Summary of Activities
The Sensory Systems (SS) committee of the IEEE Circuits and Systems Society focuses on the theory, analysis, design, and practical implementation of sensors, actuators, micro-electro-mechanical systems and processing electronics, and their applications.

Committee members are renowned experts, who are both committed to, and active within, the field. The committee membership currently stands at 35 members, up from last year by 3 new members. At ISCAS 2003, Andre van Schaik and Shih-Chi Liu were elected as the Chair Elect and Secretary, respectively, for the SSTC. This is the first year of Orly Yadid-Pecht’s Chairmanship.

We are finalizing the publication process for a Special Issue in the Kluwer’s Analog Integrated Circuits and Signal Processing Journal which should appear next year. We are also completing a book on CMOS Imagers, submitted to the publisher (Kluwer) in February, to be published hopefully by May’04.

For ISCAS 2004, our TC has maintained a good number of submitted papers – 57. We are also offering a tutorial on CMOS Imager Sensors, and a Special Session on Bolometric sensors. A Best Paper prize for our TC has been established already, and we would like to enhance this by a monetary award and hopefully having a special issue on our best ISCAS papers in the TSensors or TCAS journals.

In conclusion, we have a few goals to work at.

The following details the CASS-related activity by the committee and its members.

1. Participation in ISCAS track paper reviews: For the ISCAS conference, we are contributing regular oral presentation sessions and additional poster sessions. These sessions cover the various topics in our TC, i.e. Acoustic Sensors, Image Sensors, MEMS, Networked Sensors, Neuromorphic Circuits, Vision Systems, Sensor Circuits, Sensory Systems, Sensor Models, Chemical Sensors, Olfactory sensors and Others. We are also providing a half day tutorial titled CMOS Imagers: From Phototransduction to Image Processing. We are also offering a special session on Bolometric Arrays. We plan to have a total of 40 (30 oral presentations) papers in our track.

2. Best Paper Award: Continuing the established procedure for the best paper prize for our TC, for 2003, we have selected the top six scoring papers from all the submission in our Track and resubmitted them to the TC membership for ranking. A certificate has been presented to the authors at the TC meeting in Bangkok. We aim to enhance this activity and have the best papers published in a special issue of TSensors or TCAS.

3. Journal Special Issues: We are in the printing stage of a Special Issue of Kluwer’s Analog Integrated Circuits and Signal Processing Journal on Smart Sensors. Most of the papers were presented in our two Special Sessions at ISCAS 2002 and have been extended for journal publication. The special issue is currently set to be published in June’04.

4. Out Reach: Members of our TC serve on program committees of various conferences such as SPIE, NIPS, ISSCC, BIS and many others. A book on CMOS imagers is in the works which we believe will attract significant attention from members in the field.

5. Technical Committee Membership: We have recruited a group of TC members that cover all the thrusts of our TC. The committee has members from academia, national labs and industry. We have also attempted to diversify the membership to include senior and junior scientists, as well as women and minorities. In addition,
our members serve on the editorial boards of various Journals, such as IEEE TVLSI, TSensors, TCAS and AICSP journal.

**Current list of members:**
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Bernabe Linares, IMSE, Spain, bernabe@imse.cnm.es
Tobi Delbruck, Institut für Neuroinformatik, Switzerland

6. **Future Plans:** In the coming year, it is our goal to increase the ISCAS contributions in the SSTC track. We have been actively encouraging researchers, starting with the TC members, in the field to send their work to the conference. We will continue to offer tutorials or short courses in our track at the 2004 ISCAS. We hope to continue the best paper award and potentially provide a monetary award in addition to the certificates. We also plan to establish a relationship with either IEEE TCAS-I & II or IEEE TSensors to have the best papers in the Track appear as full papers in the Journals.

7. **Technology Leadership:**
Orly Yadid-Pecht - Elected to the Board of Governors, IEEE CAS Society, 2003
- Appointed Chair of the Technical Committee on Sensors, IEEE ISCAS, 2004
Ralph Etienne-Cummings - Associate Director for Education and Outreach, ERC on CISST, JHU, 2004 – Present
- Appointed Associate Director for Education and Outreach, ERC on CISST at Johns Hopkins University, 2004
- Elected to the Board of Governors, IEEE CAS Society, 2003
- Appointed to the Program Committee on Emerging Technology, NIPS Society, 2003
- Appointed Organizing Committee of the NSF Telluride Neuromorphic Engineering Workshop, 2003
- Appointed Past-Chair of the Technical Committee on Sensors, IEEE ISCAS, 2003
- Elected Chair-Elect of the Technical Committee on Neural Networks, IEEE ISCAS, 2003
8. **Publications:**

**Journal Publications:**


**Regular Refereed Conference Publications:**


Book:

Book chapters:

Invited Papers:

9. Workshops/conferences:
   -Technical Program Committee member and Session Chairman: International Symposium on Circuits and Systems, 2003
   Ralph Etienne-Cummings - Session Chairman: International Solid-State Circuits Conference, San Francisco, CA, 2004
   - Session Chairman: International Symposium on Circuits and Systems, 2003
- Invited Speaker: NSF Telluride Workshop on Neuromorphic Engineering, CO, 2003
- Invited Speaker: LPS Seminar Series, University of Maryland, College Park, MD, 2003

Mona Zaghloul
- Organizer - Special Session on MEMS and their Applications at the MWSCAS 2003, Cairo Egypt.
- Organized the 2004 ISCAS-FORUM on Nanotechnology and Future technologies, and what the CAS community should do about it

S.C. Liu and T. Delbruck

10. **Professional activities:**

Orly Yadid-Pecht
- Deputy Editor in Chief: IEEE TCAS-I Journal
- Guest Editor: *Kluwer’s AICSP Journal*, Special Issue on Smart Sensors, Spring 2004 (planned publication)

Ralph Etienne-Cummings
- Board of Governors: IEEE CAS Society
- Associate Editor: IEEE Sensors Journal
- Guest Editor: *Kluwer’s AICSP Journal*, Special Issue on Smart Sensors, Spring 2004 (planned publication)

Mona Zaghloul (with Peter Wu)
- Guest Editor for Special Issue of TVLSI on Nanoscale and GigaScale circuits and Systems.
- Attended IEEE Sensors Conference and reported to the CAS BOG community about the Sensors Council activities.

Bernabe Linares
- Guest Editor of the Special Issue on NN Hardware Implementations published in September 2003 at IEEE Trans. on Neural Networks with 35 outstanding full papers