

2004 ANNUAL REPORT
NEURAL SYSTEMS & APPLICATIONS TECHNICAL COMMITTEE
IEEE CAS SOCIETY

Chairman: Prof. Ralph Etienne-Cummings
Chair-Elect: Prof. Chin-Teng Lin
Secretary: Prof. Derong Liu

Over the past year, the NSATC members have been very active organizing various workshops and conferences, publishing many papers and books, delivering many lectures, tutorials and seminars, and serving the CAS and IEEE communities in a variety of important roles. Below, we summarize many of the activities of our TC members.

1. Conferences/Workshops 2004-05

- a. Bing Sheu delivered Plenary Talk at 2004 IEEE Asia-Pacific Conference on Circuits & Systems, at Tainan, Taiwan, Dec. 2004.
- b. Bin-Da Liu served as: General Chair at the 2004 IEEE Asia-Pacific Conference on Circuits and Systems, Tainan, Taiwan, Dec. 6-9, 2004; Technical Program Committee member for the 2005 IEEE International Symposium on VLSI Design, Automation and Test, Hsinchu, Taiwan, April 27-29, 2005.
- c. Wei Xing Zheng served as: a Review Committee Member (Neural Systems and Applications Track) of the 2004 IEEE International Symposium on Circuits and Systems (ISCAS), Vancouver, Canada, May 23-26, 2004; Technical Session Chair of "Detection and Estimation", "Blind Signal Processing", "Digital Signal Processing for Communications II", "Digital Signal Processing VI" and "Adaptive Signal Processing I" at the 2004 IEEE International Symposium on Circuits and Systems (ISCAS), Vancouver, Canada, May 23-26, 2004; Program Committee Member of the 2004 IEEE Symposium on Neural Networks, Dalian, China, August 19-21, 2004; International Program Committee Member of the 2004 International Conference on Dynamics, Instrumentation and Control (CDIC 2004), Nanjing, China, August 18-20, 2004; Program Committee Member of the 43rd IEEE Conference on Decision and Control (CDC 2004), Paradise Island, Bahamas, December 14-17, 2004.
- d. Jun Wang serves as General Chair of the 1st and 2nd International Symposium on Neural Networks, 2004 and 2005.
- e. Peter Szolgay served as Publication Chair on IJCNN 2004 and organized a special session as well.
- f. Majid Ahmadi served as Track Chair for the Neural Network in the 2004 IEEE International Conference on Electronics, Circuits and Systems, Tel-Aviv, Israel.
- g. Alessandro Rizzo served as RCM for NN tracks, ISCAS 2004.
- h. Derong Liu served as: Special Sessions Chair of the International Symposium on Neural Networks, Chongqing, China, 2005; Publicity Chair of the 20th IEEE International Symposium on Intelligent Control, Cyprus, 2005; Publicity Chair of the 13th Mediterranean Conference on Control and Automations, Cyprus, 2005; Exhibits Chair of the IEEE International Conference on Networking, Sensing and Control, Tucson, Arizona, 2005.
- i. Shih-Chii Liu served as: Organizer of Emerging Technologies Track for the Neural Information Processing Systems Conference (NIPS) 2005; Organizer for the IEEE International Symposium on Circuits and Systems, Vancouver, Canada, May 23-26, 2004; International Committee Member on Bio-Inspired Cognitive Systems Conference, BICS, 2004.
- j. Andre van Schaik served as Chair Elect of the Technical Committee on Sensors, IEEE ISCAS, 2004 and as a Technical Program Committee member and Session Chairman: International Symposium on Circuits and Systems, 2004 and as Technical Program Committee member and Session Chairman: International Symposium on Circuits and Systems, 2004.
- k. H.K. Kwan served as: Chair of Digital Signal Processing Track of IEEE International Symposium on Circuits and Systems, May 23-26, Kobe, Japan, 2005; Chair of Neural Networks and Fuzzy Systems Track of IEEE Mid-West Symposium on Circuits and Systems July 25-28, Hiroshima, Japan, 2004; Chair of Neural Systems and Applications Track of IEEE International Symposium on Circuits and Systems, May 23-26, Vancouver, Canada, 2004; Program Committee member of ISNN 2005, International Symposium on Neural Networks, May 30-June 1, Chongqing, China, 2005; Program Committee member of ISNN 2004, International Symposium on Neural Networks, August 19-21, Dalian, China, 2004; Co-Organizer and Co-Chair, Invited Session on Advances in Speech Processing and Applications, IEEE International Symposium on Circuits and

Systems, May 23-26, Vancouver, Canada, 2004; Chair, Technical Oral Session on Speech Processing and Recognition, International Symposium on Intelligent Multimedia, Video and Speech Processing, October 20-22, Hong Kong, 2004 and as Chair, Technical Oral Session on Communications, IEEE Electro/Information Technology Conference, Milwaukee, Wisconsin, Session Signal Processing 1, August 26-27, 2004.

- l. Ralph Etienne-Cummings served as: Session Chairman for International Solid-State Circuits Conference, San Francisco, CA, 2004; Session Chairman for the International Symposium on Circuits and Systems, 2004; Panel Moderator for NSF ERC Annual Meeting, 2004; Invited Speaker for NSF Telluride Workshop on Neuromorphic Engineering, CO, 2004; Invited Speaker for Neuroscience and Cognitive Sciences, University of Maryland, College Park, MD, 2004; Invited Speaker at Cornell University, Ithaca, NY, 2004; Invited Speaker at University of Sydney, Sydney, Australia, 2004; Invited Speaker at Edith Cowen University, Perth, Australia, 2004; Invited Speaker at University of Queensland, Brisbane, Australia, 2004; Invited Speaker at Johns Hopkins University, Baltimore, MD, 2004; Invited Speaker at Mitre Corporation, McLean, VA, 2004; Invited Speaker at NRO, Chantilly, VA, 2005; Invited Speaker at Agilent Corp., Palo Alto, CA, 2005; Invited Speaker at SPIE Conference, Orlando, FL, 2005 and NSF Grantees Meeting, Washington, D.C., 2005. He was a member of the Review Panel for NIH SBIR Panel, Washington, D.C., Nov. 2004; Organizer for CMOS Imagers Tutorial, ISCAS 2004, May, 2004; NSF Telluride Neuromorphic Engineering Workshop, Telluride, CO, 2004 and for ISCAS 2004, Two Special Sessions on Spiking Neural Systems, Vancouver, Canada, May 2004.
- m. Giacomo Indiveri was involved with EU/INI Workshop 2004: Integration of Neuromorphic Systems for Sensory-Motor Processing, March 7-13, 2004; ESANN'2004, April 27-30, 2004 and with Telluride Neuromorphic Workshop, April 6-7, 2004.
- n. Orly Yadid-Pecht has been Technical Program Committee Member and Session Chairman of SPIE Elec. Imaging Conference, San Jose CA, 2005; International Symposium on Circuits and Systems, 2004 and with IEEE Workshop on Advanced Image Sensors, Japan, 2005. Orly Yadid-Pecht was also General Chair: IEEE ICECS 2004.

2. On-going or Up-coming Conferences/Workshops

- a. Bin-Da Liu served as: Meeting Chair at The 9th International Workshop on Cellular Neural Networks and Its Applications, Hsinchu, Taiwan, May 28-30, 2005; Technical Program Committee Co-Chair at the 2005 IEEE International Workshop on VLSI Design and Video Technology, Suzhou, China, May 28-31, 2005.
- b. Wei Xing Zheng will serve as: a Review Committee Member (Neural Systems and Applications Track) of the 2005 IEEE International Symposium on Circuits and Systems (ISCAS), Kobe, Japan, May 23-26, 2005; as a Technical Session Chair of "Adaptive Signal Processing III" at the 2005 IEEE International Symposium on Circuits and Systems (ISCAS), Kobe, Japan, May 23-26, 2005; International Program Committee Member of the 20th IEEE International Symposium on Intelligent Control, Limassol, Cyprus, June 27-29, 2005; Program Committee Member of the 8th International Symposium on Signal Processing and Its Applications, Sydney, Australia, August 29-September 1, 2005; Program Committee Member of the joint 44th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC 2005), Seville, Spain, December 6-9, 2005 and as Organizer and Chair of Special Session "Blind System Identification" at the 8th International Symposium on Signal Processing and Its Applications, Sydney, Australia, August 29-September 1, 2005. Wei Xing Zheng also served as International Program Committee Member of the 2005 IEEE International Conference on Networking, Sensing and Control, Tucson, Arizona, USA, March 19-22, 2005
- c. Peter Szolgay is a Program Committee Member of CNNA 2005 (Taiwan) and IWANN 2005 (Barcelona).
- d. Majid Ahmadi is a member of: The Technical Program Committee of 2005 IEEE-SMC conference; The Technical Program Committee of 2005 IEEE-NEWCAS; The Technical Program Committee of 2005 International Conference on Image Analysis and Recognition and The Technical Program Committee of 2005 Electro/Information Technology Conference Membership in Editorial Board.
- e. Derong Liu serves as: Program Chair of the IEEE International Conference on Networking, Sensing and Control, Miami, Florida, 2006; Program Chair of the 21st IEEE International Symposium on Intelligent Control, Munich, Germany, 2006 and as Registration Chair of the World Congress on Computational Intelligence, Vancouver, Canada, 2006.
- f. Alan Stocker serves as Co-organizer (together with R. Etienne-Cummings) of the special session Live Demonstrations of Sensory Circuits and Systems at the IEEE Circuits and Systems Symposium in Kobe, 2005 and is Co-Chair (together with T. Horiuchi) of the demonstration track at NIPS (Neural Information Processing Systems) conference in Vancouver, Canada, December 2005.

- g. H.K. Kwan serves as: Scientific Review Committee Member, Interspeech 2005, 9th European Conference on Speech Communication and Technology, September 4-8, Lisbon, Portugal, 2005; Technical Program Committee member, IIMSP05, International Workshop on Intelligent Information Hiding and Multimedia Signal Processing, September 14-16, Melbourne, Australia, 2005 and as Chair, Technical Oral Session on IIR Digital Filters, IEEE International Symposium on Circuits and Systems, Kobe, Japan, May 23-26, 2005.

3. Short Courses and Lectures

- a. H.K. Kwan was a Panel Member of ISIMP2004 Forum on Future Research Directions for Multimedia Signal Processing, October 2004 and Lecturer on Digital Filters for Chaotic Signal Driven Parametric Modulation, University of Hong Kong, October, 2004.
- b. Giacomo Indiveri was a part of Neuromorphic Circuits for Robotics, Winter School in Humanoid Robotics, KAIST (Korea), January 17-21, 2005 and of VLSI Reconfigurable Networks of Spiking Neurons and Plastic Synapses, KAIST (Korea), January 19, 2005.
- c. O. Yadid-Pecht, "Grand Challengers in CMOS Imaging", invited for ICECS2004, Tel-Aviv, Israel, December 2004.
- d. Orly Yadid-Pecht was an Invited Instructor, "Active Pixel Sensors," NSF Neuromorphic Workshop, July 2004.

4. Distinguished Lecturer in 2004-05

- a. Andre van Schaik was a Distinguished Lecturer of the Institute of Neuromorphic Engineering, 2004.
- b. Ralph Etienne-Cummings was a Distinguished Lecturer of the Institute of Neuromorphic Engineering, 2004.

5. Editorial services

- a. Bing Sheu serves as one Editor for Editorial Board (2005/06/07), Proceedings of the IEEE.
- b. Bin-Da Liu serves as CAS Associate Editor for IEEE Circuits and Devices Magazine, Associate Editor for IEEE Transactions on Circuits and Systems-I and Associate Editor for IEEE Transactions on VLSI Systems.
- c. Wei Xing Zheng was Associate Editor, IEEE Trans. on Circuits and Systems I until June 2004 and is Associate Editor, IEEE Trans. on Automatic Control.
- d. Jun Wang is Associate Editor, IEEE Trans. on Neural Networks, IEEE Trans on Systems, Man, Cybernetics-Part B and C.
- e. Jamid Ahmadi serves as Regional Editor for the Journal of Circuits, Systems and Computers, Associate Editor, Pattern Recognition Journal and Associate Editor, International Journal of Computers in Electrical Engineering.
- f. Derong Liu serves as Editor of the IEEE Computational Intelligence Society Electronic Letter, 2004-present.
- g. Bernabe Linares-Barranco serves as Associate Editor for IEEE Trans. on Neural Networks.
- h. M.E. Zaghoul will Co-Edit a special issue on Smart Sensors and Their Applications with Orly Yadid-Pecht and Denise Wilson and is the Associate Editor of the IEEE-Sensors Journal.
- i. Orly Yadid-Pecht is Deputy Editor in Chief: IEEE TCAS-I Journal.
- j. Ralph Etienne-Cummings is Associate Editor of IEEE Sensors Journal.

6. Books and book chapters

- M.E. Zaghoul contributed "Applications of Micro-Electro-Mechanical Systems", with D. Nagel, Chapter, The Electrical Engineering Handbook, Wai-Kai Chen, Editor, Academic Press, 2004.
- M.E. Zaghoul contributed "MEMS Designs and Applications, and Introduction", Mechanical Engineering Handbook, Wiley Publishing, Myer Kutz, Editor, 2005.
- O. Yadid-Pecht and R. Etienne-Cummings, CMOS Imagers: from Phototransduction to Image Processing, Kluwer Academic Publishers, Spring 2004.
- R. Etienne-Cummings, M. Clapp and V. Gruev, "Focal-Plane Analog Image Processing," in O. Yadid-Pecht and R. Etienne-Cummings, CMOS Imagers: from Phototransduction to Image Processing, Kluwer Academic Publishers, Spring 2004.
- Indiveri, G. Smart Adaptive Systems on Silicon: Neuromorphic Engineering 67-84, M. Valle (Eds.), Kluwer Academic Publishers, 2004
- I. Shcherback and O. Yadid-Pecht, "CMOS APS MTF Modeling", in O. Yadid-Pecht and R. Etienne-Cummings, CMOS Imagers: from Phototransduction to Image Processing, Kluwer Academic Publishers, Spring 2004.

- I. Shcherback and O. Yadid-Pecht, "Photoresponse Analysis and Pixel Shape Optimization for CMOS APS", in O. Yadid-Pecht and R. Etienne-Cummings, CMOS Imagers: from Phototransduction to Image Processing, Kluwer Academic Publishers, May 2004.
- A. Fish and O. Yadid-Pecht, "Active Pixel Sensor Design-from Pixels to Systems", in O. Yadid-Pecht and R. Etienne-Cummings, CMOS Imagers: from Phototransduction to Image Processing, Kluwer Academic Publishers, May 2004.

7. Honors

- a. Ralph Etienne-Cummings was honored with the 2003 Best Paper Award, EURASIP Journal of Applied Signal Processing, 2004. He was Appointed Associate Director for Education and Outreach, NSF Engineering Research Center on Computer Integrated Surgical Systems and Technology at Johns Hopkins University.

8. Publications

- A. van Schaik and S. Shamma, "A neuromorphic sound localizer for a smart MEMS system," Analog Integrated Circuits and Signal Processing, vol. 39, pp. 267-273, 2004.
- C. Jin, A. Corderoy, S. Carlile, and A. van Schaik, "Contrasting Monaural and Interaural Spectral Cues for Human Sound Localization," Journal of the Acoustical Society of America, vol. 151, pp. 3124-3141, 2004.
- T. Delbruck and A. van Schaik, "Bias Current Generators with Wide Dynamic Range," Analog Integrated Circuits and Signal Processing, vol. 42, 2005.
- V. Best, A. van Schaik, and S. Carlile, "Separation of Concurrent Broadband Sound Sources by Human Listeners," Journal of the Acoustical Society of America, vol. 151, pp. 324-336, 2004.
- V. Best, A. van Schaik, C. Jin, and S. Carlile, "Sharing Auditory Space: Sound Localization in the Presence of A Masker," Acta Acustica, Special Issue: Workshop on Spatial and Binaural Hearing, 2004.
- T. Delbruck and A. van Schaik, "Bias Current Generators With Wide Dynamic Range," presented at Proceedings of the IEEE International Symposium on Circuits and Systems, Vancouver, Canada, 2004.
- H. Shiraishi and A. van Schaik, "A 2-Dimensional Active Cochlear Model for Analog VLSI Implementation," presented at Proceedings of the IEEE International Symposium on circuits and Systems, Vancouver, Canada, 2004.
- A. Parthy, C. Jin and A. van Schaik, "Reverberation for Ambient Data Communication," presented at Proceedings of the 2004 International Conference on Auditory Display, Sydney, Australia, 2004.
- A. McEwan and A. van Schaik, "An Alternative Analog VLSI Implementation of the Meddis Inner Hair Cell Model," presented at Proceedings of the IEEE International Symposium on Circuits and Systems, Vancouver, Canada, 2004.
- A. Kan, G. Pope, A. van Schaik, and C. Jin, "Mobile Spatial Audio Telecommunication System." presented at Proceedings of the 2004 International Conference on Auditory Display, Sydney, Australia, 2004.
- C. Jin, J. Tan Tewoon Leung, A. Kan, D. Lin, A. van Schaik, K. Smith, and D.M. McGinity, "Real-time Head-tracked 3D Audio With Unlimited Simultaneous Sounds," presented at ICAD 05, Eleventh Meeting of the International Conference on Auditory Display, Limerick, Ireland, 2005.
- I. Voiculescu, M.E. Zaghoul, A. McGill, G. Fedder, "Electrically Actuated Resonant Microcantilever in CMOS Technology for Detection of Chemical Weapons" Accepted to appear in the IEEE Sensors Journal, Special Issue on Sensors for Prevention of Terrorist Acts.
- I. Voiculescu, M. Zaghoul, R.A. McGill, "Electrostatically Actuated Resonant Microcantilever in CMOS Technology for Gas Sensor Application", presented at the MEMS Alliances of Washington D.C. on MEMS in Homeland Security, March 2004.
- I. Voiculescu, M. Zaghoul, R.A. McGill, "Resonant Microcantilever Gas Sensor Fab in CMOS Technology for Gas Sensors", presented at Hilton Head Workshop, June 2004.
- S. Arnold, S.M. Prokes, M.E. Zaghoul, "Localized Growth of Silicon Nanowires for Enhanced Sensitivity of a Micro-Resonant Vapor Detection System", presented at the Nana Technology Alliance, Washington D.C., September, 2004.
- S. Ahmadi, F. Hassani, C. Korman, M. Rahman, and M. Zaghoul, "Characterization of Multilayer and Single Layer Structure SAW Sensor", to appear in IEEE Proceedings of IEEE-Sensors 2004, Vienna, October, 2004.
- M. Clapp and R. Etienne-Cummings, "Sensing Signal Input Bearing to a Sensor Array Using Velocity-Sensitive Spatiotemporal Filters," IEEE Electronics Letter, Vol. 40, No. 3, pp. 211-212, February 2004.
- V. Gruev and R. Etienne-Cummings, "A Pipelined Temporal Difference Imager," IEEE J. Solid-State Circuits, Vol. 39, No. 3, pp. 538-543, March 2004.

- R. Philipp and R. Etienne-Cummings, "A Single Chip Stereo Vision System" *Analog Integrated Circuits and Signal Processing Journal*, Vol. 7, pp. 703-712, July 2004.
- U. Mallik, E. Choi, M. Clapp, G. Cauwenberghs and R. Etienne-Cummings, "Temporal Change Threshold Detection Imager," accepted for *ISSCC'05 Digest of Technical Papers*, Vol. 48, Feb 2005.
- R. J. Vogelstein, U. Mallik, G. Cauwenberghs, E. Culurciello and R. Etienne-Cummings, "Saliency-Driven Image Acuity Modulation on a Reconfigurable Silicon Array of Spiking Neurons," accepted for *Proc. of Neural Information Processing Systems*, Vancouver, Canada, December 2004.
- F. Tenore, R. Etienne-Cummings and M.A. Lewis, "Entrainment of Silicon Central Pattern Generators for Legged Locomotory Control," *Proc. of Neural Information Processing Systems 16*, S. Thrun, L. Saul and B. Scholkopf (Eds.), MIT Press, Cambridge, MA, 2004.
- J. Vogelstein, U. Mallik, E. Culurciello, R. Etienne-Cummings and G. Cauwenberghs, "Spatial Acuity Modulation of an Address-Event Imager," *IEEE ICECS 2005*, Tel Aviv, Israel, December 2004.
- V. Gruev, T. Horiuchi and R. Etienne-Cummings, "Linear Current Mode Imager with Low Fix Pattern Noise" *IEEE ISCAS'04*, May 2004.
- V. Gruev, T. Horiuchi and R. Etienne-Cummings, "Active Pixel Sensor with On-Chip Normal Flow Computation on the Read-Out," *IEEE ICECS 2005*, Tel Aviv, Israel, December 2004.
- S. Mehta and R. Etienne-Cummings, "Normal Optical Flow Measurement on a CMOS APS Imager" *IEEE ISCAS'04*, Vancouver, Canada, May 2004.
- M. Clapp and R. Etienne-Cummings, "Bearing Angle Estimation For Sonar Micro-Array Using Analog VLSI Spatiotemporal Processing" *IEEE ISCAS'04*, Vancouver, Canada, May 2004.
- E. Culurciello and R. Etienne-Cummings, "Second Generation of High Dynamic Range, Arbitrated Digital Imager" *IEEE ISCAS'04*, Vancouver, Canada, May 2004.
- R. Philipp and R. Etienne-Cummings, "Low Power Current Rectifiers for Large-Scale Current-Mode Signal Processing" *IEEE ISCAS'04*, Vancouver, Canada, May 2004.
- R. Etienne-Cummings, M. A. Lewis and P. Pouliquen, "Color Segmentation, Histogramming and Object Recognition System," Patent Issued, October 2004.
- A. Fish and O. Yadid Pecht, "Adaptive Thresholding for Visual Attention and Tracking Systems", *Optical Engineering*, Vol. 43, Issue 6, pp. 1278-1279, June 2004.
- A. Belenky, A. Fish, S. Hamami, V. Milrud and O. Yadid-Pecht, "Method For Expanding the Dynamic Range of the Readout Integration Circuits for Uncooled Microbolometer Sensors", *Optical Engineering*, Vol. 43, Issue 6, pp. 1274-1275, June 2004.
- A. Fish, D. Akselrod, O. Yadid-Pecht, "A "Smart Sensor" for High Precision Image Centroid Computation Via Low Resolution Winner-Take-All Circuit in Conjunction With a Dynamic Element Matching Algorithm", *Analog Integrated Circuits and Signal Processing Journal*, Vol. 39, No. 3, pp. 251-266, June 2004.
- S. Diller, A. Fish, O. Yadid-Pecht, "Advanced output Chains for CMOS Image Sensors Based on an Active Column Sensor Approach-A Detailed Comparison", *Sensors & Actuators: A. Physical*, Vol. 116, Issue 2, pp. 304-311, October 2004.
- M. Herscovitz, O. Yadid-Pecht, "A Modified Multi-Scale Retinex Algorithm with an Improved Global Impression of Brightness for Wide Dynamic Range Pictures", *Machine Vision and Applications Journal*, Vol. 15, No. 4, pp. 220-228, October 2004.
- I. Shcherback, T. Danov, O. Yadid-Pecht, "A Comprehensive CMOS APS Crosstalk Study: Photoresponse Model, Technology and Design Trends", *IEEE Trans. on Elec. Dev.*, Vol. 51, No. 12, pp. 2033-2041, December 2004.
- E. Artyomov, O. Yadid-Pecht, "Practical, Computation Efficient High-Order Neural Network for Rotation and Shift Invariant Pattern Recognition", *International Journal on Information Theory and Applications*, Vol. 11, pp. 53-57, December 2004.
- T. Danov, I. Shcherback, O. Yadid-Pecht, "Study of CMOS APS Responsivity Enhancement: Ring Shaped Photodiode", *IEEE Trans. on Elec. Dev.*, Vol. 52, No. 1, pp. 126-129, January 2005.
- B. Maliatski, O. Yadid-Pecht, "Hardware Driven Adaptive K-Means Clustering for Real Time Video Imaging", *IEEE TCSVT*, Vol. 15, No. 1, pp. 164-166, January 2005.
- S. Hamami, L. Fleshel and O. Yadid-Pecht, "CMOS APS Imager Employing 3.3V 12 bit 6.3 MS/s Pipelined ADC", *Proc. IEEE ISCAS'04*, vol. IV, pp. 960-963, Vancouver, Canada, May 2004.

9. IEEE and Other Services

- a. Bing Sheu serves as Chair of Constitution & Bylaws Committee for CAS Society.

- b. Peter Szolgay served as Vice President of IEEE Hungary Section.
- c. Alessandro Rizzo served as Chair of the Nuclear and Plasma Science Society Chapter for Central and South Italy.
- d. Shih-Chii Liu serves as Secretary of Sensory Systems TC.
- e. Andre van Schaik served as Secretary IEEE, Joint CASS and SSCC, NSW chapter, Australia.
- f. M.E. Zaghoul is a member of CASS C&BL Committee and is Chair of IEEE-Fellow Committee for IEEE-Sensors Council.
- g. H.K. Kwan served as Past Chair, Neural Systems and Applications Technical Committee and is Chair, Digital Signal Processing Technical Committee and as a Panel Member of 2003-04 IEEE Circuits and Systems Society Outstanding Young Author Award.
- h. Ralph Etienne-Cummings serves on the Board of Governors; Reviewer: IEEE SJ, IEEE TCAS II, IEEE TNN, IEEE TRAA, IEEE TBME, IEEE IJSSC, NIPS, EWNS, ISCAS, Wiley, NSF, NIH, as a member of the Program Committee: ISSCC, SPIE, BIS, ISCAS, NIPS, COSI and as Guest Editor for Kluwer's AICSP Journal, Special Issue on Smart Sensors, July 2004.