 2008, SAM 2006, and SAM 2004

❑ SAM TC Review on March 9, 2017 at 14:00.

SAM Workshops

□ SAM 2016

⇒ final report on excellent workshop in Rio de Janeiro, Brazil

□ CAMSAP 2017

⇒ preliminary report on will-be-excellent workshop in Curacao, Dutch Antilles

□ SAM 2018

⇒ preliminary report on will-be-excellent-but-just-a-little-later workshop in Sheffield, U.K.

□ CAMSAP 2019

⇒ call for proposals

Subcommittees 2017

- ❑ **Technical Directions** (Athina Petropulu, Jian Li, Kainam Thomas Wong, Peter Willett)
- ❑ **Awards** (Geert Leus, Yonina Eldar, Antonio Napolitano, Lei Huang)
- ❑ **Nominations and Elections** (Fulvio Gini, Eduard Jorswieck, Yimin Zhang, Vincenzo Matta)
- ❑ **Workshops** (Mónica Bugallo, André L. F. de Almeida, Wei Liu, Karim Abed-Meraim)
- ❑ **Webmaster** (Waheed U. Bajwa, Mounir Ghogho)
- ❑ **Newsletter** (Marius Pesavento, Christoph Mecklenbräuker, Hongbin Li)
- ❑ **Membership** (Piya Pal, Yongwei Huang)
- ❑ **Industry/Government** (Braham Himed, Chong Meng Samson-See, Pascal Chevalier)
- ❑ **Education** (Ami Wiesel, Milica Stojanovic, Ba-Ngu Vo)
- ❑ **Student** (Sher Ali Cheema, Philip Schniter)

(underline means chair)

Subcommittees 2017

Area Chairs

- ❑ Applications of SAM processing
- ❑ Beamforming and space-time processing
- ❑ Detection, estimation, and source separation
- ❑ Multi-antenna and multi-channel comm.
- ❑ Radar array processing
- ❑ Sensor array processing
- ❑ Sensor networks

Brian Sadler
Martin Haardt
Volkan Cevher
Chong-Yung Chi
Fauzia Ahmad
Xavier Mestre
Ashish Pandharipande

Four Regional Representatives

- ❑ 1. USA (1-6)
- ❑ 2. Canada/Latin America (7/9)
- ❑ 3. Europe/Mid East/Africa (8)
- ❑ 4. Asia/Pacific (10)

Gonzalo Mateos
Jacob Benesty
Frederic Pascal
Qian He

Interaction with AASP-TC

- ❑ Requested by AASP due to some commonality in interests, especially in microphone array topical area.
- ❑ IEEE SPS does encourage cooperation among its TCs.
- ❑ **Near-term start**
 - ⇒ SAM and AASP have organized a special session on “Speaker Localization in Dynamic Real-Life Environments” at ICASSP 2017 ... and possibly beyond (ICASSP 2018)
- ❑ **Medium-term initiatives**
 - ⇒ SAM may co-sponsor HSCMA (Hands-Free Communication and Microphone Arrays) Workshop
 - Workshop is every 3 years
 - the last one just before ICASSP 2017 in San Francisco, CA
 - not financially sponsored by IEEE
 - ⇒ Special issue in the IEEE Journal of Selected Topics in Signal Processing
- ❑ **Long-term thoughts**
 - ⇒ AASP might be interested in co-sponsorship of SAM
 - ⇒ Create some joint EDICs ???

SPS Data Science Initiative

- First SPS Initiative

 - ⇒ André de Almeida is our representative

 - ⇒ Meeting took place on Monday

Discussion topics

□ SP Cup proposal for 2018

- ⇒ For undergraduate students
- ⇒ Should be organized by the Student Subcommittee
- ⇒ All TC members can provide some input
- ⇒ Our previous submission on MIMO radar with public domain data (coordinated by Sabrina Greco) was rejected twice
- ⇒ Different suggestion
 - Tracking of a person in an indoor or outdoor environment using antenna measurements or a microphone array
 - Real data required

Awards Procedures

- SPS Policy 5.7, accepted wording:
 - ⇒ “TC/SIG’s may not nominate a current elected member of their own TC/SIG for an award. However, current elected members of a TC/SIG may participate as individual nominators for other members of the same TC/SIG.”
- The bottom line is:
 - ⇒ A TC may make nominations for paper- and personal awards that do not involve (current!) TC members
 - ⇒ A TC may not make nominations for paper- and personal awards that do involve current TC members, but
 - a TC may nominate or endorse members of other TCs
 - an individual TC member can nominate or endorse another member of that TC
- We decided to:
 - ⇒ Include all candidates in the pool of award nominations that the TC will consider.
 - ⇒ If the TC’s selection happens to involve a TC member then the TC Chair will solicit an individual nomination
 - ⇒ If so, a second non-member selection be pursued.
 - ⇒ This last was not a concern in the past year.

Voting Procedures

- last **SAM TC Review**: increase geographical coverage in R10, gender diversity and the number of members from industry/government.
 - ⇒ Starting in the 2014 election cycle we implemented a “two step” election procedure to encourage diversity.
 - ⇒ Illustration: Assume 12 open slots, and say more than 12 candidates who are neither industrial/lab, female nor Region 10 (nor other under-represented region). The first round of election will winnow that list to 12. The second round of election will include those “surviving” 12, plus the remaining (under-represented category) candidates.

Membership Categories

- ❑ The SAM TC has considered its membership categories, with special attention to Associate Member list and whether it is of an appropriate size.
- ❑ Now, given our review needs (see the previous item for ICASSP numbers) the present list of approximately 75 seems appropriate.
- ❑ However, we will examine the Associate Member list to identify “dormant” members.
- ❑ Also examine Affiliate Member and Student Affiliate Member roles and membership.

Associate and Affiliate Members

- **Associate members** in SAM are past SAM members, or unsuccessful member applicants nominated by SAM members.
 - ⇒ Their technical levels are high and they have been giving us big help in reviewing ICASSP papers.
- **Affiliate members** are free to join with no criteria needed, there is no quality control in their technical levels.
 - ⇒ Affiliate members generally join through the website ... the application comes to the SAM-TC Chair who evaluates and adds their names to the lists/logs on a periodic basis.
 - ⇒ Affiliate status is not a pre-requisite for eventual election. It is however perhaps helpful to a TC candidacy, since it evidences interest and engagement.
- In the past we sent out TC meeting reports and notices of workshop activities and elections / nominations to affiliate members.
 - ⇒ There was an idea of inviting affiliates to TC meetings during SAM workshop/CAMSAP to make them feel more involved, especially lunches are included in our workshops, but it has not yet happened.
 - ⇒ It probably should, and should be part of the workshop budget; but it would make the budget a bit uncertain.