

**IEEE Technical Committee on
CAS Education and Outreach (CASEO)
Annual Report for 2011-2012**

Chairman: **Tokunbo Ogunfunmi**
Secretary: **Babak Ayazifar**
Past Chairman: **Joos Vandewalle**

Members of the CASEO TC of the IEEE CAS were very active in 2011-2012. This report highlights the members' activities in various areas of interest to CAS community.

1. **CASEO TC and ISCAS Service**

Arjuna Madanayake

Session Chair, CASEO TC session at ISCAS 2012.

Raija Lehto

Session Chair, CASEO TC session at ISCAS 2011.

C2L-H Speech Processing, A5P-T DSP for Communications

ISCAS 2012 as Review Committee Member

ISCAS 2012 Session Chair: C5P-Q Digital Filters

Tokunbo Ogunfunmi

TC Chair and Session Chair, CASEO TC session at ISCAS 2012.

Joos Vandewalle

Session Chair and Member, Track committee, CAS Education at ISCAS 2012

Magdy Tawfik Hanna

Reviewer for the 2012 IEEE International Symposium on Circuits and Systems, Seoul, Korea, May 20 - 23, 2012.

2. **Conferences and Workshops involving the CASEO TC or its Members**

2.1 Conferences Organized

Sergio Callegari

Member of the LASCAS 2011 program committee

Joos Vandewalle

Co Chair for IEEE ISCAS 2013 Beijing

Eduard Alarcón

Nominated to the Program Committee of the 2013 9th International CDIO Annual Conference,

CASEO TC

June 10 13, 2013, MIT Harvard, Cambridge, Massachusetts, USA

Elected General co chair, 2014 10th International CDIO Annual Conference, UPC, Barcelona, Spain

Tokunbo Ogunfunmi

General Co-Chair, IEEE International Conference on Adaptive Science and Technology (ICAST 2011)

Co-organized a special lecture session titled “Circuits and Systems Concept Inventory” at the 2011 IEEE International Symposium on Circuits and Systems, Rio de Janeiro, Brazil from 15 18 May 2011.

Organized a special lecture session titled “Recent Advances in Linear & Non Linear Adaptive Filters” at the 2011 IEEE International Symposium on Circuits and Systems, Rio de Janeiro, Brazil from 15 18 May 2011.

Organized a special lecture session titled “Embedded Implementations and Adaptation in Wireless Communication Systems” at the 2011 IEEE International Midwest Symposium on Circuits and Systems, Seoul, Korea, Aug. 2011.

Organized a special lecture session at Asilomar Conference on Circuits, Systems and Computers (ACCSC 2012), Session titled “Speech Processing and Speech Recognition”

Ljiljana Trajkovic,

Publications Chair, IEEE 13th International Conference on High Performance Switching and Routing, HPSR 2012

Local Arrangements Chair, The IASTED International Conference on Wireless Communications, WC 2011

2.2 Short Courses

Sergio Callegari

Co organization and co lecturing of a "Short Course on Oscillation Based Test, Chaotic Dynamics, and Complex Oscillation Based Test"

Co organized by University of Bologna (Italy) and University of Washington (WA, USA). It was delivered at the University of Washington in June 2011 and partially funded by the University of Bologna. Gianluca Setti from the University of Ferrara also participated to the lectures. The goal of the course was to show how nonlinear dynamics can be exploited in the Oscillation Based Test framework.

Tokunbo Ogunfunmi (with M.J (Sim) Narasimha and Roberto Tognieri), Tutorial: Advances in Speech Coding, Speech Recognition and Applications, Tutorial to be presented at the ISCAS 2012 conference, Seoul, Korea, May 2012.

3. Publications: Journals, Conf. Papers, Books and Book Chapters, Patents

3.1 Publications - Journals

Magdy Tawfik Hanna, "Direct Sequential Evaluation of Optimal Orthonormal Eigenvectors of the Discrete Fourier Transform Matrix by Constrained Optimization," accepted for publication in *Digital Signal Processing*.

Magdy Tawfik Hanna, Amr Mohamed Shaarawi, Nabila Philip Attalla Seif and Waleed Abd El Maguid Ahmed, "Discrete fractional Fourier transform as a fast algorithm for evaluating the diffraction pattern of pulsed radiation," *Journal of the Optical Society of America A – Optics, Image Science, and Vision*, Vol. 28, No. 8, pp. 1610-1619, August 2011.

Rieger, R.; Nian, S.-H.; „Integrated Control Circuit for Adaptive Sampling,“ *Analog Integrated Circuits and Signal Processing*, Online first, DOI 10.1007/s10470-011-9817-0, December 2011.

Rieger, R.; „Variable-gain, Low-noise Amplification for Sampling Front-ends,“ *IEEE Transactions on Biomedical Circuits and Systems*, Vol. 5, no. 3, pp. 253-261, June 2011.

Huang, Y.-T., Rieger, R.; „An OOK Body-Channel Transceiver Front-end ASIC for Distributed Force Measurement,“ *Journal of Signal Processing Systems*, Vol. 64, No. 2, pp. 177-185, 2011.

3.2 Publications - Conference Proceedings

Mary Monir Saaid, Zaki Bassyouni Nossair and Magdy Tawfik Hanna, “An Image Watermarking Scheme Based on Multiresolution Analysis,” *Proceedings of the 54th IEEE International Midwest Symposium on Circuits and Systems*, Yonsei University, Seoul, Korea, August 7-10, 2011.

Magdy Tawfik Hanna, "Orthonormal Eigenvectors of the DFT-IV Matrix by the Eigenanalysis of a Nearly Tridiagonal Matrix," *Proceedings of the IEEE International Symposium on Circuits and Systems*, Rio de Janeiro, Brazil, May 15-18, 2011, pp. 1504-1507.

Rieger, R.; Chen, J.-Y.; “An Axon Emulator for Evaluation of Nerve Recording Systems,” to appear in *Proc. ISCAS 2012*, May 2012.

Taylor, J.; Rieger, R.; Clarke, C.; “Signal Processing for Velocity Selective Recording Systems Using Analogue Delay Lines,” to appear in *Proc. ISCAS 2012*, May 2012.

Deng, S.-L.; Li, C.-Y.; Rieger, R.; „Double-Differential Recording and AGC using Amplifier ASIC,“ in *Proc. 24th IEEE International System on Chip Conference (SOCC)*, Sep. 2011, pp. 105-108.

3.3 Patents

Rieger, R.; “Dynamic Range Extension System for Amplifier-Digitizer,” Taiwan patent TW096145026, May 2011.

Rieger, R.; "On-Body Sensing System with bi-directional signal communication," Taiwan patent TW097150716, May 2012.

3.4 Other Publications/Presentations

4. **Awards, Distinguished Lecturer and Honors**

Joos Vandewalle

Counselor, KU Leuven Student Branch which received the "2011 Outstanding IEEE Student Branch Counselor Award"

Tokunbo Ogunfunmi

IEEE Circuits and Systems Distinguished Lecturer, 2012-2013

Magdy Tawfik Hanna

Fayoum University **Scientific Publication Award** for the year 2011.

5. **Plenary Sessions, Keynote Speakers, Invited Lectures**

Rieger, R.; "Integrated Circuit Design for Low-power Biomedical Application," 1st IEEE SOC International Summer School, Kaohsiung, Taiwan, August 2011.

Tokunbo Ogunfunmi: Keynote Speaker, IEEE International Conference on Adaptive Science and Technology (ICAST 2011)

Tokunbo Ogunfunmi:

Gave two invited talks titled "New Algorithms for Fast Motion Estimation in H.264/AVC" and "New Hardware Architectures for Fast Motion Estimation in H.264/AVC", to the IEEE CASS Local Chapter Members at the Universidade Federale do Rio do Grande Sul (UFRGS), Porto Alegre, Brazil, May 2011.

Ljiljana Trajkovic,

"Understanding communication networks," IEEE Vancouver Centennial Technical Symposium, Vancouver, Oct. 2011.

"Spectral analysis and dynamical behavior of complex networks," International Workshop on Complex Systems and Networks, Melbourne, Australia, Sept. 2011.

"Teaching and learning for new generations of engineers, South China University of Technology, Guangzhou, China, July 2011.

6. **Editorial Services**

Tokunbo Ogunfunmi,

Associate Editor, IEEE Signal Processing Letters,
Associate Editor, Circuits, Systems and Signal Processing journal,

Rieger, R.

Associate Editor for IEEE Transactions on Biomedical Circuits and Systems (TBCAS)

Ljiljana Trajkovic,

Journal Editorial boards: Serbian Journal of Electrical Engineering (2003 – present)

Sergio Callegari

On the Editorial board of ISRN Signal Processing since 2010 (it's an open access journal)

Joos Vandewalle

Member of the JETCAS Senior Editorial Board

Member of the Editorial Board of the International Journal of Circuit Theory and Its Applications

Member of the Editorial Board of Neurocomputing

7. **IEEE Services**

Rieger, R.

NSYSU Young Scholar Award

Joos Vandewalle

Elected as a member of the BOG of IEEE CAS Society for 3 years 2012 2014

Raija Lehto

Elected Member of IEEE CAS BoG during 2012-2014,

Member of IEEE CAS BoG publication division for 2012.

IEEE CAS Gold Committee Member from 2011

8. **CASEO TC Technically Co-Sponsored Conferences/Symposia/Workshops**

Tokunbo Ogunfunmi

ISCAS 2011 (Review Committee Member and Session Chairs)

IEEE Midwest Symposium on Circuits and Systems (MWSCAS 2011), Session Chairs

Asilomar Conference on Circuits, Systems and Computers (ACCSC 2012), Session Chair

Member, Technical Program Committee for the IEEE Signal Processing Systems (SiPS) Workshop, 2011.

Member, Signal and Information Theory and Methods (SIPTM) Technical Committee (TC) of Asia-Pacific Signal and Information Processing Association (APSIPA), Nov. 2010.

9. **Other Professional Activities**

Rieger, R.

Member, Technical Program Committee BioCAS 2011

Member, IEEE VSA TC, BioCAS TC and CASEO TC

Member, Taiwan Chip Implementation Center (CIC) Peer-Review Committee

CASEO TC

Member, Technical Committee Bureau of Standards, Metrology & Inspection (BSMI),
Ministry of Economic Affairs, Taiwan

Ljiljana Trajkovic,

Vice President Publications, IEEE Systems, Man, and Cybernetics Society (2012 – 2014
and 2010 – 2011)

Member, IEEE Fellow Committee (2012 and 2011)

Member (Technical Activities Board representative), IEEE Member and Geographic
Activities Student Activities Committee (2012 and 2011)

Member, NSERC Electrical Engineering Scholarships and Fellowships Selection
Committee (2011 – 2014)

Centennial Volunteer Award, IEEE Vancouver Section, March 25, 2012

10. **News from the TC Members**

Magdy Tawfik Hanna

The Principal Investigator of a project entitled "The Discrete Fractional Fourier Transform,
Project ID 2091" funded by the Science and Technology Development Fund (STDF), Egypt and
started on May 4, 2011 for duration of two years.

Vice President for Graduate Studies and Research, Fayoum University, Fayoum, Egypt
since September 18, 2010.

Interim President, Fayoum University, Fayoum, Egypt from October 11, 2011 to
December 6, 2011.

CASEO TC

VISION STATEMENT

The Circuits and Systems Education and Outreach Technical Committee (CASEO TC) focuses on the education and outreach of circuits and systems. The TC shall address the role, the process and the promotion of the education of CAS subjects in electrical engineering education and make initiatives to enhance its quality and attraction worldwide. Special attention is devoted to outreach initiatives that stimulate youngsters to CAS items worldwide, and to the social and ethical role of CAS related topics.