



Annual Report of the Biomedical Circuits and Systems (BioCAS) Technical Committee 2007/2008

Compiled by P. Häfliger

Introduction

The Biomedical Circuits and Systems (BioCAS) Technical Committee of the IEEE CAS society can look back on a very active year. The number of committee members has increased to 70. They have been involved in a large number of various activities advancing and promoting the field of BioCAS, as will be detailed in the following sections. Two of our major activities, the BioCAS conference and the Transactions on BioCAS are growing steadily:

Transactions on Biomedical Circuits and Systems: The journal has now completed its first year with 4 issues. It received 105 paper submissions, whereof 28 were accepted. Carefully selected papers were invited from 4 conferences: Body Sensor networks (BSN) 2007, ISCAS 2007 - BioCAS track, 4th IEEE-EMBS International Summer School and Symposium on Medical Devices and Biosensors Cambridge (ISSS-MDBS) 2007, IEEE Biomedical Circuits and Systems Conference (BioCAS) 2007.

IEEE Biomedical Circuits and Systems Conference (BioCAS) 2007: The conference was now held for the third time, this time in Montréal, Canada. A total of 85 papers from 17 different nations were selected for presentation. Extended versions of the 8 best papers (by review score and presentation evaluation) will appear in a special issue of the Transactions on BioCAS later this year.

1 IEEE Services

1.1 Invited Talks

- A. Mason: National Institutes of Health, Electromagnetic Devices Special Study Session, September 2007
- E. Rodriguez-Villegas: Two week doctoral course in the University of Seville: "Low power and low voltage analog design with the FGMOS transistor". April 2007.
- E. Rodriguez-Villegas: Plenary talk in IEEE ICEEE 2007: "Design Issues for Low-Power and Low-Voltage FGMOSFET Systems". September 2007.
- E. Rodriguez-Villegas: Invited talk to the research fellows of Intel from all around the world: "Low power circuit design strategy based on the FGMOS transistor". Intel European Research Lab. Germany, 2007.
- E. Rodriguez-Villegas: Invited paper in IEEE European Conference on Circuit Theory and design (IEEE ECCTD 2007).
- E. Rodriguez-Villegas: Invited talk in the US Augmented Cognition DARPA meeting: "Low Power Technology for Wearable Cognition Systems". Beijing, August 2007.
- E. Rodriguez-Villegas: Invited talk in the British Meeting on Sudden Death in Epilepsy (SUDEP): "Wearable devices to prevent SUDEP". Kings College Hospital, London, September 2007.

- E. Rodriguez-Villegas: Invited talk to a mixed medical audience in the British National Society for Epilepsy: "New wearable technologies for epilepsy monitoring," NSE, Chalfont, UK, April 2008.
- P. Mohseni: "Wireless integrated devices for brain monitoring and stimulation," Dept. of Electrical and Computer Engineering, University of Texas-Austin, Austin, TX, March 20, 2008
- P. Mohseni: "Single-chip wireless microsystems for recording neuroelectrical and neurochemical activity," Dept. of Biomedical Engineering, University of California-Irvine, Orange County, CA, February 22, 2007
- Gert Cauwenberghs: "Adaptive Electronics: A Neuromorphic Perspective," Adaptive Electronics, DSRC Workshop, Santa Cruz CA, July 18, 2007.
- Gert Cauwenberghs: "Scalability and Efficiency in Neuromorphic Microsystems," DARPA Electronic Cortex Workshop, Arlington VA, July 31, 2007.
- Gert Cauwenberghs: "Silicon Learning Machines," IEEE Computational Intelligence Society, San Diego Chapter, Dec. 12, 2007.
- Gert Cauwenberghs: "Reconfigurable and Adaptive Mixed-Signal Microsystems," eStemCells DSRC Workshop, Stanford University, Palo Alto CA, March 28, 2008.
- Jie Chen: invited keynote speaker at the CMC (Canadian Microelectronics Corporation) symposium'2007 at Ottawa on Oct. 18 2007. The talk title is "Design and Implementation of Ultra-low Power Nanoscale Circuits".
- Reid Harrison: IEEE Custom Integrated Circuits Conference (Invited Paper), San Jose, CA 2007
- Reid Harrison: 1st Global COE International Symposium, Electronic Devices Innovation (Plenary Talk), Osaka, Japan 2008
- Reid Harrison: GCOE Global Seminar, Advances in Neuroengineering, Osaka, Japan 2008
- M. Ghovanloo: Invited talk on "Tongue Drive, A Tongue-Operated Magnetic Sensor Based Assistive Technology for People with Severe Disabilities," Quality of Life Technology (QoLT), NSF Engineering Research Center Educational Seminar, Pittsburgh, PA, Jan. 2008.
- M. Ghovanloo: Invited talk on "A tongue operated magnetic sensor based assistive technology for people with severe disabilities," Interagency Committee on Disability Research (ICDR), Interagency Subcommittee on Technology, National Science Foundation, Washington, DC, Sep. 2007.
- M. Ghovanloo: Poster presentations on "NC Bionics Laboratory projects and research activities" at the 2nd annual NC State University Economic Development Forum, Raleigh, NC, May 2007.
- Chua-Chin Wang: IEEE Circuits and System Society Distinguished Lecturer (2008-2009), nominated by BioCAS TC.
- R. Rieger: Invited Lecture, "Nerve Signal Recording", Kaohsiung University of Applied Sciences (KUAS), 11. April 2008.
- R. Etienne-Cummings: Invited Speaker, Arizona State University, Catalyst Symposium, Mar 2007
- R. Etienne-Cummings: Invited Speaker, Institute of Neuromorphic Engineering, Sardinia Meeting, Apr 2007
- R. Etienne-Cummings: Invited Speaker, Keynote Address, Center for Talent Youths, Baltimore, MD, June 2007.
- R. Etienne-Cummings: Invited Speaker, European Optical Society, Munich, Germany, June 2007.
- R. Etienne-Cummings: Invited Speaker, NASA Goddard, Laurel, MD, July 2007.

- R. Etienne-Cummings: Invited Speaker, University of Cape Town, South Africa, Sept 2007.
- R. Etienne-Cummings: Invited Speaker, Cornell University, Oct 2007.
- R. Etienne-Cummings: Invited Speaker, Army Research Lab, Aberdeen Proving Grounds, Nov 2007.
- R. Etienne-Cummings: Invited Speaker, National Academy of Science, Kavli Frontiers in Science, Irvine, CA, Nov 2007.
- R. Etienne-Cummings: Invited Speaker, Biomedical Circuits and Systems Conference, Tutorial, Montreal, CA, Nov 2007.
- R. Etienne-Cummings: Invited Speaker, DARPA DRSC Electronic StemCell Workshop, DC, Jan 2008.
- R. Etienne-Cummings: Invited Speaker, University of Pennsylvania, Feb 2008.
- P. Häfliger: "Biomedical Electronics", Sardinia Cognitive Neuromorphic Engineering Meeting, Apr 2007
- O. Yadid-Pecht: "CMOS Imagers - Smart Sensors", University of Rochester, May 2007
- O. Yadid-Pecht: "CMOS Image Sensors characterization - revisited", Kodak, Rochester, June 2007
- O. Yadid-Pecht: "CMOS Imaging Circuits" - for the CMOS Emerging Technologies Workshop, Whistler, BC, July 2007
- O. Yadid-Pecht: "Wide Dynamic Range Sensors" - for the Johns Hopkins University, Baltimore, US, Aug 2007
- Y. Lian: "The Design of High-Speed Low-Power Digital FIR Filters Based on Frequency-Response Masking Technique", Invited Talk at IEEE Circuits and Systems Society Workshop, Vancouver, Canada, Mar. 2007.
- Y. Lian: "Wireless Biomedical Sensors for Body Area Network", Invited Talk at Tsinghua University, Beijing, China, Dec. 2007.
- M. Sawan: "Microsystems for advanced diagnostic and treatment tools", Invited Talk at Shanghai Jiao Tong University, China, April 2008.
- M. Sawan: "Circuits and systems for medical wearable devices", Invited Talk at Shanghai Jiao Tong University, China, April 2008.
- M. Sawan, E. Ghafar-Zadeh: "A 0.18 μ m CMOS Capacitive Detection Lab-on-Chip", Invited Talk at IEEE-CICC, San Jose, September 2007.
- M. Sawan: "Diagnostic tools based on mixed-technology microdevices", Tutorial ECCDT2007, Sevilla, Spain, August 2007.
- E. Ghafar-Zadeh, M. Sawan: "CMOS Based Laboratory-on-Chip: A Multidisciplinary Approach", Invited Talk at CMOS Emerging Technology Workshop, Whistler, Canada, August 2007.
- M. Sawan: "Neurostimulation and Neuromodulation to Enhance the Bladder Functions", Invited Talk at IHMNC/CAN 2007, Toronto, May 2007.
- M. Sawan: "Implantable diagnostic tools based on mixed-technology microdevices", Tutorial FTFC2007, Paris, May 2007.
- E. Chicca: Telluride Neuromorphic Workshop 07: VLSI cooperative-competitive networks of spiking neurons

- E. Chicca: The Computational Sensorimotor Systems Laboratory (UMD): Building blocks for VLSI networks of Integrate-and-Fire neurons with plastic synapses
- E. Chicca: Sardinia Cognitive Neuromorphic Engineering: Hardware simulations on neuromorphic architectures

1.2 Organizers: Conferences, Workshops, Panels, Special Sessions, Tutorials

...

- E. Rodriguez-Villegas: special session organiser in IEEE EMBC 2008
- E. Rodriguez-Villegas: review committee member IEEE ISCAS 2008
- E. Rodriguez-Villegas: session chair in IEEE EMBC 2007
- P. Mohseni: special session on Advanced Neural Microsystems, IEEE Int. Symp. Circuits and Systems (ISCAS'08), Seattle, WA, May 18-21, 2008
- P. Mohseni: special session on Neuroengineering Circuits and Microsystems, IEEE Int. Symp. Circuits and Systems (ISCAS'07), New Orleans, LA, May 27-30, 2007
- G. Cauwenberghs: program co-chair, 20th Symp. Integrated Circuits and Systems Design (SBCCI'2007, Chip in Rio), Rio de Janeiro, Brazil, Sept. 3-6, 2007.
- A. van Schaik: organizer, Telluride Neuromorphic Engineering Workshop
- A. van Schaik: Co-chair, Sensory Systems Track IEEE ISCAS08
- G. Indiveri: Chair 2007 Neural Information Processing Systems (NIPS) demo session
- G. Indiveri: program committee 2008 Computational Intelligence in Security for Information Systems CISIS
- G. Indiveri: program committee 2008 Bio-Sensing (OP207) Part of the SPIE International Symposium on NanoScience + Engineering
- G. Indiveri: program committee 2007 International Symposium on Neural Networks
- G. Indiveri: program committee 2007 and 2005 SPIE Microtechnologies for the new Millennium conference.
- G. Indiveri: review committee member: 2008 IEEE International Symposium on Circuits and Systems (ISCAS), 2008 Neural Information Processing Systems (NIPS) conference, 2008 International Federation of Automatic Control (IFAC) World Congress, 2008 IEEE World Congress on Computational Intelligence (WCCI 2008)
- Jie Chen: general co-chair IEEE/NIH Life Science Applications and Systems 2008 workshop
- Jie Chen: publication chair IEEE/ACM NanoArchitecture Symposium 2008
- Reid Harrison: Co-Organizer, Integrated Neural Implants special session; IEEE International Symposium on Circuits and Systems (ISCAS) 2007.
- M. Ghovanloo: Special Session Organizer: Modern Assistive Technologies, IEEE Engineering in Medicine and Biology Conference, Lyon, France, August 2007.
- M. Ghovanloo: Special Session Co-Organizer: Neuroengineering Circuits and Microsystems, IEEE Intl. Symp. on Circuits and Systems, New Orleans, LA, May 2007 (with Dr. P. Mohsni).
- M. Ghovanloo: Technical Program Committee, IEEE Biomedical Circuits and Systems conference, Montreal, Canada, November 2007.

- M. Ghovanloo: Technical Program Committee, Bioengineering, IEEE Midwest Symp. on Circuits and Systems, Montreal, Canada, August 2007.
- M. Ghovanloo: Technical Review Committee, IEEE Engineering in Medicine and Biology Conference, Lyon, France, August 2007.
- M. Ghovanloo: Technical Review Committee, IEEE Intl. Symp. on Circuits and Systems, New Orleans, LA, May 2007.
- Chua-Chin Wang: General Chair, 2007 VLSI Design/CAD Symp. Aug. 2007
- Chua-Chin Wang: Technical Program Committee, 2007 IEEE International Workshop on Memory Technology, Design, and Testing (MTDT 2007)
- Chua-Chin Wang: Technical Program Committee, 2008 Inter. Symp. on VLSI Design, Automation and Test (VLSI-DAT)
- Chua-Chin Wang: Technical Program Committee, 2008 The 15th IEEE International Conference on Electronics, Circuits and Systems (ICECS 2008)
- Chua-Chin Wang: Steering Committee, VLSI Design/CAD Symp. (2008)
- Chua-Chin Wang: Nano-Giga TC Track Co-Chair, 2008 IEEE Inter. Symp. on Circuits and Systems (2008 ISCAS)
- A. Fish: co-organizer of Special Session Low Power Smart CMOS Image Sensors and Beyond, IEEE International Symposium on Circuits and Systems, Seattle, USA, May, 2008
- R. Rieger: Technical Program Committee Member BioCAS 2008.
- R. Rieger: Member RC ISCAS 2007 and ISCAS 2008.
- R. Rieger: Publicity Chair for VLSI/CAD2007 Conference, Taiwan, August 2007.
- R. Rieger: Taiwan National Chip Implementation Center (CIC) Peer Review Committee Member since March 2008.
- R. Etienne-Cummings: Appointed Organizing Committee of the NSF Telluride Neuromorphic Engineering Workshop, 2003-Present
- R. Etienne-Cummings: Session Chairman International Symposium on Circuits and Systems, 2001-2007
- R. Etienne-Cummings: Program Co-Chair IEEE BioCAS Conference, Montreal, Fall 2007
- P. Häfliger: Co-organizer 'Invited session on live demonstrations of circuits and systems' ISCAS 2007 and 2008
- P. Häfliger: Technical Program Committee BioCAS 2007
- E. Bruun: Member of conference committees for IEEE Norchip, IEEE ICECS and IEEE ESSCIRC
- O. Yadid-Pecht: Member of the Technical Committee for the IEEE BioCAS conference (2004-present).
- O. Yadid-Pecht: Member of the Steering Committee for the IEEE ICECS (2003-present).
- O. Yadid-Pecht: Member of the SPIE Solid State Sensor Arrays international conference program committee (1997-present).
- O. Yadid-Pecht: Special Session co-organizer, "Low Power Image Sensors", IEEE Circuits and Systems Conf, Seattle, Washington, US, May 2008.

- O. Yadid-Pecht: Special Session co-organizer, "Smart Image Sensors", IEEE Sensors Conference, Atlanta, Georgia, Oct 2007.
- Y. Lian: International Coordinator, The IEEE 2009 International Symposium on Circuits and Systems (ISCAS'2009), May 2009, Taiwan.
- Y. Lian: Technical Program Co-Chair, The IEEE 2008 International Conference on Biomedical Circuits and Systems (BioCAS'2008), 18-21 November 2008, Baltimore, USA.
- Y. Lian: Technical Program Committee Member, 9th International Conference on Solid-State and Integrated-Circuit Technology (ICSICT'2008), 20-23 October 2008, Beijing, China.
- Y. Lian: Technical Program Committee Member, 16th European Signal Processing Conference (EUSICPO 2008), 25-29 August 2008, Lausanne, Switzerland.
- Y. Lian: International Program Committee Member, 2008 IASTED Signal and Image Processing (SIP'2008), 18 - 20 August 2008, Hawaii, USA.
- Y. Lian: International Advisory Committee Co-Chair, 2008 IEEE International Conference on Neural Networks and Signal Processing (ICNNSP08), 3 - 7 June 2008, Nanjing, China.
- Y. Lian: International Coordinator, The IEEE 2008 International Symposium on Circuits and Systems (ISCAS'2008), 18 - 21 May 2008, Seattle, USA.
- Y. Lian: Biomedical Circuits and Systems Track Chair, The IEEE 2008 International Symposium on Circuits and Systems (ISCAS'2008), 18 - 21 May 2008, Seattle, USA.
- Y. Lian: DSP Track Co-Chair, The IEEE 2008 International Symposium on Circuits and Systems (ISCAS'2008), 18 - 21 May 2008, Seattle, USA.
- Y. Lian: International Advisory Committee Member, The International Conference on Computer and Communication Engineering (ICCCE'2008), 13 - 15 May 2008, Kuala Lumpur, Malaysia.
- M. Sawan: General Chair of the Int. NEWCAS conference 2008
- M. Sawan: General Chair of the IEEE Int. Conference on Biomedical Circuits and Systems (BioCAS), 2007
- M. Sawan: General Chair of the joint IEEE Int. NEWCAS and IEEE Int. Midwest Symposium on Circuits and Systems (MWSCAS), August 2007
- M. Sawan: Special session, IEEE-ICECS, Morocco, December 2007.
- A. Demosthenous: Technical Programme Committee: ESSCIRC '08 (2008 European Solid-State Circuits Conference)
- A. Demosthenous: Review Committee Member: ISCAS'08
- A. Demosthenous: Organizer of ISCAS'08 Special Invited Session: "Neuroprosthetic Technologies & Platforms"

1.3 Editorial Services

- Gert Cauwenberghs: senior associate editor, IEEE Sensors Journal.
- Gert Cauwenberghs: associate editor, IEEE Trans. Neural Systems and Rehabilitation Engineering.
- Gert Cauwenberghs: associate editor, IEEE Transactions on Biomedical Circuits and Systems (as of April 2008).

- A. van Schaik: associate editor IEEE TCAS I
- G. Indiveri: associate editor of IEEE TNN
- M. Ghovanloo: associate editor, Transactions on Circuits and Systems II, Dec. 2007 - Present
- Chua-Chin Wang: associate editor International J. of VLSI Design
- Chua-Chin Wang: guest editor International J. of Electrical Engineering
- W. A. Serdijn: Deputy Editor in Chief for IEEE Transactions on Circuits and Systems-I for 2008 and 2009
- W. A. Serdijn: Associate Editor for the IEEE Transactions on Circuits and Systems-II in 2006 and 2007
- W. A. Serdijn: International Journal of Low-Power Electronics, member of the Editorial Board
- W. A. Serdijn: Analog Integrated Circuits and Signal Processing (Kluwer/Springer), member of the Editorial Board
- R. Etienne-Cummings: Appointed Associated Editor, IEEE Sensors Journal, 2002-Present
- R. Etienne-Cummings: Appointed Associated Editor, IEEE Trans. Biomedical Circuits and Systems, 2006-Present
- R. Etienne-Cummings: Member of the Editorial Board: INE The Neuromorphic Engineer, 2002-present
- O. Yadid-Pecht: IEEE Trans. on BioMedical Circuits and Systems Associate Editor 2007 - 2008
- Y. Lian: Associate Editor, IEEE Transactions on Circuits and Systems Part I. (2008 - present)
- Y. Lian: Associate Editor, IEEE Transactions on Biomedical Circuits and Systems.(2007 - present)
- Y. Lian: Associate Editor, IEEE Transactions on Circuits and Systems Part II.(2006-2007)
- Y. Lian: Guest Editor, IEEE Trans. on Biomedical Circuits and Systems, Special Issue on Selected Papers from ISCAS'2007, in preparation
- Y. Lian: Guest Editor, Circuits Systems and Signal Processing, Special Issue on Low Power Digital Filter Design Techniques and Their Applications, in preparation.
- Y. Lian, Editorial Board of IEEE CASS WEB Site
- M. Sawan: Associate Editor of the IEEE Transactions on Biomedical Circuits and Systems Journal;
- M. Sawan: Guest Editor of the Kluwer Analog integrated Circuits and Signal Processing Journal Special Issue on ICECS 2006-08
- M. Sawan: Editor of the mixed-signal letter of Springer Journal
- M. Sawan: Guest Editor of the Int. Microelectronics Journal Special Issue on NEWCAS_MWSCAS'07
- A. Demosthenous: Associate Editor IEEE Transactions on Circuits and Systems II: Express Briefs
- A. Demosthenous: Associate Editor IEEE Transactions on Circuits and Systems I: Regular Papers

1.4 Other Professional Activities

- E. Rodriguez-Villegas: Reviewer of: IEEE Transactions on Biomedical Engineering, IEEE Journal of Solid State Circuits, IEEE Transactions on Circuits and Systems I and II, IEEE Electronic Letters, Elsevier Integration VLSI Journal, Analog Integrated Circuits and Signal Processing Journal, IEEE BioCAS, ISCAS, EMBS, and MWCAS amongst others.
- P. Mohseni: Biomedical Circuits and Systems Technical Committee (BioCAS-TC) in IEEE Circuits and Systems (CAS) Society
- P. Mohseni: Analog Signal Processing Technical Committee (ASP-TC) in IEEE Circuits and Systems (CAS) Society
- A. van Schaik: Past Chair IEEE CAS Sensory Systems TC
- A. van Schaik: Member, IEEE CAS Technical Committees: Analogue Signal Processing, Biomedical Circuits and Systems, Neural Systems and Applications
- A. van Schaik: Board Member, Institute of Neuromorphic Engineering
- A. van Schaik: Member EPSRC peer review college
- G. Indiveri: Chair IEEE CAS Neural systems and applications technical committee
- Reid Harrison: Member, Technical Subcommittee for Imagers, MEMS, Medical and Display; IEEE International Solid-State Circuits Conference (ISSCC), 2006 - present.
- Reid Harrison: Member, Biomedical Circuits and Systems Technical Committee; IEEE International Symposium on Circuits and Systems (ISCAS), 2006 - present.
- M. Ghovanloo: Served on SMART Scholarship for Service Evaluation Panel, American Society for Engineering Education (ASEE), March 2007.
- Chua-Chin Wang: IEEE Tainan CAS Chapter Chair (2007-2008)
- Chua-Chin Wang: IEEE Tainan SSC Chapter Chair (2007-2008)
- Chua-Chin Wang: IEEE CAS Society Nanoelectronics and Gigascale Systems TC Chair (2008-2009)
- Chua-Chin Wang: reviewer for IEEE Transactions on Circuits and Systems-I, IEEE Transactions on Circuits and Systems-II, IEEE Transactions on Biomedical Circuits and Systems, IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Microelectronics Journal, International J. of VLSI Design, International J. of Electrical Engineering
- Guoxing Wang: Reviewer for IEEE Transactions on Circuits and Systems, IEEE Transactions on Biomedical Circuits and Systems, IEEE Transactions on Biomedical Engineering
- A. Fish: Reviewer for IEEE Sensors Journal, IEEE Transactions on Circuits and Systems I, IEEE Transactions on Electron Devices, IEEE Transactions on VLSI, IEEE International Symposium on Circuits and Systems (ISCAS), IEEE International Conference on Electronics, Circuits and Systems (ICECS), IEEE International Midwest Symposium on Circuits and Systems, IEEE Sensors Conference
- R. Rieger: Chairman IEEE EMBS Tainan Chapter 2007/2008.
- W. A. Serdijn: Current member of the Board of Governors (BoG) of the IEEE Circuits and Systems Society (IEEE CASS)
- W. A. Serdijn: Current member of the Conference Division of the IEEE CASS BoG

- W. A. Serdijn: Current member of the IEEE CASS Long Term Strategy Committee
- W. A. Serdijn: Current member of the IEEE CASS Women in CAS Ad Hoc Committee
- R. Etienne-Cummings: Elected to the Board of Governors, IEEE CAS Society, 2003-2005, 2006 Present (Re-elected)
- R. Etienne-Cummings: Appointed Assoc. Director for Education and Outreach, ERC on CISST at Johns Hopkins University, 2004-Present
- R. Etienne-Cummings: Appointed Director of the Institute of Neuromorphic Engineering, 2002-Present (an Institute with-out walls)
- R. Etienne-Cummings: Appointed to the Rebranding Committee: IEEE CASS Board of Governors, 2006-present
- R. Etienne-Cummings: Appointed to the Regional Activities Committee: IEEE CASS Board of Governors, 2003-present
- R. Etienne-Cummings: Promotion and Tenure Referee: Associate Professor for 1 candidates, 2007
- R. Etienne-Cummings: Reviewer: IEEE SJ, IEEE TCAS II, IEEE TNN, IEEE TR, IEEE TBME, IEEE IJSSC, IJCV, NIPS, EWNS, ISCAS, Wiley, NSF, NIH
- R. Etienne-Cummings: Review Panel, DoE Retina Prosthesis Project, Rockville, MD, Sept 2007.
- R. Etienne-Cummings: Review Site Visitor, NSF-SLC CELEST, March 25-27, 2007
- P. Häfliger: Secretary BioCAS Technical Committee of the CASS
- P. Häfliger: Member NSA TC and Sensory Systems TC of the CASS
- O. Yadid-Pecht: Member of the IEEE CAS Analog Signal Processing, Neural Networks, Biocas and Sensors Technical Committees (1996-present).
- O. Yadid-Pecht: Member of the IEEE CAS Women in Engineering committee
- O. Yadid-Pecht: Member of the IEEE CAS logo selection committee
- O. Yadid-Pecht: IEEE Sensors Council, Circuits and Systems (CAS) Society representative (2007-2008)
- Y. Lian: Special Session Chair, EHS-II: A Wireless Body Area Network Platform for Healthcare Applications I & II, 2007 IEEE International Conference on Biomedical Circuits and Systems, 27 - 30 November 2007, Montreal, Canada.
- Y. Lian: Session Chairs, Wireless Biomedical Systems I & II, The IEEE 2008 International Symposium on Circuits and Systems (ISCAS'2008), 18 - 21 May 2008, Seattle, USA.
- Y. Lian: Session Chair, Digital Filter Design Techniques, The IEEE 2008 International Symposium on Circuits and Systems (ISCAS'2008), 18 - 21 May 2008, Seattle, USA.
- Y. Lian: Session Chair, Biomedical and Health Systems, 2007 International Conference on Biomedical Circuits and Systems, 27 - 30 November 2007, Montreal, Canada.
- Y. Lian: Session Chair, Circuits for Biomedical Applications, 2007 IEEE International Symposium on Circuits and Systems (ISCAS'2007), 27 - 30 May 2007, New Orleans, USA.
- Y. Lian: Session Chair, Hardware Oriented Digital Signal Processing, 2007 IEEE International Symposium on Circuits and Systems (ISCAS'2007), 27 - 30 May 2007, New Orleans, USA.

- Y. Lian: Session Chair, Digital Filters, 2007 IEEE International Symposium on Circuits and Systems (ISCAS'2007), 27 - 30 May 2007, New Orleans, USA.
- Y. Lian: Vice President for Asia and Pacific Region of the IEEE CASS.
- Y. Lian: CASS Representative to BioTechnology Council.
- Y. Lian: CASS Representative to IEEE Biometrics Council.
- M. Sawan: Member of e-Health Prompt research support Coordination committee;
- M. Sawan: Member of FRSQ-FQRNT new joint support for R&D medical technology committee;
- M. Sawan: Steering Committee of the IEEE Transactions on Biomedical Circuits and Systems Journal;
- M. Sawan: Member of Canada Bio & nanotechnology mission to India;
- M. Sawan: Member of the International Advisory Board of the Emirates Journal of Engineering Research (EJER);
- M. Sawan: General Chair of the Int. Biomedical Circuits and Systems (BiOCAS2007);
- M. Sawan: Member of the Board of Director of Montreal rehabilitation interdisciplinary Research Center (CRIR)

2 Awards and Honors

- A. Mason, Phi Kappa Phi Honor Society, Excellence Award in Interdisciplinary Scholarship, 2007, Nanomedicine and Molecular Intervention Research Group at Michigan State University.
- E. Rodriguez-Villegas: 2007: Johnson and Johnson proof of concept award (GBP 45,000)
- Jie Chen: CFI Leaders' Opportunity Award by Canadian Foundation for Innovation presented on Feb. 20, 2008
- Jie Chen: (supervisor) best student paper award in IEEE/NIH 2007 Life Science Systems & Applications Workshop (Surface Modifications of Gold-nanoparticles to Enhance Radiation Cytotoxicity), Nov. 8-9, NIH, Bethesda, Maryland, USA
- Jie Chen: the joint Electrical & Computer Engineering and Dentistry design for regenerating teeth using ultrasound has won first prize at the Alberta Heritage Foundation for Medical Research (AHFMR) sponsored 2007 TechMed Alberta workshop.
- Reid Harrison: Special-Topic Session Award for Organizing "Implantable and Prosthetic Devices", ISSCC 2007 2008
- M. Ghovanloo: Best poster award at IEEE Sensors Conference (Sensors'07) in Atlanta, GA, Oct. 2007
- Chua-Chin Wang: Best Paper Award: 2008 IEEE Inter. Conf. on Consumer Electronics (ICCE 2008), paper title : A transceiver design for ECU nodes in FlexRay-based automotive communication systems, by Chua-Chin Wang, Gang-Neng Sung, and Po-Cheng Chen
- R. Rieger: Distinguished Scholar Award, National Sun Yat-Sen University, Taiwan, 2007/2008.
- R. Rieger: advanced teaching course award for education in "Advanced Analog Design" and "Low-Power Design", Taiwan Ministry of Education, Dec. 2007.
- R. Etienne-Cummings: National Academies of Science Kavli Frontiers in Science Fellow, 2007

- O. Yadid-Pecht: 2007 IEEE Fellow for the design and modeling of CMOS Image Sensors
- Y. Lian: Best Student Paper Award (supervisor), the 2007 International Conference on Multimedia & Expo (Beijing, China, 2-5 July 2007), for the paper "Constructing secure content-dependent watermarking scheme using homomorphic encryption", with Z Li, XL Zhu, and QB Sun.
- Y. Lian: Best Paper Award, IEEE Transactions on Multimedia, for the paper "Joint source-channel-authentication resource allocation and unequal authenticity protection for multimedia over wireless networks" Vol.9, No.4, June 2007, pp.837-850, with Z Li, QB Sun and CW Chen.
- M. Sawan: Co-recipient of the Best IEEE Solid-State Society Chapter of the year;
- M. Sawan: Fellow of the Engineering Institute of Canada for contributions to Engineering practices.

3 Publications

3.1 Books and Book Chapters

- G. Indiveri, S.-C. Liu, T. Delbrück, and R. Douglas. New Encyclopedia of Neuroscience, chapter Neuromorphic Systems. Elsevier, 2007. (In press).
- G. Indiveri and R. Douglas. Handbook on Nano- and Molecular Electronics, chapter Neuromorphic Networks of Spiking Neurons. CRC Press, 2007.
- E. Culurciello, Silicon on Sapphire Circuit and Systems, in progress, due in September 2008
- Maarten Ditzel, Ralph Otten and Wouter A. Serdijn: Power Aware Architecting for data dominated applications, Springer, 2007, ISBN: 978-1-4020-6419-7.
- A. Fish and O. Yadid-Pecht, "Low Power Smart Image Sensors", in "CMOS Emerging Technologies", edited by Kris Iniewski, CRC Press, planned for 2008.
- Sawan, M., Gosselin, B., "CMOS Circuits for Biomedical Devices", in "CMOS Emerging Technologies", edited by Kris Iniewski, CRC Press, planned for 2008

3.2 Journals

- A. Mason, A. V. Chavan, K. D. Wise, "A Mixed-Voltage Sensor Readout Circuit with On-Chip Calibration and Built-In Self-Test," IEEE Sensors J, vol. 7, no. 9, pp. 1225-1232, September 2007.
- A. Kamboh, M. Raetz, K. Oweiss, A. Mason "Area-Power Efficient VLSI Implementation of Multichannel DWT for Data Compression in Implantable Neuroprosthetics," IEEE Trans. Biomedical Circ. Systems, vol. 1, no. 2, pp. 128-135, June 2007.
- K. Oweiss, A. Mason, Y. Suhail, A. Kamboh, K. Thomson, "A Scalable Wavelet Transform VLSI Architecture for Real-Time Signal Processing in High-Density Intra-Cortical Implants," IEEE Trans. Circuits and Systems I, vol. 54, no. 6, pp. 1266-1278, June 2007.
- P.G.Corbishley and E.Rodriguez-Villegas, Breathing detection: towards a miniaturized wearable, battery operated monitoring system, IEEE Transactions on Biomedical Engineering , 55 (1), pp.196-204, January 2008.
- P.G. Corbishley and E. Rodriguez-Villegas, A nanopower bandpass filter for detection of an acoustic signal in a wearable breathing detector, IEEE Transactions on Biomedical Circuits and Systems, Volume 1, Issue 3, pp. 163-171, Sept. 2007.
- E.Rodriguez-Villegas, Mariano Jimenez and Ramon Gonzalez-Carvajal, On Dealing with the Charge Trapped in Floating Gate MOS (FGMOS) Transistors, IEEE Transactions on Circuits and Systems II 54 (2) pp.156-160, 2007.

- M. Roham, J. M. Halpern, H. B. Martin, H. J. Chiel, and P. Mohseni, "Wireless amperometric neurochemical monitoring using an integrated telemetry circuit," *IEEE Trans. Biomed. Eng.*, 2008.
- M. Roham, D. P. Daberkow, E. S. Ramsson, D. P. Covey, S. Pakdeeronachit, P. A. Garris, and P. Mohseni, "A wireless IC for wide-range neurochemical monitoring using amperometry and fast-scan cyclic voltammetry," *IEEE Trans. Biomed. Circuits and Systems*, 2008 (Invited Paper).
- R. Karakiewicz, R. Genov, and G. Cauwenberghs, "480-GMACS/mW Resonant Adiabatic Mixed-Signal Processor Array for Charge-Based Pattern Recognition," *IEEE J. Solid-State Circuits*, vol. 42 (11), pp. 2573-2584, 2007.
- Y. Chi, U. Mallik, M. Clapp, E. Choi, G. Cauwenberghs and R. Etienne-Cummings, "CMOS Camera with In-Pixel Temporal Change Detection and ADC," *IEEE J. Solid-State Circuits*, vol. 42 (10), pp. 2187-2196, 2007.
- S. Chakrabartty, Y. Deng and G. Cauwenberghs, "Robust Speech Feature Extraction by Growth Transformation in Reproducing Kernel Hilbert Space," *IEEE Trans. Audio, Speech, and Language Processing*, vol. 15 (6), pp.1842-1849, 2007.
- R.J. Vogelstein, U. Mallik, E. Culurciello, G. Cauwenberghs and R. Etienne-Cummings, "A Multi-Chip Neuromorphic System for Spike-Based Visual Information Processing," *Neural Computation*, vol. 19 (9), pp. 2281-2300, 2007.
- S. Chakrabartty and G. Cauwenberghs, "Gini-Support Vector Machine: Quadratic Entropy Based Multi-class Probability Regression," *J. Machine Learning Research*, vol. 8 (4), pp. 813-839, 2007.
- S. Chakrabartty and G. Cauwenberghs, "Sub-Microwatt Analog VLSI Trainable Pattern Classifier," *IEEE J. Solid-State Circuits*, vol. 42 (5), pp. 1169-1179, 2007.
- M. Stanacevic, K. Murari, A. Rege, G. Cauwenberghs and N.V. Thakor, "VLSI Potentiostat Array With Oversampling Gain Modulation for Wide-Range Neurotransmitter Sensing," *IEEE Trans. Biomedical Circuits and Systems*, vol. 1 (1), pp. 63-72, 2007.
- R.J. Vogelstein, U. Mallik, J.T. Vogelstein and G. Cauwenberghs, "Dynamically Reconfigurable Silicon Array of Spiking Neurons With Conductance-Based Synapses," *IEEE Trans. Neural Networks*, vol. 18 (1), pp. 253-265, 2007.
- R. Reeve, A. van Schaik, C. Jin, T. Hamilton, B. Torben-Nielsen and B. Webb, "Directional hearing in a silicon cricket," *Biosystems*, Volume 87, Issues 2-3, 2007, pp 307-313.
- V. Chan, S. Liu, and A. van Schaik, "AER EAR: A Matched Silicon Cochlea Pair with Address Event Representation Interface," *IEEE Transactions on Circuits and Systems I*, Vol 54, No 1, pp 48-59, 2007.
- V. Chan, C. Jin, and A. van Schaik, "An Address-Event Vision Sensor for Multiple Transient Object Detection," *IEEE Transactions on Biomedical Circuits and Systems*, Vol 1, No 4, pp 278-288, 2007.
- G. Indiveri. Synaptic plasticity and spike-based computation in VLSI networks of integrate-and-fire neurons. *Neural Information Processing - Letters and Reviews*, 11(4):135-146, 2007.
- C. Bartolozzi and G. Indiveri. Synaptic dynamics in analog VLSI. *Neural Computation*, 19(10):2581-2603, Oct 2007.
- E. Chicca, A. M. Whatley, V. Dante, P. Lichtsteiner, T. Delbruck, P. Del Giudice, R. J. Douglas, and G. Indiveri. A multi-chip pulse-based neuromorphic infrastructure and its application to a model of orientation selectivity. *IEEE Transactions on Circuits and Systems I, Regular Papers*, 5(54):981-993, 2007.

- S. Kim, K. Zoschke, M. Klein, D. Black, K. Buschick, M. Toepper, P. Tathireddy, R. Harrison, H. Oppermann, and F. Solzbacher, "Switchable polymer-based thin film coils as a power module for wireless neural interfaces," *Sensors & Actuators A*, 136:467-474, 2007.
- R.R. Harrison, "The design of integrated circuits to observe brain activity," to appear in *Proceedings of the IEEE*, 2008.
- G. Bawa and M. Ghovanloo, "An active high power conversion efficiency rectifier with built-in dual-mode back telemetry in standard CMOS technology," Accepted for publication, *IEEE Trans. on Biomed. Circuits and Systems*, Apr. 2008.
- X. Huo, J. Wang, and M. Ghovanloo, "Introduction and preliminary evaluation of tongue drive system: a wireless tongue-operated assistive technology for people with little or no upper extremity function," Accepted for publication, *Journal of Rehabilitation Research and Development*, Mar. 2008.
- M. Ghovanloo and S. Atluri, "An Integrated full-wave CMOS rectifier with built-in back telemetry for RFID and implantable biomedical applications," Accepted for publication, *IEEE Trans. on Circuits and Systems I*, Apr. May 2007.
- U. Jow and M. Ghovanloo, "Design and optimization of printed spiral coils for efficient transcutaneous inductive power transmission," *IEEE Trans. on Biomed. Circuits and Systems*, vol. 1, no. 3, pp. 193-202, Sep. 2007.
- X. Huo and M. Ghovanloo, "A wireless pharmaceutical compliance monitoring system based on magneto-inductive sensors," *IEEE Trans. on Sensors*, vol. 7, no. 12, pp. 1711-1719, Dec. 2007.
- M. Ghovanloo and S. Atluri, "A wideband power-efficient inductive wireless link for implantable microelectronic devices using multiple carriers," *IEEE Trans. on Circuits and Systems I*, vol. 54, no. 10, pp. 2211-2221, Oct. 2007.
- M. Ghovanloo and K. Najafi, "A wireless implantable multichannel microstimulating system-on-a-chip with modular architecture," *IEEE Trans. on Neural Sys. Rehab. Eng.*, vol. 15, no. 3, pp. 449-457, Sep. 2007.
- P. Weerakoon, K. Klemic, F.J. Sigworth, E. Culurciello, An Integrated Patch-Clamp Potentiostat with Electrode Compensation, *IEEE Transactions on Biomedical Circuits and Systems TBCAS*, Month 2008, Vol. xxx, Issue yyy, pp. zzz, invited paper.
- P. Weerakoon, K. Klemic, F.J. Sigworth, E. Culurciello, Integrated patch-clamp biosensor for high-density screening of cell conductance, *IET Electronics Letters*, January 17th 2008, Vol. 44, Issue 2, pp. 81-82
- Eugenio Culurciello, Three-Dimensional Phototransistors in 3D Silicon-on-insulator technology, *IET Electronics Letters*, March 29th 2007, Vol. 43, Issue 7, 29
- E. Culurciello, P.O. Pouliquen, A.G. Andreou, A Digital Isolation Amplifier in Silicon-on-Sapphire CMOS, *IET Electronics Letters*, Volume 43, Issue 8, April 12th 2007, pp. 451-452.
- Eugenio Culurciello and Pujitha Weerakoon, Three-Dimensional Photodetectors in 3D Silicon-on-insulator technology, *IEEE Electron Device Letters*, Vol. 28, Issue 2, February 2007, pp 117 - 119.
- R. Jacob Vogelstein, Udayan Mallik, Eugenio Culurciello, Gert Cauwengberghs, Ralph Etienne-Cummings, A Multi-Chip Neuromorphic System for Spike-Based Visual Information Processing, (NECO-03-06-179R2) *Neural Computation*, Vol. 19, Number 9, September 1 2007
- A. Belenky, A. Fish and O. Yadid-Pecht, Global Shutter CMOS Image Sensor with Wide Dynamic Range, *IEEE Transactions on Circuits and Systems II: Express briefs*, vol 54, no.12, December 2007.

- Y. Shoshan, A. Fish, X. Li, G. A. Jullien and O. Yadid-Pecht, "VLSI Watermark Implementations and Applications", to be appear in International Journal on Information Technologies and Knowledge, vol. 2, 2008.
- Rieger, R.; Taylor, J.; Pan, Y-Y.; "Design Strategies for Multi-Channel Low-Noise Recording Systems," Proc. IEEE Int. Symp. Circuits and Systems (ISCAS) 2007, pp. 561 - 564, May 2007.
- Liang, Y-W.; Chen, S.; Rieger, R.; "An Experimentation Suite for Education in Low-Noise Design," Proc.18th VLSI Design/CAD Symposium, August 2007.
- Rieger, R.; Pan, Y-Y.; "A Bio-Signal Amplifier System with Very-Large Dynamic-Range," Proc. IEEE Region 10 Conference TENC07, Oct. 2007.
- J. Tapson, C. Jin, A. van Schaik and R. Etienne-Cummings, "A First-Order Non-Homogeneous Markov Model for Integrate-and-Fire Neurons Stimulated by Small Phase-Continuous Signals," accepted to Neural Computation, December 2007.
- A. Acharya, F. Tenore, V. Aggarwal, R. Etienne-Cummings, M. H. Schieber, and N. V. Thakor, "Decoding Finger Movements Using Volume-Constrained Neuronal Ensembles," IEEE Trans. Neural Systems and Rehabilitation Engineering, Vol. 16, No. 1, pp. 15-23, 2008.
- V. Aggarwal, S. Acharya, F. Tenore, R. Etienne-Cummings, M. H. Schieber, and N. V. Thakor, "Asynchronous Decoding of Dexterous Finger Movements using M1 Neurons," accepted to IEEE Trans. Neural Systems and Rehabilitation Engineering, Vol. 16, No. 1, pp. 3-14, 2008.
- N. Ekekwe, P. Kazanzides and R. Etienne-Cummings, "A Wide Speed Range and High Precision Position and Velocity Measurements Chip with Serial Peripheral Interface," to appear in Elsevier Integration, the VLSI Journal, Vol. 41, No. 2, pp. 297 - 305, Feb 2008.
- R. Philip, V. Gruev, D. Orr, J. Van der Spiegel and R. Etienne-Cummings, "A Linear and Low-Noise Current Domain Imager," IEEE J. Solid-State Circuits, Vol. 42, No. 11, Nov. 2007.
- M. Chi, U. Mallik, E. Choi, M. Clapp, G. Cauwenberghs and R. Etienne-Cummings, "CMOS Pixel-Level ADC with Change Detection," IEEE J. Solid-State Circuits, Vol. 42, No. 10, pp. 2187-2196, Oct. 2007.
- J. Vogelstein, U. Mallick, G. Cauwenberghs and R. Etienne-Cummings, "Real-Time Image Processing using a Spiking Imager and an Integrate-and-Fire Array Transceiver System," Neural Computation, Vol. 19, pp. 2281-2300, 2007.
- H. K. O. Berge and P. Häfliger, A gate leakage feedback element in an adaptive amplifier application, IEEE Transactions on Circuits and Systems II, 2008, vol. 55 (2), p 101-105
- P. Häfliger, Adaptive WTA with an analog VLSI neuromorphic learning chip, IEEE Transactions on Neural Networks, 2007, vol. 18 (2), p 551-572
- P. Häfliger and H. K. O. Berge, Exploiting Gate Leakage in Sub-Micrometer CMOS for Input Offset Adaptation, IEEE Transactions on Circuits and Systems II, 2007, vol. 54 (2), p 127-130
- B. Iglehart, P. Pouliquen, J. Blain Christen, Ultra-High Ratio Dilution Microfluidic System for single strand DNA Isolation, ISCAS 2008
- Belenky, A. Fish, and O. Yadid-Pecht, "Global Shutter CMOS Image Sensor with Wide Dynamic Range", accepted to IEEE Transactions on Circuits and Systems II, July 2007.
- V. Milirud, G. Jullien, O. Yadid-Pecht, "A Wide Dynamic Range Sensor with Motion detection", accepted to IEEE Sensors journal, May 2007.
- M. Biderman, T. Tam, G. Jullien, O. Yadid-Pecht, "A low light level image sensor for bio medical applications", invited to Transactions on Biomedical Circuits and Systems", August 2007.

- Y. Shoshan, A. Fish, X. Li, G. Jullien, O. Yadid-Pecht, "VLSI Watermark implementations and applications", to appear in the International Journal on Information Theory and Applications, Vol. 2, 2008.
- Ghafar-Zadeh, E., Sawan, M., "A Core-CBCM Sigma Delta Capacitive Sensor Array Dedicated to Lab-on-Chip Applications", Accepted in February 2008 for publication in Sensors & Actuators: A. Physical.
- TANGUAY, L.F., Sawan, M., "An Ultra-Low Power ISM-Band Integer-N Frequency Synthesizer Dedicated to Implantable Medical Microsystems", Accepted in November 2007 for publication in Springer Analog ICs & Signal Proc. J.
- Ghafar-Zadeh, E., Sawan, M., "Charge Based Capacitive Sensor Array for CMOS-Based Laboratory-On-Chip Applications", Accepted in November 2007 for publication in IEEE Sensors.
- KASSEM, A., SAWAN, M., HAMAD, M., HAIDAR, A., "Toward a miniaturized generation of ultrasonic-based devices", Accepted in October 2007 for publication in Journal of Circuits, Systems, and Computers.
- Ghafar-Zadeh, E., Sawan, M., ThErriault, D., "A Microfluidic Packaging Technique for Lab-on-Chip Applications", Accepted in November 2007 for publication in IEEE Trans. on Advanced Packaging.
- Naderi, A., Sawan, M., Savaria, Y., "On the Design of Undersampling Continuous-Time Band-Pass Delta-Sigma Modulators for Gigahertz Frequency A/D Conversion", Accepted in September 2007 for publication in the IEEE Trans. on Circuits & Systems-I.
- Ghafar-Zadeh, E., Sawan, M., ThErriault, D., "A 0.18- μ m CMOS Capacitive Sensor Lab-on-Chip", Accepted in September 2007 for publication in Elsevier Sensors & Actuators.
- Saleh, A., Sawan, M., El-Zayat, CORCOS, J., E., Elhilali, M.M., "Detection of Bladder Volume from the Neural Afferent Activities in dogs: Experimental Results", Special Issue of Neurological Research: Spinal Cord Research, Vol. 30, No. 1, February 2008, pp. 28-35.
- Sawan, M., Mounaim, F., Lesbros, G., "Long Term Monitoring for In-Vivo Characterization of Electrode-Tissues Contacts", Springer Anal. ICs & Signal Processing J., Vol. 55, No. 1, Feb. 2008, pp. 103-114.
- AWWAD, F., NEKILI, M., RAMACHANDRAN, V., SAWAN, M., "On Modeling of Parallel Repeater-Insertion Methodologies for SoC Interconnects", IEEE Trans. on Circuits and Systems -I, Vol. 55, No. 1, Feb. 2008, pp. 322-336.
- DJEMOUAI, A., SAWAN, M., "Circuit Techniques Dedicated to Effectively Wireless Transfer Power and Data to Electronic Implants", J. of Circuits, Systems, and Computers, Vol. 16, No. 5, Oct. 2007, pp. 801-818.
- LEBEL, E., ASSI, A., SAWAN, M., "Programmable Monolithic Gm-C Band-Pass Filter: Design and Experimental Results", Springer Analog ICs & Signal Processing J., Vol. 53, No. 1, Jan. 2008, pp. 21-29.
- COULOMBE, J., Sawan, M., "A Highly Flexible System for Microstimulation of the Visual Cortex: Design and Implementation", IEEE Trans. on Biomedical Circuits & Systems, Vol. 1, No. 4, December 2007, pp. 258-269.
- Ghafar-Zadeh, E., Sawan, M., "A Hybrid Microfluidic/CMOS Capacitive Sensor Dedicated to Lab-on-Chip Applications", IEEE Trans. on Biomedical Circuits & Systems. Vol. 1, No. 4, December 2007, pp. 270-277.

- ACHIGUI, H., SAWAN, M., FAYOMI, C.-J., "A 1 V Fully Differential, Fully Balanced Opamp: Implementation and Experimental Results", Springer Analog ICs & Signal Processing J., Vol. 53, No. 1, Oct. 2007, pp. 19-25.
- SAHEB, J.-F., RICHARD, J.-F., SAWAN, M., SAVARIA, Y., "System Integration of High Voltage Electrostatic MEMS Actuators", Springer Analog ICs & Signal processing J., Vol. 53, No. 1, Oct. 2007, pp. 27-34.
- GOSSELIN, B., Sawan, M., CHAPMAN, A., "A Low-Power Integrated Bioamplifier With a New DC Rejection Scheme", IEEE Trans. on Biomedical Circuits & Systems, Vol. 1, No. 3, Sept. 2007, pp. 184-192.
- SAWAN, M., LAZZIRI, Y., MOUNAIM, F., ELZAYAT E., CORCOS J., ELHILALI M.M., "Electrode-Tissues Interface: Modeling and Experimental Measurements", Biomedical Materials, Vol. 2, 2007, S7-S15.
- GHAFAR-ZADEH, E., SAWAN, M., THERRIAULT, D., "Novel Direct-Write CMOS-based Laboratory-On-Chip: Design, Assembly and Experimental Results", Elsevier Sensors & Actuators, Vol. 134, No. 1, February 2007, pp. 27-36 .
- CHEBLI, R., SAWAN, M., "Fully Integrated High-Voltage Front-End Interface for Ultrasonic Sensing Applications", IEEE Trans. on Circuits and Systems -I, Vol. 54, No. 1, 2007, pp. 179-190.
- P. J. Langlois and A. Demosthenous, "Sweet spots in moderate inversion for MOSFET squarer transconductors," IEEE Trans. Circuits and Systems II 2013 Express Papers, vol. 54, no. 6, pp. 479 - 483, Jun. 2007.
- I. Pachnis, A. Demosthenous and N. Donaldson, "Passive neutralisation of myoelectric interference from neural recording tripoles," IEEE Trans. Biomed. Eng., vol. 54, no. 6, pp. 1067-1074, Jun. 2007.
- I. F. Triantis and A. Demosthenous, "Tripolar-cuff deviation from ideal model: assessment by bioelectric field simulations and saline-bath experiments," J. Medical Eng. Physics, Aug. 2007.

3.3 Conference Proceedings

- C. Yang, D. Rairigh and A. Mason, "Fully Integrated Impedance Spectroscopy for Biochemical Sensor Arrays," IEEE Biomedical Circuits and Systems Conference, Montreal Canada, pp. 21-24, November 2007.
- D. Rairigh and A. Mason, "Compact Impedance Spectroscopy for High Density Sensor Arrays," IEEEJ Int. Analog VLSI Workshop, Bunratty Ireland, November 2007.
- M. A. Shetliffe, A. M. Kamboh, A. Mason, K. G. Oweiss, "Impact of Real Time Hardware Processing on Neural Spike Train Information Content," Int. Conf. IEEE Engineering in Medicine and Biology Society, Lyon, France, pp. 5358-5361, August 2007.
- A. Mason, Y. Huang, C. Yang, J. Zhang, "Amperometric Readout and Electrode Array Chip for Bioelectrochemical Sensors," IEEE Int. Symposium on Circ. and Systems (ISCAS), pp. 3562-3565, May 2007.
- A. Kamboh, M. Raetz, A. Mason and K. Oweiss "Area-Power Efficient Lifting-Based DWT Hardware for Implantable Neuroprosthetics," IEEE Int. Symposium on Circ. and Systems (ISCAS), pp. 2371-2374, May 2007.
- C. Yang and A. Mason, "Precise RSSI with High Process Variation Tolerance," IEEE Int. Symp. Circuits and Systems, pp. 2870-2873, May 2007.

- A. Kamboh, A. Mason and K. Oweiss "A High-Yield Area-Power Efficient DWT Hardware for Implantable Neural Interface Applications," IEEE/EMBS Int. Conf. Neural Engineering, Hawaii, USA, pp. 212-216, May 2007.
- A. J. Casson and E. Rodriguez-Villegas, Considerations on analogue to digital converter architectures for EEG acquisition in Augmented Cognition applications. Accepted for HFES, 2008.
- E. Aguilar-Pelaez, E. Rodriguez-Villegas, Low-Power Differential Photoplethysmographic Pulse Transit Time Detector for Ambulatory Cardiovascular Monitoring, accepted for publication in Proc. IEEE ISCAS, 2008.
- A. Casson and E. Rodriguez-Villegas, An Inverse Filter Realisation of a Single Scale Inverse Continuous Wavelet Transform, accepted for publication in Proc. IEEE ISCAS, 2008.
- E.Rodriguez-Villegas, A Low-Power Wide Range Transimpedance Amplifier for Biochemical Sensing, IEEE EMBS, pp. 2673-2676, Aug. 2007.
- A.Casson, D.C.Yates and E.Rodriguez-Villegas, Algorithm for AEEG data selection leading to wireless and long term epilepsy monitoring, IEEE EMBS, 2456-2459, 2007.
- D.C.Yates, Ramon Gonzalez-Carvajal, A. Lopez-Martin, J. Ramirez-Angulo and E.Rodriguez-Villegas, A Low-Voltage Low-Power Front-End for Wearable EEG Systems, IEEE EMBS, pp.5282-5285, Aug.2007.
- E.Aguilar Pelaez and E.Rodriguez-Villegas, LED power reduction trade-offs for ambulatory pulse oximetry, IEEE EMBS, pp. 2296-2299, Aug. 2007.
- A.Casson, D.C.Yates and E.Rodriguez-Villegas, An analogue bandpass filter realisation of the Continuous Wavelet Transform, IEEE EMBS, pp. 1850-1854, Aug. 2007.
- D.C.Yates and E.Rodriguez-Villegas, A Key Power Trade-off in Wireless EEG Headset Design, IEEE NER, pp. 453-456, May 2007.
- A.Casson and E.Rodriguez-Villegas, Data reduction techniques to facilitate wireless and long term AEEG epilepsy monitoring, IEEE NER, pp. 298-301, May 2007.
- M. Azin and P. Mohseni, "Towards a brain-machine-brain interface (BMBI) for anatomical rewiring of cortical circuitry," in Proc. 14th IEEE Int. Conf. Electronics, Circuits and Systems (ICECS'07), pp. 62-65, Marrakech, Morocco, December 11-14, 2007.
- M. Azin, H. J. Chiel, and P. Mohseni, "Comparisons of FIR and IIR implementations of a subtraction-based stimulus artifact rejection algorithm," in Proc. 29th Annu. Int. IEEE Eng. Med. Biol. Conf. (EMBC'07), pp. 1437-1440, Lyon, France, August 23-26, 2007.
- M. Roham, J. M. Halpern, H. B. Martin, H. J. Chiel, and P. Mohseni, "Diamond microelectrodes and CMOS microelectronics for wireless transmission of fast-scan cyclic voltammetry," in Proc. 29th Annu. Int. IEEE Eng. Med. Biol. Conf. (EMBC'07), pp. 6043-6046, Lyon, France, August 23-26, 2007.
- M. Roham and P. Mohseni, "A wireless IC for wide-range neurochemical monitoring using amperometry and fast-scan cyclic voltammetry," in Proc. IEEE Int. Symp. Circuits and Systems (ISCAS'07), pp. 3131-3134, New Orleans, LA, May 27-30, 2007.
- M. Roham and P. Mohseni, "Wireless amperometric neurochemical monitoring using an integrated FSK telemetry circuit," in Proc. 3rd IEEE-EMBS Conf. Neural Engineering, pp. 159-162, The Kohala Coast, HI, May 2-5, 2007.
- T. Hamilton, J. Tapson, C. Jin, and A. van Schaik, "A basilar membrane resonator for an active 2-D cochlea," Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS 2007), May 2007, New Orleans, USA, pp 2387-2390.

- F. Gomez-Rodriguez, A. Linares-Barranco, L. Miro, S.-C. Liu, A. van Schaik, R. Etienne-Cummings, and M. A. Lewis, "AER auditory filtering and CPG for robot control," Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS 2007), May 2007, New Orleans, USA, pp 1201-1204.
- T. Hamilton, C. Jin, J. Tapson, and A. van Schaik, "A 2-D Cochlea with Hopf Oscillators," Proceedings of the IEEE Biomedical Circuits and Systems Conference, November 2007, Montreal, Canada, pp 91-94.
- J. Tapson, C. Jin, and A. van Schaik, "A Scalable Architecture for Event-Based Cross-Correlation," Proceedings of the IEEE Biomedical Circuits and Systems Conference, November 2007, Montreal, Canada, pp 83-86.
- A. McEwan, J. Tapson, A. van Schaik and D.S. Holder, "Electrode Circuits for Frequency- and Code-Division Multiplexed Impedance Tomography, Proceedings of the IEEE Biomedical Circuits and Systems Conference, November 2007, Montreal, Canada, pp 130-133.
- A. McEwan, J. Tapson, A. van Schaik and D.S. Holder, "Wide-Bandwidth, High Frame Rate Electrical Impedance Tomography / Spectroscopy: A Code Division Multiplexing (CDM) Approach," International Conference on Biomedical Electronics and Devices (BioDevices), January 2008, Funchal, Portugal.
- D.B. Fasnacht, A. Whatley, and G Indiveri. A serial communication infrastructure for multi-chip address event system. In IEEE International Symposium on Circuits and Systems, ISCAS 2008. IEEE, 2008. (In Press).
- E. Neftci, E. Chicca, G. Indiveri, J.-J. Slotine, and R. J. Douglas. Contraction properties of VLSI cooperative competitive neural networks of spiking neurons. In B. Schölkopf, J. Platt, and T. Hoffman, editors, Advances in Neural Information Processing Systems, Cambridge (MA), 2008. MIT Press. (In Press).
- Chicca, E. and Indiveri, G. and Douglas, R. J. Context dependent amplification of both rate and event-correlation in a VLSI network of spiking neurons , Advances in Neural Information Processing Systems, 19:, B. Scholkopf and J. Platt and T. Hoffman (Eds.), MIT Press, 2007,
- S. Mitra, G. Indiveri, and S. Fusi. Learning to classify complex patterns using a VLSI network of spiking neurons. In B. Schölkopf, J. Platt, and T. Hoffman, editors, Advances in Neural Information Processing Systems, Cambridge (MA), 2007. MIT Press. (In Press).
- S. Mitra, G. Indiveri, and S. Fusi. Robust classification of correlated patterns with a neuromorphic VLSI network of spiking neurons. In IEEE, editor, IEEE Proceedings on Biomedical Circuits and Systems (Bio-CAS07), pages 87-90, 2007.
- H-P Wang, E. Chicca, G. Indiveri, and T.J. Sejnowski. Reliable computation in noisy backgrounds using real-time neuromorphic hardware. In IEEE Proceedings on Biomedical Circuits and Systems (BioCAS07), pages 71-74, 2007.
- P. Camilleri, M. Giulioni, V. Dante, D. Badoni, G. Indiveri, B. Michaelis, J. Braun, and P. Del Giudice. A neuromorphic aVLSI network chip with configurable plastic synapses. In Proceedings of the 7th International Conference on Hybrid Intelligent Systems (HIS-07), pages 296-301, Los Alamitos, CA, USA, 2007. IEEE Computer Society. (Best paper award).
- G. Indiveri and S. Fusi. Spike-based learning in VLSI networks of integrate-and-fire neurons. In Proc. IEEE International Symposium on Circuits and Systems, ISCAS 2007, pages 3371-3374, 2007.
- R.R. Harrison, "Designing efficient inductive power links for implantable devices," In: Proceedings of the 2007 IEEE International Symposium on Circuits and Systems (ISCAS 2007), pp. 2080-2083, New Orleans, LA, 2007.

- R.R. Harrison, "A versatile integrated circuit for the acquisition of biopotentials," In: IEEE 2007 Custom Integrated Circuits Conference (CICC 2007) Digest of Technical Papers, San Jose, CA, pp. 115-122, 2007. (Invited paper)
- C. Furse, R. Harrison, and F. Solzbacher, "Recent advances in biomedical telemetry," In: International Conference on Electromagnetics in Advanced Applications (ICEAA 2007), Torino, Italy, 2007. (Invited paper)
- R.R. Harrison, R.J. Kier, C.A. Chestek, V. Gilja, P. Nuyujukian, S.I. Ryu, B. Greger, F. Solzbacher, and K.V. Shenoy, "Wireless neural signal acquisition with single low-power integrated circuit," to appear in: Proceedings of the 2008 IEEE International Symposium on Circuits and Systems (ISCAS 2008), Seattle, WA, 2008.
- C.A. Chestek, V. Gilja, P. Nuyujukian, R.J. Kier, F. Solzbacher, S.I. Ryu, R.R. Harrison, and K.V. Shenoy, "HermesC: RF wireless low-power neural recording for freely behaving primates," to appear in: Proceedings of the 2008 IEEE International Symposium on Circuits and Systems (ISCAS 2008), Seattle, WA, 2008.
- T. Denison and R.R. Harrison, "Amplifier architectures for efficient coupling to the nervous system," to appear in: 17th Workshop on Advances in Analog Circuit Design (AACD 2008), Pavia, Italy, 2008. (Invited paper)
- U. Jow and M. Ghovanloo, "Design and optimization of printed spiral coils for efficient inductive power transmission," Proc. IEEE Intl. Conf. Elec., Circuits and Systems, pp. 70-73, Dec. 2007.
- X. Huo and M. Ghovanloo, "A magnetic sensor based wireless drug compliance monitoring system," Proc. IEEE Sensors Conference, pp. 1077-1080, Oct. 2007.
- X. Huo, J. Wang, and M. Ghovanloo, "Using magneto-inductive sensors to detect tongue position in a wireless assistive technology for people with severe disabilities," Proc. IEEE Sensors Conference, pp. 732-735, Oct. 2007 (First Place Poster Award).
- M. Ghovanloo, "Tongue operated assistive technologies," Proc. IEEE 29th Eng. in Med. and Biol. Conf., pp. 4376-4379, Aug. 2007.
- X. Huo, J. Wang, and M. Ghovanloo, "A wireless tongue-computer interface using stereo differential magnetic field measurement," Proc. IEEE 29th Eng. in Med. and Biol. Conf., pp. 5723-5726, Aug. 2007.
- M. Yin and M. Ghovanloo, "Wideband flexible transmitter and receiver pair for multichannel wireless neural recording applications," Proc. IEEE 50th Midwest Symp. Circuits and Sys., pp. 85-88, Aug. 2007.
- G. Bawa, U. Jow, and M. Ghovanloo, "A high efficiency full-wave rectifier in standard CMOS technology," Proc. IEEE 50th Midwest Symp. Circuits and Sys., pp. 81-84, Aug. 2007.
- X. Huo, J. Wang, and M. Ghovanloo, "Use of tongue movements as a substitute for arm and hand functions in people with severe disabilities," Proc. RESNA Conference, Phoenix, AZ, June 2007.
- J. Simpson and M. Ghovanloo, "An experimental study of voltage, current, and charge controlled stimulation front-end circuitry," Proc. IEEE Intl. Symp. on Circuits and Systems, pp. 325-328, May 2007.
- M. Yin and M. Ghovanloo, "Using pulse width modulation for wireless transmission of neural signals in a multichannel neural recording system," Proc. IEEE Intl. Symp. on Circuits and Systems, pp. 3127-3130, May 2007.
- M. Yin and M. Ghovanloo, "A low-noise preamplifier with adjustable gain and bandwidth for biopotential recording applications," Proc. IEEE Intl. Symp. on Circuits and Systems, pp. 321-324, May 2007.

- S. Atluri and M. Ghovanloo, "Incorporating back telemetry in a full-wave CMOS rectifier for RFID and biomedical applications," Proc. IEEE Intl. Symp. on Circuits and Systems, pp. 801-804, May 2007.
- X. Huo, J. Wang, and M. Ghovanloo, "A magnetic wireless tongue-computer interface," Proc. 3rd Intl. IEEE/EMBS Conf. on Neural Engineering, pp. 322-326, May 2007.
- P. Weerakoon, Kate Klemic, F.J. Sigworth, E. Culurciello, An Integrated Patch-Clamp Amplifier for High-Throughput Planar Patch-Clamp Systems, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- W. Tang, A.G. Andreou, E. Culurciello, A Low-Power Silicon-on-Sapphire Tunable Ultra-Wideband Transmitter, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- J.H. Park, E. Culurciello, Phototransistor Image Sensor in Silicon on Sapphire, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- J.H. Park, E. Culurciello, High-Speed Back-Illuminated Image Sensor in Silicon-on-Sapphire, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- Z.M. Fu, E. Culurciello, A 1.2mW CMOS Temporal-Difference Image Sensor for Sensor Networks, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- Z.M. Fu, E. Culurciello, Fall Detection Using an Address-Event Temporal Contrast Vision Sensor, IEEE International Symposium on Circuits and Systems, 2008. ISCAS 2008, 18-21 May 2008, Seattle USA., pp. -.
- P. Weerakoon, Kate Klemic, F.J. Sigworth, E. Culurciello, Electrical Noise Analysis of an Integrated Patch-Clamp Amplifier, IEEE BioCAS 2007 conference proceedings, Montreal November 28th
- P. Weerakoon, Kate Klemic, F.J. Sigworth, E. Culurciello, A Low-Noise Miniaturized Patch-Clamp amplifier, IEEE LISA 2007 conference proceedings, NIH November 8th 2007.
- A. Fish, O. Yadid-Pecht, E. Culurciello, Responsivity of Gated Photodiode in SOS Technology, IEEE Conference on Sensors 2007, Atlanta, Georgia from Oct 28-31, 2007.
- A. Fish, T. Rothschild, A. Hodes, Y. Shoshan and O. Yadid-Pecht, 201cLow Power CMOS Image Sensors Employing Adaptive Bulk Biasing Control (AB2C) Approach, Proc. IEEE International Symposium on Circuits and Systems, pp. 2834-2837, New-Orleans, USA, May 2007.
- A. Teman, S. Fisher, L. Sudakov, A. Fish and O. Yadid-Pecht, "Autonomous CMOS Image Sensor for Real Time Targets Detection and Tracking", Proc. IEEE International Symposium on Circuits and Systems, Seattle, USA, May 2008.
- M. Beiderman, T. Tam, A. Fish, G. A. Jullien and O. Yadid-Pecht, A Low Noise CMOS Image Sensor with an Emission Filter for Fluorescence Applications, Proc. IEEE International Symposium on Circuits and Systems, Seattle, USA, May 2008.
- A. Fish and O. Yadid-Pecht, Low Power Smart CMOS Image Sensors, Proc. IEEE International Symposium on Circuits and Systems, Seattle, USA, May 2008.
- Peterson R. Agostinho, Sandro Haddad, Jader A. De Lima, Wouter A. Serdijn and Osamu Saotome: An Ultra Low Power CMOS pA/V Transconductor and its Application to Wavelet Filters, Proceedings of the 20th annual conference on Integrated circuits and systems design, SBCCI'2007, Rio de Janeiro, Brazil, Sept 3 – 6, 2007.

- R. Etienne-Cummings, "Generation and Control of Spinal Locomotion Circuits and Their application to Neural Prosthetics," National Academies of Science Kavli Frontiers of Science, Irvine, CA, Nov 2007.
- R. Etienne-Cummings, "Focal-Plane Image Processing with Neuromorphic Vision Systems," SPIE EOS, Munich, Germany, June 2007.
- N. Ekekwe, R. Etienne-Cummings, "Adaptive Hysteretic Comparator with Opamp Threshold Level Setting," submitted to IEEE International Midwest Symposium on Circuits and Systems, MWS-CAS 2008, Feb 2008.
- 2. N. Ekekwe, R. Etienne-Cummings, "A 5-bits Precision CMOS Bandgap Reference with On-Chip Bi-directional Resistance Trimming," submitted to IEEE International Midwest Symposium on Circuits and Systems, MWSCAS 2008, Feb 2008.
- F. Tenore, D. Huberdeau, N. Thakor and R. Etienne-Cummings, "Using Real-time Finger Tracking to Detect User Errors," North East BioEngineering Conference, Providence, RI, April 2008, Best Paper Honorable mention.
- C. Clarke, C. White and R. Etienne-Cummings, "Image Sensor with Focal Plane Change Event Driven Video Compression," IEEE ISCAS 2008, Seattle, WA, May 2008.
- C. Clarke, C. White and R. Etienne-Cummings, "Finite Element Modeling of Tissue for Optimal Ultrasonic Transducer Array Design," IEEE ISCAS 2008, Seattle, WA, May 2008.
- G. Orchard, A. Russell, K. Mazurek, F. Tenore, R. Etienne-Cummings, "Configuring Silicon Neural Networks Using Genetic Algorithms" IEEE ISCAS 2008, Seattle, WA, May 2008.
- F. Folowosele, F. Tenore, A. Russell, G. Orchard, M. Vismer, J. Tapson, and R. Etienne-Cummings, "Implementing a Neuromorphic Cross-Correlation Engine with Silicon Neurons," IEEE ISCAS 2008, Seattle, WA, May 2008.
- J. Tapson, M.P. Vismer, C. Jin, A. van Schaik, F. Folowosele, R. Etienne-Cummings, "A Two-Neuron Cross-Correlation Circuit with a Wide and Continuous Range of Time Delay," IEEE ISCAS 2008, Seattle, WA, May 2008.
- F. Folowosele, R.J. Vogelstein, R. Etienne-Cummings, "Spike-based MAX network for nonlinear pooling in hierarchical vision processing," Proceedings of IEEE Biomedical Circuits and Systems Conference (BioCAS), Montreal, Canada, November 2007
- Y. Chi, T. Tran and R. Etienne-Cummings, "Optical Flow Approximation of Sub-Pixel Accurate Block Matching for Video Coding" IEEE ICASSP 2007, Honolulu, HI, April 2007.
- S. Acharya, V. Aggarwal, F. Tenore, H.C. Shin, R. Etienne-Cummings, M.H. Schieber, N.V. Thakor, "Towards a Brain-Computer Interface for Dexterous Control of a Multi-Fingered Prosthetic Hand," IEEE EMBS NeuroEngineering, Honolulu, HI, USA, Summer 2007.
- F. Tenore, A. R. Murguialday, A. Fahmy, S. Acharya, R. Etienne-Cummings and N.V. Thakor, "Towards the Control of Individual Fingers of a Prosthetic Hand Using Surface EMG Signals," 29th IEEE EMBS International Conference, Lyon, France, August 2007.
- Cassidy and R. Etienne-Cummings, "Non-Linear Neural Spike Train Decoding via Polynomial Kernel Regression," 29th IEEE EMBS International Conference, Lyon, France, August 2007.
- A. Linares-Barranco, S.-C. Liu, A. van Schaik and R. Etienne-Cummings, "AER Audition Filtering and CPG for Robot Control," IEEE ISCAS 2007, New Orleans, LA, May 2007.
- J. Tapson and R. Etienne-Cummings, "A Simple Neural Cross-Correlator Engine," IEEE ISCAS 2007, New Orleans, LA, May 2007.

- N. Ekeke, P. Kazanzides and R. Etienne-Cummings, "Incremental Encoder Based Position and Velocity Measurements VLSI Chip with Serial Peripheral Interface," IEEE ISCAS 2007, New Orleans, LA, May 2007.
- C. Clark, C. White and R. Etienne-Cummings, "Design and Optimization a Capacitive Micro-machined Ultrasonic Transducer Micro-Array for Near Field Sensing ," IEEE ISCAS 2007, New Orleans, LA, May 2007.
- V. Gruev, Z. Yang, J. van der Spiegel and R. Etienne-Cummings, "2 Transistor, Current-Mode Active Pixel Sensor," IEEE ISCAS 2007, New Orleans, LA, May 2007.
- A. Russell, G. Orchard and R. Etienne-Cummings, "Configuring Spiking Central Pattern Generator Networks with Genetic Algorithms," IEEE ISCAS 2007, New Orleans, LA, May 2007.
- V. Aggarwal, S. Acharya, F. Tenore, R. Etienne-Cummings, M. H. Schieber, N. V. Thakor, "Real-time Neuronal Decoding for Individuated and Combined Finger Movements of a Robotic Hand," accepted for 2007 BMES Annual Meeting, Summer 2007 (extended abstract)
- F. Folowesele, R. Etienne-Cummings, J. Tapson, "Wireless Address Event Representation System For Biological Sensor Network," Proc. SPIE (Bioengineered and Bioinspired Systems), May 2007
- J. M. A. Olsson and P. Häflicher, Two Color Asynchronous Event Photo Pixel, ISCAS 2008, Seattle, USA accepted for publication
- H. K. O. Berge and P. Häflicher, High-Speed Serial AER on FPGA, ISCAS 2007, New Orleans, USA
- T. Tam, G. A. Jullien, O. Yadid-Pecht, "A CMOS Contact Imager for Cell Detection in Bio-Sensing Applications", Proc. IEEE ISCAS, CD ROM, New Orleans, May, 2007
- A. Fish, T. Rothschild, A. Hodes, Y. Shoshan and Orly Yadid-Pecht, "Low Power CMOS Image Sensors Employing Adaptive Bulk Biasing Control (AB2C) Approach", Proc. IEEE ISCAS, CD ROM, New Orleans, May, 2007
- A. Fish, O. Yadid-Pecht and E. Culurciello, "Responsivity of Gated Photodiode in Silicon-on-Sapphire Technology", accepted to special session on Smart Image Sensors, IEEE Sensors conference, Atlanta, USA, October, 2007.
- M. Beiderman, T. Tam, A. Fish, G. A. Jullien and O. Yadid-Pecht, "Low Light CMOS Image Sensor with Emission Filter for Fluorescence Applications", accepted to IEEE International Symposium on Circuits and Systems, ISCAS'08, Seattle, USA, May 2008.
- A. Fish and O. Yadid-Pecht, "Power Reduction in "Smart" CMOS Image Sensors", accepted to IEEE International Symposium on Circuits and Systems, ISCAS'08, Seattle, USA, May 2008.
- Hashemi, S., SAWAN, M., SAVARIA, Y., "A Novel Fully-Integrated Low-Drop Voltage CMOS Rectifier for Wirelessly Powered Devices", IEEE-ICM, Cairo, Egypt, Dec. 2007.
- GHANNOUM, R., SAWAN, M., "A 90nm CMOS Multimode Image Sensor Intended for a Visual Cortical Stimulator", IEEE-ICM, Cairo, Egypt, Dec. 2007.
- GOSSELIN, B., SAWAN, M., "A Low-Power Integrated Neural Interface with Digital Spike Detection and Isolation", IEEE-ICECS, Morocco, Dec. 2007.
- VALORGE, O., MARCHE, D., LACOURSE, A., SAWAN, M., and SAVARIA, Y., "Signal Integrity Analysis of a High Precision D/A Converter", IEEE-ICECS, Morocco, Dec. 2007.
- ABDERRAHMAN, A., Savaria, Y., KHOUAS, A., SAWAN, M., "New Analog Test Metrics Based on Probabilistic and Deterministic Combination Approaches", IEEE-ICECS, Morocco, Dec. 2007.

- MOUNAIM, F., SAWAN, M., "Long-term monitoring of electrochemical parameters from stimulated neural tissues", Invited Paper IEEE-BiOCAS, Montreal, Nov. 2007.
- GOSSELIN, B., SAWAN, M., "A Mixed-Signal Multi-Chip Neural Recording Interface with Bandwidth Reduction", IEEE-BiOCAS, Montreal, Nov. 2007.
- CHENIER, F., SAWAN, M., "A New Brain Imaging Device Based on fNIRS", IEEE-BiOCAS, Montreal, Nov. 2007.
- NAJMABADI, M., DEVABHAKTUNI, V., SAWAN, M., FALLONE, C., "Wavelet Decomposition for the Analysis of Esophageal Manometric Data in the Study of Gastroesophageal Reflux Disease", IEEE-BiOCAS, Montreal, Nov. 2007.
- ROBERT, P.Y., SAWAN, M., "An independent-component-analysis-based time-space processor for the identification of neural stimulation sources", IEEE-EMBS, France, 2007.
- AYOUB, A.E., GOSSELIN, B., SAWAN, M., "A Microsystem Integration Platform Dedicated to Build Multi-Chip Neural Interfaces", IEEE-EMBS, France, 2007.
- ABDERRAHMAN, A., Savaria, Y., KHOUAS, A., Sawan, M., "Accurate Testability Analysis based-on Multi-frequency Test Generation and New test metric", IEEE-NEWCAS, Montreal, August 2007.
- GHAFAR-ZADEH, E., Sawan, M., HAJJ-HASSAN, M., and MILED, A."A CMOS Based Microfluidic Detector: Design, Calibration and Experimental Results", IEEE-NEWCAS, Montreal, August 2007.
- MILED, A., GHAFAR-ZADEH, E., and Sawan, M., "Fast Decoding Algorithm for First Order DC-Input Sigma-Delta Modulators", IEEE-NEWCAS, Montreal, August 2007.
- Ensandoust, F., Gosselin, B., and Sawan, M., "Low-Power High-Accuracy Compact Implementation of Analog Wavelet Transforms", IEEE-NEWCAS, Montreal, August 2007.
- NADERI, A., Sawan, M., SAVARIA, Y., "A 1.8GHz CMOS Continuous-Time Band-Pass Delta-Sigma Modulator for RF Receivers", IEEE-NEWCAS, Montreal, August 2007.
- TANGUAY, L.F., SAWAN, M., "A Fully-Integrated 580 μ W ISM-Band Frequency Synthesizer for Implantable Medical Devices", Invited paper, IEEE-ISSCS, Romania, July 2007.
- Ghafar-Zadeh, E., SAWAN, M., "A CMOS-Based Capacitive Sensor for Laboratory-On-Chips: Design and Experimental Results", IEEE-ISCAS, New Orleans, USA, May 2007.
- MOUNAIM, F., SAWAN, M., "Miniature Implantable System Dedicated to Bi-Channel Selective Neurostimulation", Invited paper IEEE-ISCAS, New Orleans, USA, May 2007
- Doljanu, A.D., SAWAN, M., "3D Shape Acquisition System Dedicated to a Visual Intracortical Stimulator", IEEE-ISCAS, New Orleans, USA, May 2007.
- Valorge, O., Gosselin, B., Tanguay L.-F., and Sawan, M., "Electromagnetic Compatibility Modelling in Low-noise Medical Sensor Interfaces", IEEE-ISCAS, New Orleans, USA, May 2007.
- Chebli, R., Sawan, M., Savaria, Y., and El-Sankary, K., "High-voltage dmos integrated circuits with floating gate protection technique", IEEE-ISCAS, New Orleans, USA, May 2007.
- I. Pachnis, A. Demosthenous, and N. Donaldson, "Myoelectric and common-mode interference rejection in a quasi-tripole amplifier configuration," Proc. 3rd Int. IEEE/EMBS Conference on Neural Engineering (CNE '07), pp. 118-121, May 2007.
- O. A. Adeniran and A. Demosthenous, "A 14-mW, 153.6-MHz clock-rate delta-sigma modulator for WCDMA with 77-dB SFDR using constant resistance CMOS input sampling switch," Proc. 33rd European Solid-State Circuits Conf. (ESSCIRC '07), pp. 244-247, Sept. 2007

- P. Kassanos, R. K. Iles, R. H. Bayford, and A. Demosthenous, "Impedometric analysis and characterization in the development of an hCG β 2 biosensor," Proc. 4th IEEE/EMBS Int. Summer School and Symposium on Medical Devices and Biosensors (ISSS-MDBS '07), pp. 94-97, Aug. 2007.
- X. Liu, A. Demosthenous, and N. Donaldson, "On the noise performance of Pt electrodes," Proc. 29th Ann. Int. Conf. of the IEEE Engineering in Medicine and Biology Society (EMBS '07), pp. 434-436, Aug. 2007.
- X. Liu, A. Demosthenous, and N. Donaldson, "Implantable stimulator failures: causes, outcomes, and solutions," Proc. 29th Ann. Int. Conf. of the IEEE Engineering in Medicine and Biology Society (EMBS '07), pp. 5786-5789, Aug. 2007.
- X. Liu, A. Demosthenous, and N. Donaldson, "A fully integrated fail-safe stimulator output stage dedicated to FES stimulation," Proc. 2007 IEEE Int. Symp. Circuits Syst. (ISCAS '07), pp., 2076-2079, May 2007.
- X. Liu, A. Demosthenous, and N. Donaldson, "A safe transmission strategy for power and data recovery in biomedical implanted devices," Proc. 2007 IEEE Int. Symp. Circuits Syst. (ISCAS '07), pp., 2367-2370, May 2007.

4 Patents

- D. Yates and E. Rodriguez-Villegas, "Apparatus and method for obtaining EEG data," WO2008015449
- E. Rodriguez-Villegas, P. Corbishley, J. Duncan and S. Smith, "A method and apparatus for monitoring respiratory activity", WO2007099314
- S. Carlile, C. Jin, J. Leung, and A. van Schaik, "Sound enhancement for hearing-impaired listeners," United States Patent US2007127748, June 7, 2007
- C. Jin, P. Leong, J. Leung, S. Carlile, and A. van Schaik, "Generation Of Customised Three Dimensional Sound Effects For Individuals," United States Patent US2007183603, August 9, 2007
- Jie Chen, Changhong Yu, I-Chyn Wey and Anyue Wu, "Probabilistic-based noise-tolerant logic circuit design", US provisional patent (Serial No. 60/986,824), Nov. 2007.
- Tarek El-Bialy, Jie Chen and Ying Tsui, "Ultrasound stimulation devices and techniques", US Patent Application (20080021327), January 24, 2008
- G. Wang, S. Liu, etc. Overvoltage protection circuit with reduced sensitivity to process variations, submitted to US patent office by LSI Systems, 2008.
- Rieger, R.; "Dynamic Range Extension System for Amplifier-Digitizer," Taiwan patent application, Aug. 2007.

5 Contributors

The following BioCAS TC members were involved in assembling this report:

Esther Rodriguez-Villegas	e.rodriquez@imperial.ac.uk
Eugenio Culluriciello	eugenio.culluriciello@yale.edu
Gert Cauwenberghs	gert@ucsd.edu
Andrew Mason	mason@msu.edu
Pedram Mohseni	pedram.mohseni@case.edu
André van Schaik	andre@ee.usyd.edu.au
Giacomo Indiveri	giacomo@ethz.ch
Jie Chen	jc65@ualberta.ca
Karim Oweiss	koweiss@msu.edu
Chua-Chin Wang	ccwang@ee.nsysu.edu.tw
Reid Harrison	harrison@ece.utah.edu
Maysam Ghovanloo	mghovan@ece.gatech.edu
Jie Chen	jc65@ualberta.ca
Guoxing Wang	wgx@soe.ucsc.edu
Alexander Fish	fish@atips.ca
Robert Rieger	rrieger@mail.nsysu.edu.tw
Wouter Serdijn	w.a.serdijn@tudelft.nl
Ralph Etienne-Cummings	retienne@jhu.edu
Philipp Häfliger	hafliger@ifi.uio.no
Tor S. Lande	bassen@ifi.uio.no
Jennifer Blain Christen	jennifer1@asu.edu
Erik Bruun	eb@elektro.dtu.dk
Orly Yadid-Pecht	oyp@ee.bgu.ac.il
Mohamad Sawan	mohamad.sawan@polymtl.ca
Yong Lian	eleliany@nus.edu.sg
Andreas Demosthenous	a.demosthenous@ee.ucl.ac.uk
Elisabetta Chicca	chicca@ini.phys.ethz.ch
Guoxing Wang	wgx@soe.ucsc.edu