

ANNUAL REPORT 2011 NSA TC, IEEE CAS SOCIETY

(Time Period: May 2010 --- May 2011)

(1) Conferences or workshops where the NSA TC or members of the TC were actively involved in 2010-2011 include the following:

- Jinhu Lu
Co-Chairs: Jinhu Lu, Guanrong Chen, Xiaofan Wang, The 2010 International Workshop on Complex Systems and Networks (IWCSN 2010), Beijing, China, September 25–27, 2010
Chair: Jinhu Lu, Tutorial Workshop “Complex Networks and Multi-Agent Systems” in the 8th World Congress on Intelligent Control and Automation, Jinan, China, July 6-9, 2010
Co-Chairs: Jinhu Lu, Xiang Li, Program Committee of the 6th Chinese Conference on Complex Networks (CCCN'10), October 15-18, 2010, Suzhou, P. R. China
Co-Chair: Jinqing Fang, Jinhu Lu, The 6th Chinese Forum on Network Sciences (CFNC'10) and the 2nd Chinese Chaos Application Workshop, July 26 - August 1, 2010, Beijing, P. R. China
- Shih-Chii Liu:
IEEE International Circuits and Systems Conference
NSF Telluride Neuromorphic Engineering Cognition Workshop
- Bin-Da Liu
Co-Chair of Technical Program Committee, International Conference on Computer, Communications, Circuits and Systems (ICCCAS 2010). (July 28-30, 2010, Chengdu, China)
International Advisor, the Second Asia Pacific Conference on Postgraduate Research in Microelectronics & Electronics (PrimeAsia 2010). (Sept. 22-24, 2010, Shanghai, China)
Member of International Program Committee, the 2010 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2010). (October 10-13, 2010, Istanbul, Turkey)
Review Committee Member for Multimedia Systems and Applications Track and Biomedical Circuits and Systems Track, the 2011 IEEE International Symposium on Circuits and Systems (ISCAS 2011). (May 15-18, 2011, Rio de Janeiro, Brazil)
- Mona Zaghoul
Member of the IEEE Technical Committee for IEEE Sensors Conference, 2010, 2011.
- Alejandro Linares Barranco
Program co-chair of the International Conference on Signal Processing and Multimedia Applications (ICETE-SIGMAP 2011), Seville, SPAIN <http://www.sigmap.icete.org/>
Program vice-chair of the 2010 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS 2010), Ottawa, CANADA
- Christoph POSCH
Review Committee (RC) Member - IEEE International Symposium on Circuits and Systems (ISCAS 2011)
Technical Program Committee (TPC) Member - Asia Pacific Conference on Circuits and Systems (APCCAS 2010)
- Philipp Häfliger
BioCAS conference 2010 (TPC member)
ISCAS 2010 (Track Chair for Live Demonstrations of Circuits and Systems track)
ISCAS 2011 (Track Chair for Biomedical Circuits and Systems track)
- Fangyue Chen

IEEE International Workshop on Chaos-Fractals Theories and Applications (IWCFTA, 2010), October 29-31, 2010, Kunming, China

The 2010 International Conference on Scientific Computing (CSC'10) in The 2010 World Congress in Computer Science, Computer Engineering, and Applied Computing (WORLDCOMP'10), July 12-15, 2010, Las Vegas, Nevada, USA

■ Maysam Ghovanloo

Track Co-Chair, IEEE Engineering in Medicine and Biology Conference, Wearable Sensors Principle and Technology, Buenos Aires, Argentina, September 2010.

Track Co-Chair, IEEE Engineering in Medicine and Biology Conference, Wearable Sensor Application, Buenos Aires, Argentina, September 2010.

Track Co-Chair, IEEE Engineering in Medicine and Biology Conference, Implantable Sensors Principle and Technology, Buenos Aires, Argentina, September 2010.

Technical Review Committee, IEEE Intl. Symp. on Circuits and Systems (ISCAS'10), Paris, France, June 2010.

■ H. K. Kwan,

Technical Program Committee Member, Fuzzy image processing Track, CI in bioinformatics Track, Multiobjective optimization Track, Fourth International Workshop on Advanced Computational Intelligence (IWACI 2011), Wuhan, China, October 19-21, 2011.

Review Committee Member, DSP TC, ISCAS 2011, Rio de Janeiro, Brazil, May 15-18, 2011.

Co-chair, Technical Session Chair, Digital Filter Design and Implementation, ISCAS 2011, Rio de Janeiro, Brazil, May 15-18, 2011.

Co-chair, Technical Program Committee, Signal Processing Symposium, International Conference on Communications, Circuits and Systems (ICCCAS), Chengdu, China, July 28-30, 2010.

International Liaison Co-Chair, IEEE International Conference on Green Circuits and Systems (ICGCS), Shanghai, China, June 21-23, 2010.

Program Committee Member, Fuzzy Neural Networks Track & Bioinformatics Track, Seventh International Symposium on Neural Networks (ISNN), Shanghai, China, June 6-9, 2010.

■ Giacomo Indiveri

International Conference on Sensing Technology (ICST), European Conference on Circuit Theory and Design (ECCTD), Telluride Neuromorphic Engineering Workshop, ISCAS

(2) Short Courses, Plenary Sessions, Keynote Speakers, Invited Lectures:

■ Jinhu Lu

Recent advances in consensus of multi-agent systems, the 8th World Congress on Intelligent Control and Automation (WCICA 2010), Jinan, China, July 6-9, 2010.

Consensus of complex multi-agent systems, the 6th Chinese Forum on Network Sciences (CFNC'10) and the 2nd Chinese Chaos Application Workshop, July 26 - August 1, 2010, Beijing, China

Recent advances in consensus of multi-agent systems, The 4th National Workshop on Dynamics and Control for Young Scholars, July 26-29, 2010, Dalian, China.

Structure and function of complex networks, The Workshop on Systems Science and Complex Networks, August 9-10, 2010, Shanghai, China

Modeling, analysis and control of multi-agent systems, The 4th China- Europe Summer School on Complexity Science, August 11-13, 2010, Shanghai, China.

■ Shih-Chii Liu:

“Artificial spike-based audition”, invited for 2nd Global COE Intl Symp Electronic Devices Innovation, EDIS 2009 - Series Workshop, Advances in Neuroengineering III, Osaka, Japan, 2010.

■ Alejandro Linares Barranco

Invited Lecturer to the 2010 PhD courses of the Technical University of Cartagena, SPAIN: Program of Industrial Technologies, subprogram of Neurotechnology, Control, Robotic and Energy Management. May-2010

Invited Lecturer to the 2010 PhD courses of the University of Cadiz, SPAIN: Program of Modeling, Simulating and Testing of Signal and Data Processing. Subject: Advances in Bioinspired and Robotic Systems. April-2010

Invited Lecturer to the 2010 PhD courses of the University of Cadiz, SPAIN: Program of Modeling, Simulating and Testing of Signal and Data Processing. Subject: Advances in Bioinspired and Robotic Systems. April-2011

■ Elisabetta Chicca

10 hours course for PhD students in Tourin (Italy), Politecnico di Torino, Title: Biologically inspired hybrid analog/digital VLSI Microsystems, Dates: 29/11/2010-2/12/2010

■ Fangyue Chen

Invited Lecture: For cellular automata, transitivity implies chaos and glider implies chaos, IWCFTA, 2010,
Lecture: Temporal complexity of totalistic cellular automaton rule 52, The 2010 International Conference on Scientific Computing (CSC'10) in WORLDCOMP'10

■ Giacomo Indiveri

Invited talk/Tutorial on Vision Sensors with Cellular Processor Arrays at the “Telluride Neuromorphic Engineering Workshop”, Telluride, July 2010

(3) Distinguished Lecturer in 2010-2011:

(4) Editorial Service:

■ Jinhu Lu

Associate Editor, IEEE Transactions on Neural Networks

Associate Editor, IEEE Transactions on Circuits and Systems I: Regular Papers

Associate Editor, Kybernetika

Associate Editor, Acta Automatica Sinica

Associate Editor, Journal of Systems Science and Complexity

Associate Editor, Journal of Software Engineering and Applications

Guest Editor, Neural Computation and Applications

Member of the Editorial Board, Abstract and Applied Analysis

Guest Associate Editor, International Journal of Bifurcation and Chaos

Member of the Editorial Board, Journal of Nonlinear Systems and Applications

Member of the Editorial Board, ARI - The Bulletin of the Istanbul Technical University

Guest Co-Editor, Journal of Systems Engineering

Associate Editor, Dynamics of Continuous, Discrete and Impulsive Systems Series A

■ Shih-Chii Liu:

IEEE Trans. on Biomedical Circuits and Systems Associate Editor

Frontiers in Neuromorphic Engineering Associate Editor

■ Bin-Da Liu

Associate Editor, IEEE Transactions on Circuits and Systems-II

Associate Editor, IEEE Transactions on Fuzzy Systems

Associate Editor, IEEE Transactions on Biomedical Circuits and Systems

Associate Editor, Journal of Electrical and Computer Engineering

■ Elisabetta Chicca

Associate editor for Frontiers in Neuromorphic Engineering

■ Christoph POSCH

Review Editor "Frontiers in Neuromorphic Engineering" Journal

- Fangyue Chen
Guest Associate Editor of International Journal of Bifurcation and Chaos
- Maysam Ghovanloo
Associate Editor, IEEE Transactions on Biomedical Circuits and Systems, (Dec 2010 – Present)
Associate Editor, IEEE Transactions on Circuits and Systems II, (Dec 2007 – Present)
Guest Editor, IEEE Journal of Solid-State Circuits, Special Issue on ISSCC 2011 (Jan. 2012)
Member of Subcommittee on Imagers, MEMS, Medical and Displays (IMMD), International Solid States Circuits Conference (ISSCC) (Feb. 2009 - Present).
- Giacomo Indiveri
Review Editor, Frontiers in Neuromorphic Engineering

(5) Publications (Journal Articles, Conference Papers, Books, Book Chapters):

(a) Journal Articles

- P. Wang, J. Lu, M. J. Ogorzalek, "Global relative parameter sensitivities of the feed-forward loops in genetic networks," *Neurocomputing*, vol. 21, 2011, Accepted for publication.
- S. Yu, J. Lu, G. Chen, X. Yu, "Generating grid multi-wing chaotic attractors by constructing heteroclinic loops into switching systems," *IEEE Trans. Circuits Syst. II*, 2011, Accepted for publication.
- S. Yu, J. Lu, G. Chen, X. Yu, "Design and implementation of grid multiwing butterfly chaotic attractors from a piecewise Lorenz system," *IEEE Transactions on Circuits and Systems II*, vol. 57, no. 10, pp. 803-807, Oct. 2010.
- X. Wang, X. Li, J. Lu, "Control and flocking of networked systems via pinning," *IEEE Circuits and Systems Magazine*, vol. 10, no. 3, pp. 83-91, Jul. 2010.
- W. Yu, J. Lu, Z. Wang, J. Cao, Q. Zhou, "Robust H-infinity control and uniformly bounded control for genetic regulatory network with stochastic disturbance," *IET Control Theory and Applications*, vol. 4, no. 9, pp. 1687-1706, Sep. 2010.
- P. Wang, D. Li, X. Wu, J. Lu, X. Yu, "Ultimate bound estimation of a class of high dimensional quadratic autonomous dynamical systems," *International Journal of Bifurcation and Chaos*, vol. 21, no. ??, pp. ??, 2011, Accepted for publication.
- H. Wang, K. He, B. Li, J. Lu. On some recent advances in complex software networks: Modeling, analysis, evolution and applications. *International Journal of Bifurcation and Chaos*, 2011, 21(12): in press.
- Y. Chen, J. Lu, X. Yu, "Robust consensus of multi-agent systems with time-varying delays in noisy environment," *Science China: Technological Sciences*, vol. ??, no. ??, pp. ??, 2011, Accepted for publication.
- S. Yu, W. K. S. Tang, J. Lu, and G. Chen, "Generating 2n-wing attractors from Lorenz-like systems," *International Journal of Circuit Theory and Applications*, vol. 38, no. 3, pp. 243-258, Apr. 2010.
- S. Yu, W. K. S. Tang, J. Lu, G. Chen, "Design and implementation of multi-wing butterfly chaotic attractors via Lorenz-type systems," *International Journal of Bifurcation and Chaos*, vol. 20, no. 1, pp. 29-41, Jan. 2010.
- Y-X Wang, S-C. Liu, "A two-dimensional configurable active silicon dendritic neuron array", *IEEE Transactions on Circuits and Systems*, 2011.
- S-C. Liu, T. Delbruck, "Neuromorphic sensory systems", *Current Opinion in Neurobiology*, Vol. 20, pp. 288-295, 2010.
- Y-X Wang, S-C. Liu, "Multilayer processing of spatiotemporal spike patterns in a neuron with active dendrites", *Neural Computation*, Vol. 22. pp. 2086-2112, 2010.
- P. D'Souza, S-C. Liu, R. Hahnloser, "The perceptron learning rule derived from spike-frequency adaptation and spike-time-dependent plasticity", *Proceedings of the National Academy of Sciences*, Vol. 107. pp. 4722-4727, 2010.
- Farmer, T.J., Darwish, A., Zaghloul, M.E., "A 2.4 GHz SiGe HBT High Voltage/High Power Amplifier", *IEEE Microwave and Wireless Components Letters*, Volume 20, Number 5, pp 286-288, May 2010.

- Hsu-Cheng Ou; Zaghoul, M., "Synchronous One-Pole LiNbO₃ Surface Acoustic Wave Mass Sensors," IEEE Electronic Device Letters, Volume 31, Number 5, pp 518-520, May 2010.
- M. Taghioski, J. Perlow, M.E. Zaghoul, and A. Montaser, "Generation of Ultra High Frequency Air Micro Plasma Loop and Effects of Amplitude Modulation on Operation", Applied Physics Letters, 96, 191502, May 2010.
- A.N. Nordin, M.Zaghoul,, "RF Oscillator Implementation Using Integrated CMOS Surface Acoustic Wave Resonators", Analog Integrated Circuits and Signal Processing, Springer , February 2011.
- C Chang, D. Nagel, M.Zaghoul, "Computational Methodology for Absolute Calibration Curves for Microfluidic Optical Analyses", Sensors, 2010;10(7):6730-6750,
- C. Chang,D.Nagel, M.Zaghoul,"Irradiance Dependence of Photobleaching of Resorufin", Journal of Photochemistry and Photobiology A: Chemistry, available on line.
- R. Proie,T. Ivanov,R. Polcawich, J. Pulskamp, M.E.Zaghoul, "DEVELOPMENT OF A PZT MEMS SWITCH ARCHITECTURE FOR LOW-POWER DIGITAL Applications ", Accepted to appear IEEE Journal of Microelectromechanical Systems, to appear 2011.
- T. Farmer, A. Darwish, B. Huebschman, E. Viveiros, E. Hung. M.E. Zaghoul, ," High Power Density SiGe Millimeter –Wave Power Amplifiers" Accepted to appear in the International Journal of Microwave and Wireless Technologies, to appear 2011.
- C. Chang, D. Nagel, M. Zaghoul, "Compact Optical Microfluidic Uric Acid Analysis System ", accepted to Biosensors and Bioelectronics Journal, Springer, to appear 2011.
- A systematic method for configuring VLSI networks of spiking neurons (E. Neftci, E. Chicca, G. Indiveri, R. J. Douglas), In Neural Computation, 2011. (In press)
- Posch, C.; Matolin, D.; Wohlgenannt, R., "A QVGA 143dB Dynamic Range Frame-free PWM Image Sensor with Lossless Pixel-level Video Compression and Time-Domain CDS", IEEE Journal of Solid-State Circuits, vol. 46, no. 1, pp. 259-275, Jan. 2011. (invited)
- Chen, D.; Matolin, D.; Bermak A.; and Posch, C., "Pulse Modulation Imaging - Review and Performance Analysis", Biomedical Circuits and Systems, IEEE Transactions on, vol. 5, no. 1, pp. 64-82, Jan. 2011.
- Posch, C.; Matolin, D.; Wohlgenannt, R., "A Two-Stage Capacitive-Feedback Differencing Amplifier for Temporal Contrast IR Sensors", Analog Integrated Circuits and Signal Processing Journal, vol. 64, no. 1, pp. 45-54, 2010. (invited)
- 'Towards an injectable continuous osmotic glucose sensor' Erik Johannessen, Olga Krushinitskaya, Andrey Sokolov, Philipp Häfliger, Arno Hoogerwerf, Christian Hinderling, Kari Kautio, Jaakko Lenkkeri, Esko Strömmer, Vasily Kondratyev, Tor Inge Tønnessen, Tom Eirik Mollnes, Henrik Jakobsen, Even Zimmer and Bengt Akselsen. Journal of Diabetes Science and Technology, vol. 4, issue 4, pp 873-881, 2010
- Weifeng Jin, Fangyue Chen, Topological chaos of universal elementary cellular automata rule, Nonlinear Dyn., (2011), 63: 217–222.
- F. Inanlou, M. Kiani, and M. Ghovanloo, "A 10.2 Mbps pulse harmonic modulation based transceiver for implantable medical devices," Accepted for publication in IEEE J. Solid-State Circuits, Mar. 2011.
- H.M. Lee and M. Ghovanloo, "An integrated power-efficient active rectifier with offset-controlled high speed comparators for inductively-powered applications," Accepted for publication in IEEE Trans. on Circuits and Systems I, Sep 2010.
- M. Yin and M. Ghovanloo, "A low-noise clockless simultaneous 32-channel wireless neural recording system with adjustable resolution," Analog Integrated Circuits and Signal Processing, vol. 66, no. 3, pp. 417-431, March 2011.
- F. Inanlou and M. Ghovanloo, "Wideband near-field data transmission using pulse harmonic modulation," IEEE Trans. on Circuits and Systems I, vol. 58, no. 1, pp. 186-195, Jan. 2011.
- S.B. Lee, H.M. Lee, M. Kiani, U. Jow, and M. Ghovanloo, "An inductively powered scalable 32-channel wireless neural recording system-on-a-chip for neuroscience applications," IEEE Trans. on Biomed. Circuits and Systems, vol. 4, no. 6, pp. 360-371, Dec. 2010.

- U. Jow and M. Ghovanloo, "Optimization of data coils in a multiband wireless link for neuroprosthetic implantable devices," *IEEE Trans. on Biomed. Circuits and Systems*, vol. 4, no. 5, pp. 301-310, Oct. 2010.
- M. Kiani and M. Ghovanloo, "An RFID-based closed loop wireless power transmission system for biomedical applications," *IEEE Trans. on Circuits and Systems II*, vol. 57, no. 4, pp. 260-264, Apr. 2010.
- X. Huo and M. Ghovanloo, "Evaluation of a wireless wearable tongue computer interface by individuals with high l
- X. Lai, Z. Lin, and H. K. Kwan, "A sequential minimization procedure for minimax design of IIR filters based on second-order factor updates," *IEEE Transactions on Circuits and Systems II*, vol. 58, no. 1, pages 51-55, January 2011.
- A. Jiang and H. K. Kwan, "Minimax design of IIR digital filters using iterative SOCP," *IEEE Transactions on Circuits and Systems I*, volume 57, number 6, pages 1326-1337, June 2010.
- A. Lopich and P. Dudek, "Asynchronous Cellular Logic Network as a Co-Processor for a General-Purpose Massively Parallel Array", *International Journal of Circuit Theory and Applications*, DOI: 10.1002/cta.679, 29 April 2010
- G. Indiveri, B. Linares-Barranco, T.J. Hamilton, A. van Schaik, R. Etienne-Cummings, T. Delbruck, S.C. Liu, P. Dudek, P. Häfliger, S. Renaud, J. Schemmel, G. Cauwenberghs, J. Arthur, K. Hynna, F. Folowosele, S. Saighi, T. Serrano-Gotarredona, J. Wijekoon, Y. Wang and K. Boahen, "Neuromorphic Silicon Circuits", *Frontiers in Neuroscience*, 5:73. pp 1-23, doi: 10.3389/fnins.2011.00073, 2011

(b) Conference Papers

- Y. Chen, W. Xiong, J. Lu, Daniel W. C. Ho, "Pinning scheme for complex networks based on PageRank algorithm," *Proceedings of the 2010 IEEE International Conference on Intelligent Computing and Integrated Systems*, October 22-24, 2010, Guilin, China, pp. 709-712.
- Y. Chen, J. Lu, D. W. C. Ho, X. Yu, "Convergence analysis of discrete-time multi-agent systems based on sequential connectivity," *Proceedings of the 2010 International Symposium on Nonlinear Theory and its Applications (NOLTA2010)*, September 5-8, 2010, Krakow, Poland, pp. 233-236.
- J. Lu, X. Yu, D. Hill, "A brief overview of some recent advances in pinning control of complex networks," *Proceedings of the 2010 International Symposium on Nonlinear Theory and its Applications (NOLTA2010)*, September 5-8, 2010, Krakow, Poland, pp. 398-401.
- P. Wang, D. Li, X. Wu, J. Lu, "Estimating the ultimate bound for the generalized quadratic autonomous chaotic systems," *Proceedings of the 29th Chinese Control Conference*, July 29-31, 2010, Beijing, China, pp. 791-795.
- Y. Chen, D. W. C. Ho, J. Lu, Z. Lin, "Convergence rate analysis for discrete-time multi-agent systems with time-varying delays," *Proceedings of the 29th Chinese Control Conference*, July 29-31, 2010, Beijing, China, pp. 4578-4583.
- S-C. Liu, N. Mesgarani, J. Harris, H. Hermansky, "The use of spike-based representations for hardware audition systems", *IEEE International Symposium on Circuits and Systems (ISCAS'10) Paris*, May 2010, pp. 93-96.
- S-C. Liu, A. van Schaik, B. Minch, T. Delbruck, "Event-based 64-channel binaural silicon cochlea with Q enhancement mechanisms", *IEEE International Symposium on Circuits and Systems (ISCAS'10) Paris*, May 2010, pp. 93-96.
- H. Finger, P. Ruvolo, S-C. Liu, J. Movellan, "Approaches and databases for online calibration of binaural sound localization for robotic heads", *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Oct 18--22.
- Y-X Wang, S-C. Liu, "Motion detection using an aVLSI network of spiking neurons", *IEEE International Symposium on Circuits and Systems (ISCAS'10) Paris*, May 2010, pp. 93-96.
- S. Chakrabarty, S-C. Liu, "Exploiting spike-based dynamics in a silicon cochlea for speaker identification", *IEEE International Symposium on Circuits and Systems (ISCAS'10) Paris*, May 2010, pp. 513-516.

- D. Jaeckel, R. Moeckel, S-C. Liu, “Sound recognition with spiking silicon cochlea and Hidden Markov Models”, IEEE Prime, Berlin, Germany, July 2010.
- O. Tigli, M. Zaghoul, “Finite Element Modeling and Analysis of CMOS-SAW Sensors”, Nanotech Conference& Expo, June 21-24, Anaheim, CA, 2010.
- O. Tigli, M. Zaghoul, “Surface Acoustic Wave (SAW) Biosensors “ Invited to Special Session in the IEEE MWSCAS10, August 2010.
- B. Zhang, M. E. Zaghoul, “Design Of Surface Acoustic SAW Filters with low Insertion Loss”, IEEE MWSCAS10, August 2010.
- B. Zhang, C.E. Korman, M.E. Zaghoul, “Novel Hall Effect CMOS Sensor” IEEE Sensors Conference, October 2010.
- Marjan Nabili, Mohammedreza, Sankara Meesh, Ji Liu, David Beylyea, Craig Geist, Vesna Zderic, Mona Zaghoul, “Surface Acoustic Wave Devices for Ocular Drug Delivery”, IEEE Ultrasonic Conference December 2010.
- A. Gupta, S. Ahmadi, M.E. Zaghoul, “A 400 MHz Delta –Sigma Modulator for band pass IF Digitization Around 100MHz with Excess Loop Delay Compensation”, IEEE Proceedings of the International Circuits and Systems Conference, ISCAS, Rio De Janeiro, Brazil, May 2011.
- R. Proie, J. Pulskamp, R. Polcawich, T. Ivanov, M. E. Zaghoul, “ Low power 3-Bit Piezoelectric MEMS Analog To Digital Converter”, MEMS 2011, Cancun, MEXICO, January 23-27, 2011, pp 1241-1344.
- R. Proie, R. Polcawich, J. Pulskamp, T. Ivanov, M. Zaghoul, “ NANO-Electromechanical Storage Element for Low Power Complementary Logic Architecture Using PZT Switches’, Transducers 2011, June 5-9, 2011, Beijing, China.
- R. Proie, R. Polcawich, J. Pulskamp, T. Ivanov, M. Zaghoul, “High Speed Single Cycle Resolution Reliability System for RF-MEMS Switches”, IEEE International Microwave Symposium, Baltimore June 5-10 2011.
- R. Proie, R. Polcawich, J. Pulskamp, T. Ivanov, M. Zaghoul, “Development of a PZT MEMS Switch Architecture Intended for Low Power Digital Applications”, Proceedings of GOMACTech 2011, Government Microcircuit Applications and Critical Technology Conference, Orlando, FL, March 21-24, 2011.
- T. Farmer, A. Darwish, E. Viveiros, A. Hung, M.E.Zaghoul, “ Device Architecture for Millimeter –Wave Power Amplifiers Using SiGe HBTs”, Proceedings GOMACTech 2011, Government Microcircuit Applications and Critical Technology Conference, Orlando, FL, March 21-24, 2011.
- T. Farmer, A. Darwish, E. Viveiros, A. Hung, M.E.Zaghoul, “ SiGe HBT Stacked Power Amplifier at Millimeter Wave “, Proceedings GOMACTech 2011, Government Microcircuit Applications and Critical Technology Conference, Orlando, FL, March 21-24, 2011.
- M. Taghioskoui, M. Zaghoul, A. Montaser, “ Tongue-Shaped Ultrahigh Frequency Atmospheric Pressure Plasma Jet”, proceedings of IEEE International Conference on Plasma Science(ICOPS), Chicago, IL, June 2011.
- Manuel Rivas Pérez, Alejandro Linares Barranco, Joaquin Cerda Boluda, Nestor Ferrando, Gabriel Jimenez Moreno, et. al. AER Convolution Filter Approach Based on Cellular Automata. Actas del III Simposio de Inteligencia Computacional (Sico 2010) (IEEE Computational Intelligence Society). CEDI 2010. Valencia. Ibergarceta Publicaciones, S.L. September 2010. Pag. 1-4
- Angel Francisco Jiménez Fernández, Gabriel Jimenez Moreno, Alejandro Linares Barranco, Antonio Abad Civit Balcells, Rafael Paz Vicente. Building Blocks for Spikes Signal Processing. 2010 International Joint Conference on Neural Networks (IJCNN 2010). WCCI 2010 IEEE World Congress on Computational Intelligence. Barcelona, Spain. IEEE. July 2010. Pag. 1150-1157
- Manuel Rivas Pérez, Alejandro Linares Barranco, Nestor Ferrando, Joaquin Cerda Boluda, Gabriel Jimenez Moreno, et. al. Visual Spike-Based Convolution Processing With a Cellular Automata Architecture. 2010 International Joint Conference on Neural Networks (IJCNN 2010). WCCI 2010 IEEE World Congress on Computational Intelligence. Barcelona, Spain. IEEE. July 2010. Pag. 4219-4225

- Manuel Jesús Domínguez Morales, Pablo Iñigo Blasco, Juan Luis Font Calvo, Daniel Cascado Caballero, Gabriel Jimenez Moreno, et. al. Frames-to-AER Efficiency Study Based on CPUs Performance Counters. Proceedings of the 2010 International Symposium on Performance Evaluation of Computer and Telecommunication Systems. SPECTS-2010. Ottawa, Canada. SCS (Society for Computer Simulation International). July 2010. Pag. 141-148
- Angel Francisco Jiménez Fernández, Rafael Paz Vicente, Alejandro Linares Barranco, Gabriel Jimenez Moreno, Juan Luis Fuentes del Bosh. Neuro-Inspired System for Real-Time Vision Tilt Correction. Proceedings of 2010 IEEE International Symposium on Circuits And Systems (ISCAS). Paris, France. IEEE. May 2010. Pag. 1394-1397
- Alejandro Linares Barranco, Rafael Paz Vicente, Francisco Gomez Rodriguez, Angel Jimenez Fernández, Manuel Rivas, Gabriel Jimenez Moreno, Anton Civit. On the AER Convolution Processors for FPGA. Proceedings of 2010 IEEE International Symposium on Circuits And Systems (ISCAS 2010). Paris, France. IEEE. May 2010. Pag. 4237-4240
- Francisco Gomez Rodriguez, Lourdes Miró Amarante, Fernando Diaz del Rio, Alejandro Linares Barranco, Gabriel Jimenez Moreno. Real Time Multiple Objects Tracking Based on a Bio- Inspired Processing Cascade Architecture. Proceedings of 2010 IEEE International Symposium on Circuits And Systems (ISCAS). Paris, France. IEEE. May 2010. Pag. 1399-1402
- Systematic configuration and automatic tuning of neuromorphic systems (S. Sheik, F. Stefanini, E. Neftci, E. Chicca, G. Indiveri), In International Symposium on Circuits and Systems, ISCAS 2011, 2011. (In press)
- Exploring Olfactory Sensory Networks: Simulations and Hardware Emulation (M. Beyeler, F. Stefanini, H. Proske, G. Galizia, E. Chicca), In Biomedical Circuits and Systems Conference BIOCAS 2010, 2010
- State-Dependent Sensory Processing in Networks of VLSI Spiking Neurons (E. Neftci, E. Chicca, G. Indiveri, M. Cook, R. J. Douglas), In International Symposium on Circuits and Systems, ISCAS 2010, 2010.
- Posch, C.; Matolin, D.; Wohlgenannt, R., "A QVGA 143dB Dynamic Range Asynchronous Address-Event PWM Dynamic Image Sensor with Lossless Pixel-Level Video Compression," Solid-State Circuits, 2010 IEEE Conference on, ISSCC, pp. 400-401, Feb. 07-11, 2010.
- Posch, C.; Matolin, D.; Wohlgenannt, R., "High-DR, Frame-Free PWM Imaging with Asynchronous AER Intensity Encoding and Focal-Plane Temporal Redundancy Suppression", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010.
- Posch, C. et al. "Live Demonstration: Asynchronous Time-Based Image Sensor (ATIS) Camera with Full-Custom AE Processor", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010. ISCAS 2010 Best Live Demonstration Award
- Matolin, D.; Wohlgenannt, R.; Litzenberger, M.; Posch, C., "A Load- Balancing Readout Method for Large Event-Based PWM Imaging Arrays", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010.
- Hofstätter, M.; Schön, P.; Posch, C., "A SPARC-Compatible General Purpose Address-Event Processor with 20bit 10ns-Resolution Asynchronous Sensor Data Interface in 0.18 μ m CMOS", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010.
- Delbruck, T.; Linares-Barranco, B.; Culurciello, E.; Posch, C., "Activity- Driven, Event-Based Vision Sensors", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010.
- Posch, C. et al., "Biomimetic frame-free HDR camera with event-driven PWM image/video sensor and full-custom address-event processor", Biomedical Circuits and Systems Conference, 2010. BioCAS, IEEE, pp.254-257, Nov. 2010.
- Posch, C.; Matolin, D., "Sensitivity and Uniformity of a 0.18 μ m CMOS Temporal Contrast Pixel Array", Circuits and Systems, ISCAS 2011. IEEE International Symposium on, May 2011 (accepted for lecture presentation).
- Live demonstration: inductive power and telemetry for micro-implant P. Häfliger, Proceedings of the IEEE ISCAS 2010 , P 2775

- Yunfang Han, Fangyue Chen, Yi Wang, Subsystems and Glider Dynamics of Hyper Bernoulli CA Rule 26, 2010 International Workshop on Chaos-Fractal Theory and its Applications (IWCFTA, 2010), 187-191, 2010.
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- Posch, C., "A Biomimetic Frame-Free Event-Driven Image Sensor", in "Focal-Plane Sensor- Processor Chips", ISBN 978-1441964748, 1st ed., Springer, Berlin, Mar. 2011.
- H. K. Kwan and A. Jiang, Integrated Design of IIR Variable Fractional Delay Digital Filters with Variable and Fixed Denominators, in Digital Filters, Fausto Pedro García Márquez (Ed.), Chapter 8, pages 179-208, April 2011, ISBN: 978-953-307-190-9, InTech Open Access Publisher.
- P.Dudek, "SCAMP-3: A Vision Chip with SIMD Current-mode Analogue Processor Array", in "Focal-Plane Sensor-Processor Chips" A.Zarandy (Ed.), p.17-43, ISBN: 978-1-4419-6474-8, Springer, 2011
- A.Lopich and P.Dudek, "ASP: Asynchronous-Synchronous Focal Plane Sensor Processor Chip", in "Focal-Plane Sensor-Processor Chips" A.Zarandy (Ed.), p.73-104, ISBN: 978-1-4419-6474-8, Springer, 2011

(6) Awards, Honors, and Patents:

- Jinhu Lu
The 2010 National Science Fund for Distinguished Young Scholars
The 2010 Hundred Talents Program of Chinese Academy of Sciences
- Shih-Chii Liu:
Runner up for Best Paper Award for ISCAS 2010 from ISCAS Sensory Systems Technical Committee for paper titled "Event-based 64-channel binaural silicon cochlea with Q enhancement mechanisms", by S-C. Liu, A. van Schaik, B. Minch, T. Delbruck, IEEE International Symposium on Circuits and Systems (ISCAS'10) Paris, May 2010, pp. 93-96.
- Mona Zaghoul
Distinguished Research Award 2010, School of Engineering and Applied Science, the George Washington University, Washington DC, AY 2010-2011.
- Christoph POSCH

ISCAS 2010 Best Live Demonstration Award, Posch, C. et al. "Live Demonstration: Asynchronous Time-Based Image Sensor (ATIS) Camera with Full-Custom AE Processor", Circuits and Systems, ISCAS 2010. IEEE International Symposium on, May 2010.

AT 502.551 (A1) VERFAHREN UND BILDAUSWERTUNGSEINHEIT ZUR SZENENANALYSE (METHOD AND IMAGE EVALUATION UNIT FOR SCENE ANALYSIS), granted, November 15, 2010. (Patent)

■ Maysam Ghovanloo

“Leo” People’s Choice Award, da Vinci Awards, National Multiple Sclerosis Society, Sep. 2010

Galaxy of Stars, Barrier Breaker Award for Innovation, Tommy Nobis Center, May 2010.

IEEE Senior member since April 2010

CAREER Award, National Science Foundation (NSF), March 2010.

M. Ghovanloo and K. Najafi, “Demodulator, Chip and Method for Digitally Demodulating an FSK Signal,” U.S. patent 7,881,409, Feb. 2011.

(7) Other IEEE Service:

■ Shih-Chii Liu

Track Co-Chair of the 2011 ISCAS Neural Systems and Networks Track

Member of the IEEE CAS Sensory Systems; and Neural Systems and Applications Technical Committees

Chair of IEEE CAS/ED Swiss Chapter

Reviewer for IEEE ISCAS Conference, and IEEE TCAS, IEEE TNN, IEEE TBCAS journals

■ Mona Zaghloul

Member of the IEEE Fellow Committee for the IEEE Sensors Council

Past President for IEEE Sensors Council 2010-2011

Chair of the nomination Committee for IEEE Sensors Council 2010-2011

■ Christoph POSCH

Member IEEE CAS Sensory Systems Technical Committee (SSTC)

■ Philipp Häfliger

Chair of the Biomedical Circuits and Systems technical committee of the IEEE CAS society

■ Maysam Ghovanloo

Reviewer for the following journals and conferences: IEEE Journal of Solid-State Circuits, IEEE Transactions on Circuits and Systems I and II, IEEE Transactions on Biomedical Engineering, IEEE Sensors Journal, IEEE/ASME Journal of Microelectro- mechanical Systems, IEEE International Symposium on Circuits and Systems, IEEE Engineering in Medicine and Biology Society Conference, IEEE International Solid-State Circuits Conference

■ Giacomo Indiveri

Secretary Elect of the IEEE CAS Sensory Systems Technical Committee

Member of the IEEE CAS Cellular Neural Networks and Array Processing Technical Committee

(8) Other Professional Service:

■ Giacomo Indiveri, Chair of Special Interest Group on ‘Neurally Inspired Engineering’, UK Neuroinformatics Node of the International Neuroinformatics Coordinating Facility (INCF)

(9) Media and Popular Press:

■ Tekno, Schrödingers Katt, NRK (Norwegian national TV), 17-May-2011, - Sensorer varsler sykdom og fare, Aftenposten (Norwegian National/Regional Newspaper), 18-Jan-2011. (Philipp Häfliger)

<http://www.aftenposten.no/fakta/innsikt/article3992743.ece>

■ LA Times (1/10/2011): Pills with a mind of their own. (Maysam Ghovanloo)

<http://www.latimes.com/health/la-he-future-pills-20110110,0,6413192.story>

- NBC 11 Alive (8/27/2010): Piercing Tongues to Achieve Self Sufficiency. (Maysam Ghovanloo) <http://www.11alive.com/news/local/story.aspx?storyid=151783>
- NIBIB e-Advances (5/26/2010): Tongue-Operated Devices Help Paralyzed People. (Maysam Ghovanloo) <http://www.nibib.nih.gov/HealthEdu/eAdvances/26May10>
- CNN Health Minute (1/25/2010): Wheelchair mobility at the tip of the tongue. (Maysam Ghovanloo) <http://www.cnn.com/2010/HEALTH/01/25/hm.wheelchair.tongue/index.html>