

SiPS 2013 Technical Program

October 16 (Wednesday)

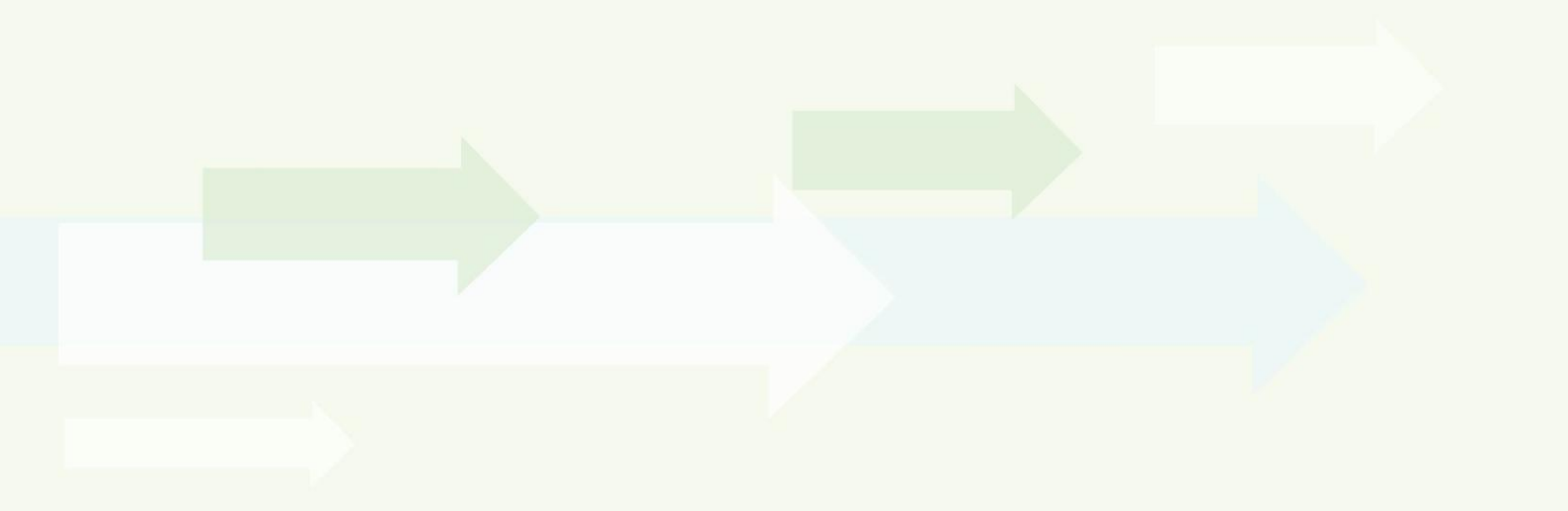
Session L1: Optimization of Wireless Communication Signal Processing Systems		
Time: Oct.16 09:50~11:10		
Session Chair: Cyrille Chavet, Lab-STICC, France		
Session ID	Paper ID	Topic/Author
L1-1	1060	Parameterized Core Functional Dataflow Graphs and Their Application to Design and Implementation of Wireless Communication Systems <i>Lai-Huei Wang, Chung-Ching Shen, Shuvra Bhattacharyya</i> University of Maryland, United States
L1-2	1093	Wireless Fading Communication System Performance Evaluations via SIRP and SDP Methods <i>Cheng-An Yang, Kung Yao, Ezio Biglieri</i> UCLA, United States
L1-3	1098	A Polar-Based Demapper of 8PSK Demodulation for DVB-S2 System <i>Anthony Barre{1}, Emmanuel Boutillon{1}, Neysser Blas{2}, Daniel Diaz{2}</i> {1} Lab-STICC, France; {2} INICTEL-UNI, Peru
L1-4	1037	Cracking the Complexity of Fixed-Point Refinement in Complex Wireless Systems <i>David Novo{1}, Irene Tzimi{3}, Ubaid Ahmad{2}, Paolo Ienne{1}, Francky Catthoor{2}</i> {1} EPFL, Switzerland; {2} IMEC, Belgium; {3} University of Patras, Greece

Session L2: Signal processing for communications		
Time: Oct. 16 11:10~12:30		
Session Chair: Chih-Peng Fan, National Chung Hsing University, Taiwan		
Session ID	Paper ID	Topic/Author
L2-1	1083	High-Resolution and Low-Cost Direction-of-Arrival Estimation by 2q-Root-Music Method <i>Yuta Shikagawa, Koichi Ichige</i> Yokohama National University, Japan
L2-2	1091	A Soft-Output Parallel Sack Algorithm for MIMO Detection <i>Zhi Yue, Guanghui He, Jiangpeng Li, Jun Ma, Zhigang Mao</i> Shanghai Jiao Tong University, China
L2-3	1039	High Speed Decoding of Non-Binary Irregular LDPC Codes Using GPUs <i>Moritz Beermann{1}, Enrique Monzó{2}, Laurent Schmalen{3}, Peter Vary{1}</i> {1} RWTH Aachen University, Germany; {2} Leineweber GmbH, Germany; {3} Bell Laboratories, Germany
L2-4	1022	Efficient Decision Feedback Blind Equalizer with Multi-Level Modulus Algorithm and Two-Stage Feedback Scheme for High-Order QAM Cable Receivers <i>Li Chen, Chih-Peng Fan</i> National Chung Hsing University, Taiwan

Session L3: Signal processing for biomedical and image applications		
Time: Oct 16 13:40~15:00		
Session Chair: Yin-Tsung Hwang, National Chung Hsing University, Taiwan		
Session ID	Paper ID	Topic/Author
L3-1	1043	A Pitch Based VAD Adopting Quasi-ANSI 1/3 Octave Filter Bank with 11.3 ms Latency for Monosyllable Hearing Aids <i>Yi-Cheng Huang, Yi Fanchiang, Shyh-Jye Jou</i> National Chiao Tung University, Taiwan
L3-2	1094	A Digital Microfluidic Processor for Biomedical Applications <i>Kelvin Yi-Tse Lai, Yu-Tao Yang, Gary Wang, Yi-Wen Lu, Chen-Yi Lee</i> National Chiao Tung University, Taiwan
L3-3	1084	Multi-Scale Image Compressed Sensing with Optimized Transmission <i>Saheed Olanigan, Lei Cao</i> The University of Mississippi, United States
L3-4	1034	Edge Curve Scaling and Smoothing with Cubic Spline Interpolation for Image Upscaling <i>Wei-Chen Wu, Tsun-Hsien Wang, Ching-Te Chiu</i> National Tsing Hua University, Taiwan

Session P1: Communication Signal Processing Systems & Applications		
Time: Oct 16 15:00~16:00		
Session Chairs: Mladen Berekovic, TU Braunschweig, Germany		
Min Li, Imec, leuven, Belgium		
Session ID	Paper ID	Topic/Author
P1-1	1068	Efficient Self-Correction Scheme for Static Non-Idealities in Nano-Scale Quadrature Digital RF Transmitters <i>Chunshu Li, Min Li, Mark Ingels, Xiaoqiang Zhang, Marian Verhelst, Sofie Pollin, Joris Van Driessche, Andre Bourdoux, Liesbet Van der Perre</i> IMEC, Leuven, Belgium
P1-2	1070	Cuboid Array: a Novel 3-D Array Configuration for High Resolution 2-D DOA Estimation <i>Hiroki Moriya^{1}, Yuki Doi^{1}, Koichi Ichige^{1}, Hiroyuki Arai^{1}, Takahiro Hayashi^{2}, Hiromi Matsuno^{2}, Masayuki Nakano^{2}</i> {1}Yokohama National University, Japan; {2}KDDI R&D Laboratories, Japan
P1-3	1071	Low-Cost Antenna Array via Antenna Switching for High Resolution 2-D DOA Estimation <i>Yuki Doi^{1}, Hiroki Moriya^{1}, Koichi Ichige^{1}, Hiroyuki Arai^{1}, Takahiro Hayashi^{2}, Hiromi Matsuno^{2}, Masayuki Nakano^{2}</i> {1}Yokohama National University, Japan; {2}KDDI R&D Laboratories, Japan
P1-4	1124	A Semi-Analytical Bivariate Gaussian Model of The Approximation Error Impact on The Min-Sum Ldpc Decoding Algorithm <i>Nikos Kanistras, Vassilis Paliouras</i> University of Patras, Greece

Session P1: Communication Signal Processing Systems & Applications Time: Oct 16 15:00~16:00 Session Chairs: Mladen Berekovic, TU Braunschweig, Germany Min Li, Imec, leuven, Belgium		
Session ID	Paper ID	Topic/Author
P1-5	1100	Iterative Source-Channel Decoding Design Using Distortion Based Index Assignment and Joint Redundant Information <i>Chun-Feng Wu, Wei-Ho Chung</i> Academia Sinica, Taiwan
P1-6	1097	A Method for Using Sub-Nyquist Sampling for Ultra Low-Power Positioning Systems <i>Tuba Ayhan{1}, Wim Dehaene{2}, Marian Verhelst{1}</i> {1}KU Leuven, Belgium; {2}KU Leuven, IMEC, Belgium
P1-7	1029	Designing a Low-Power Wireless Sensor Node RASIP Architecture <i>Jan Wagner, Rainer Buchty, Christian Schubert, Mladen Berekovic</i> TU Braunschweig, Germany
P1-8	1118	An Area and Energy Efficient Half-Row-Paralleled Layer LDPC Decoder for the 802.11ad Standard <i>Meng Li, Frederik Naessens, Peter Debacker, Praveen Raghavan, Claude Desset, Min Li, Antoine Dejonghe, Liesbet Vander Perre</i> IMEC, Belgium
P1-9	1036	High-Speed Conflict-Free Layered LDPC Decoder for the DVB-S2, -T2 and -C2 Standards <i>Cédric Marchand, Laura Conde-Canencia, Emmanuel Boutillon</i> Université de Bretagne-Sud, Lab-STICC, France
P1-10	1074	Design and Implementation of a High Throughput Soft Output MIMO Detector <i>Yin-Tsung Hwang, Yi-Yo Chen</i> National Chung Hsing University, Taiwan
P1-11	1048	An Efficient Compressive Wideband Spectrum Sensing Architecture for Cognitive Radios <i>Mohamed Shaban, Dmitri Perkins, Magdy Bayoumi</i> University of Louisiana at Lafayette, United States

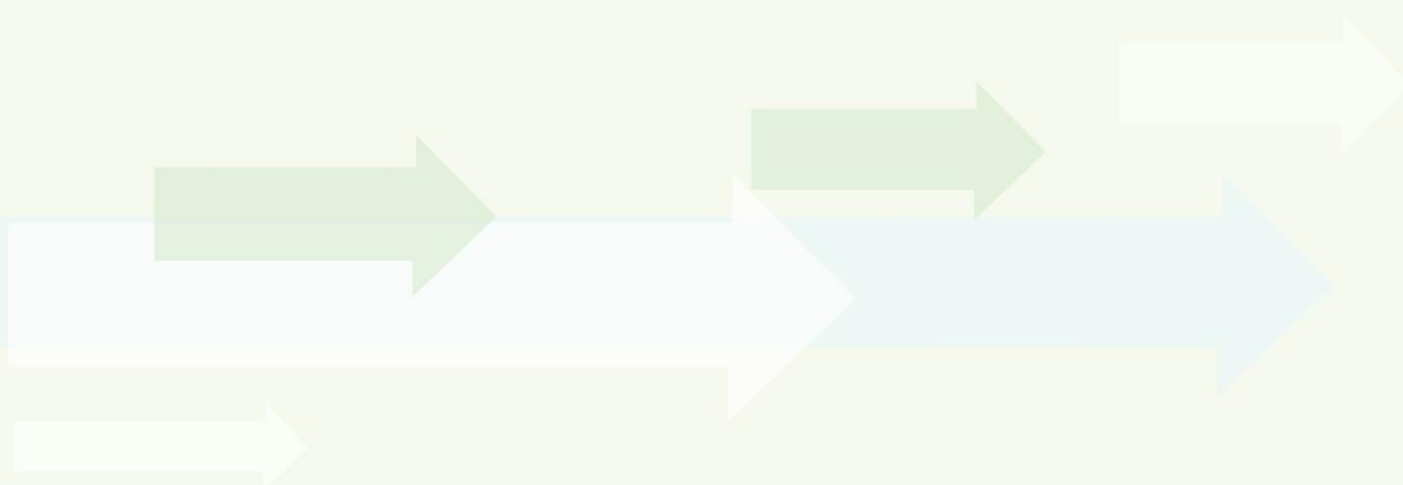


Session L4: VLSI/FPGA based Design and Implementation of Signal Processing Systems

Time: Oct 16 16:00~17:40 (five papers)

Session Chair: Lih-Jen Kau, National Taipei University of Technology, Taiwan

Session ID	Paper ID	Topic/Author
L4-1	1135	A New VLSI Architecture for 3D-DCT Video Compression System <i>Jeong Sung Park, Tokunbo Ogunfunmi</i> Santa Clara University, United States
L4-2	1136	High Performance Architecture for the Encoder of JPEG-Ls on SOPC Platform <i>Lih-Jen Kau, Shih-Wei Lin</i> National Taipei University of Technology, Taiwan
L4-3	1059	A 40-NM 54-MW 3×-Real-Time VLSI Processor for 60-KWORD Continuous Speech Recognition <i>Guangji He, Yuki Miyamoto, Kumpei Matsuda, Shintaro Izumi, Hiroshi Kawaguchi, Masahiko Yoshimoto</i> Kobe University, Japan
L4-4	1080	A New Dimension of Parallelism in Ultra High Throughput LDPC Decoding <i>Philipp Schläfer{1}, Norbert Wehn{1}, Matthias Alles{2}, Timo Lehnigk-Emden{2}</i> {1}University of Kaiserslautern, Germany; {2}Creonic GmbH, Germany
L4-5	1126	Inexpensive Correctly Rounded Floating-Point Division and Square Root with Input Scaling <i>Timo Viitanen, Pekka Jääskeläinen, Jarmo Takala</i> Tampere University of Technology, Finland



October 17 (Thursday)

Session L5: Multimedia System Design Flow and Applications Time: Oct 17 09:40~11:00 Session Chair: Chris Lee, National Cheng Kung University, Taiwan		
Session ID	Paper ID	Topic/Author
L5-1	1063	A Comparison of CABAC Throughput for HEVC/H.265 Vs. AVC/H.264 <i>Vivienne Sze, Madhukar Budagavi</i> Texas Instruments, United States
L5-2	1088	Algorithmic Complexity Analysis on Data Transfer Rate and Data Storage for Multidimensional Signal Processing <i>Gwo Giun Lee, Chun-Fu Chen, He-Yuan Lin</i> National Cheng Kung University, Taiwan
L5-3	1108	Partitioning and Optimization of High Level Stream Applications for Multi Clock Domain Architectures <i>Simone Casale Brunet^{1}, Endri Bezati^{1}, Claudio Alberti^{1}, Marco Mattavelli^{1}, Edoardo Amaldi^{2}, Jorn Janneck^{3}</i> ^{1} EPFL SCI STI MM, Switzerland; ^{2} Politecnico di Milano, Italy; ^{3} Lund University, Sweden
L5-4	1131	A Low-Power Video Recording System with H.264/AVC and Light-Weight Compression <i>Hyun Kim^{1}, Chae Eun Rhee^{2}, Hyuk-Jae Lee^{1}</i> ^{1} Seoul National University, Korea, South; ^{2} Inha University, Korea, South

Session L6: Design Methodology and tools for Signal Processing Systems Time: Oct 17 11:00~12:20 Session Chair: Emmanuel Boutillon, Lab-STICC, France		
Session ID	Paper ID	Topic/Author
L6-1	1078	Systematic Method to Convert Analog Filters to Digital Filters <i>Alexandru Lodin^{1}, Lacrimioara Grama^{1}, Corneliu Rusu^{1}, Jarmo Takala^{2}</i> ^{1} Technical University of Cluj-Napoca, Romania; ^{2} Tampere University of Technology, Finland
L6-2	1066	A Parallel Stochastic Computing System with Improved Accuracy <i>Lifeng Miao, Chaitali Chakrabarti</i> Arizona State University, United States
L6-3	1038	A Conflict-Free Memory Mapping Approach to Design Parallel Hardware Interleaver Architectures with Optimized Network and Controller <i>Aroua Briki, Cyrille Chavet, Philippe Coussy</i> Lab-STICC, France
L6-4	1128	Separable Beamforming for 3-D Synthetic Aperture Ultrasound Imaging <i>Ming Yang^{1}, Richard Sampson^{2}, Thomas Wenisch^{2}, Chaitali Chakrabarti^{1}</i> ^{1} Arizona State University, United States; ^{2} University of Michigan, United States

Session L7: Software based Design and Implementation of Signal Processing Systems

Time: Oct 17 13:40~15:00

Session Chair: Jarmo Takala, Tampere University of Technology, Finland

Yuan-Hao Huang, National Tsing Hua University, Taiwan

Session ID	Paper ID	Topic/Author
L7-1	1119	Soft-Core Stream Processor for Sliding Window Applications <i>Peng Wang, John McAllister</i> Queen's University Belfast, United Kingdom
L7-2	1040	Architecting an LTE Base Station with Graphics Processing Units <i>Qi Zheng{1}, Yajing Chen{1}, Ronald Dreslinski{1}, Chaitali Chakrabarti{2}, Achilleas Anastasopoulos{1}, Scott Mahlke{1}, Trevor Mudge{1}</i> {1}University of Michigan, United States; {2}Arizona State University, United States
L7-3	1129	Accelerating Motion Compensated Adaptive Color Doppler Engine on Cuda-Based GPU Platform <i>I-Hsuan Lee, Yu-Hao Chen, Nai-Shan Huang, An-Yeu Wu</i> National Taiwan University, Taiwan
L7-4	1096	Programmable Implementation of Zero-Crossing Demodulator on an Application Specific Processor <i>Amanullah Ghazi{1}, Jani Boutellier{1}, Jari Hannuksela{1}, Shahriar Shahabuddin{2}, Olli Silvén{1}</i> {1}Dept. of Computer Science and Engineering, University of Oulu, Finland; {2}Center for Wireless Communication, University of Oulu, Finland

Session P2: Multimedia/Biomedical Signal Processing Application Systems

Time: Oct 17 15:00~16:00

Session Yu-Cheng Fan, Nation Taipei University of Technology, Taiwan

Session ID	Paper ID	Topic/Author
P2-1	1061	A Real-Time Processing Flow for ICA Based EEG Acquisition System with Eye Blink Artifact Elimination <i>Kuan-Ju Huang, Jui-Chieh Liao, Wei-Yeh Shih, Chih-Wei Feng, Jui-Chung Chang, Chia-Ching Chou, Wai-Chi Fang</i> National Chiao Tung University, Taiwan
P2-2	1017	Fisblim: a Five-Step Blind Metric for Quality Assessment of Multiply Distorted Images <i>Ke Gu{1}, Guangtao Zhai{1}, Min Liu{1}, Xiaokang Yang{1}, Wenjun Zhang{1}, Xianghui Sun{2}, Wanhong Chen{2}, Ying Zuo{2}</i> {1}Shanghai Jiao Tong University, China; {2}China Film Archive
P2-3	1042	Fast Prediction Unit Selection for HEVC Fractional Pel Motion Estimation Design <i>Shiau-Yu Jou, Tian-Sheuan Chang</i> National Chiao Tung University, Taiwan

Session P2: Multimedia/Biomedical Signal Processing Application Systems Time: Oct 17 15:00~16:00 Session Yu-Cheng Fan, Nation Taipei University of Technology, Taiwan		
Session ID	Paper ID	Topic/Author
P2-4	1138	An Efficient Two Phase Image Interpolation Algorithm Based Upon Error Feedback Mechanism <i>Sunil Jaiswal{1}, Oscar Au{1}, Juhi Bhadviya{2}, Vinit Jakhetiya{1}, Yuan Yuan{1}, Anil Tiwari{3}</i> {1}HKUST, Hong Kong; {2}LNMIIT, India ; {3}IIT Jodhpur, India
P2-5	1064	Dynamic Programming Based Disparity Estimation Circuit Design for 3D Image System <i>Yu-Cheng Fan, Yan-Hong Jiang, Hung-Kuan Liu, Chieh-Lin Chen</i> Nation Taipei University of Technology, Taiwan
P2-6	1076	Evaluation of Different Audio Features for Musical Genre Classification <i>Babu Baniya, Deepak Ghimire, Joonwhoan Lee</i> Chonbuk National University, Korea, South
P2-7	1111	A New Image Quality Metric Based on Mix-Scale Transform <i>Min Liu{1}, Guangtao Zhai{1}, Ke Gu{1}, Qi Xu{1}, Xiaokang Yang{1}, Xianghui Sun{2}, Wanhong Chen{2}, Ying Zuo{2}</i> {1}Shanghai Jiao Tong University, China; {2}China Film Archive, China
P2-8	1049	A Gradient Intensity-Adapted Algorithm for the Fast Decision of H.264/AVC Intra-Prediction Modes <i>Lih-Jen Kau, Jia-Wei Leng,</i> National Taipei University of Technology, Taiwan
P2-9	1120	Spatial-Cue-Based Multi-Band Binaural Noise Reduction for Hearing Aids <i>Cheng-Yen Yang, Wen-Sheng Chou, Kuo-Chiang Chang, Chih-Wei Liu, Tai-Shih Chi, Shyh-Jye Jou,</i> National Chiao Tung University, Taiwan
P2-10	1058	A High Performance Foreground Detection Algorithm for Night Scenes <i>Tsung-Han Tsai, Chih-Chi Huang, Chen-Shuo Fan</i> National Central University, Taiwan
P2-11	1081	A New Method for Vehicle Detection Using MEXICANHAT Wavelet and Moment Invariants <i>Qian Tian{1}, Tengfei Zhong{2}, Hong Li{1}</i> {1}Southeast University, China; {2}Tianjin University, China
P2-12	1075	Reversible Data Hiding Scheme with High Embedding Capacity Using Semi-Indicator- Free Strategy <i>Jiann-Der Lee{1}, Yaw-Hwang Chiou{1}, Jing-Ming Guo{2}</i> {1}Chang Gung University, Taiwan; {2}National Taiwan University of Science and Technology
P2-13	1139	Enhancement of Speech Over Wireless Network Using Sinusoidal Modeling and Synthesis <i>Dhany Arifianto</i> Institut Teknologi Sepuluh Nopember, Indonesia

October 18 (Friday)

Session L8: Signal Processing to Rescue Moore's Law (I)		
Time: Oct 18 09:30~10:50		
Session Chair: Lei Wang, University of Connecticut, United States		
Session ID	Paper ID	Topic/Author
L8-1	1130	The SGC: a Simple Architecture for Gathering Statistics in Communication Links <i>Andrew Bean, Andrew Singer</i> University of Illinois at Urbana-Champaign, United States
L8-2	1107	Error-Resilient Systems via Statistical Signal Processing <i>Rami Abdallah{1}, Naresh Shanbhag{2}</i> {1}Intel, United States; {2}University of Illinois at Urbana-Champaign, United States
L8-3	1125	Signal Processing Techniques for Reliability Improvement of Sub-20nm NAND Flash Memory <i>Dong-Hwan Lee, Jonghong Kim, Wonyong Sung</i> Seoul National University, Korea, South
L8-4	1104	Signal Processing Challenges for Emerging Digital Intensive and Digitally Assisted Transceivers with Deeply Scaled Technology <i>Min Li, Khaled Khalaf, Chunshu Li, Vidojkovi Vojkan, Mark Ingels, Andre Bourdoux, Piet Wambacq, Jan Craninckx, Liesbet Van Der Perre</i> IMEC, Belgium

Session L9: Signal Processing to Rescue Moore's Law (II)		
Time: Oct 18 10:50~12:10		
Session Chair: Rami Abdallah, Intel, United States		
Session ID	Paper ID	Topic/Author
L9-1	1121	Hardware Specialization of Machine-Learning Kernels: Possibilities for Applications and Possibilities for the Platform Design Space <i>Kyong Ho Lee, Zhuo Wang, Naveen Verma</i> Princeton University, United States
L9-2	1122	Constructing Spare Sharing Networks for Reliability Enhancement of Scalable Systems <i>Soroush Khaleghi, Wenjing Rao</i> University of Illinois at Chicago, United States
L9-3	1027	ACO-Based Fault-Aware Routing Algorithm for Network-on-Chip Systems <i>Chia-An Lin, Hsien-Kai Hsin, En-Jui Chang, An-Yeu Wu</i> National Taiwan University, Taiwan
L9-4	1116	Error Resilient MRF Message Passing Architecture for Stereo Matching <i>Jungwook Choi, Eric P. Kim, Rob A. Rutenbar, Naresh Shanbhag,</i> University of Illinois at Urbana-Champaign, United States

Session P3: Optimization of Signal Processing Algorithms and Architectures Time: Oct 18 12:10~13:10 Session Chair: Bo-Cheng Lai, National Chiao Tung University, Taiwan		
Session ID	Paper ID	Topic/Author
P3-1	1142	Application of Multi-COMPARATIONAL Algorithms to Classification of Acoustic Emission Signals Generated by Partial Discharges <i>Tomasz Boczar, Dariusz Zmarzly, Sebastian Borucki, Andrzej Cichoń, Paweł Frącz, Paweł Kurtasz</i> Opole University of Technology, Poland
P3-2	1028	High-Performance Programs by Source-Level Merging of RVC-CAL Dataflow Actors <i>Jani Boutellier{1}, Amanullah Ghazi{1}, Olli Silvén{1}, Johan Ersfolk{2}</i> {1}University of Oulu, Finland; {2}Åbo Akademi University, Finland
P3-3	1056	Real Polynomial Form of Music for Uniform Linear Array <i>Xiang Cao{2}, Jingmin Xin{2}, Yoshifumi Nishio{1}</i> {1}The University of Tokushima, Japan; {2}Xi'an Jiaotong University, China
P3-4	1072	A New Fast Satellite Selection Algorithm for BDS-GPS Receivers <i>Fanchen Meng, Bocheng Zhu, Shan Wang</i> Peking University, China
P3-5	1113	Optimal Fixed-Point Fast Fourier Transform <i>Chun-Jen Wei{1}, Shu-Min Liu{1}, Sao-Jie Chen{1}, Yu-Hen Hu{2}</i> {1}National Taiwan University, Taiwan; {2}University of Wisconsin, Madison, United States
P3-6	1082	Optimal Data Allocation Algorithm for Loop-Centric Applications on Scratch-Pad Memories <i>Yibo Guo{2}, Qingfeng Zhuge{1}, Jun Zhang{1}, Jingtong Hu{3} Edwin Sha{2}</i> {1}Chongqing University, China; {2}University of Texas at Dallas, United States {3} Oklahoma State University, United States
P3-7	1099	Bit Matrix Transpose with Tensor Product and Perfect Shuffling <i>Jui-Chieh Lin, Yu Hen Hu</i> University of Wisconsin Madison, United States
P3-8	1132	Memory Capacity Aware Non-Blocking Data Transfer on GPGPU <i>Hao-Wei Liu, Hsien-Kai Kuo, Kuan-Ting Chen, Bo-Cheng Lai</i> National Chiao Tung University, Taiwan
P3-9	1069	Reliable Implementation of Linear Filters with Fixed-Point Arithmetic <i>Thibault Hilaire, Benoit Lopez</i> Pierre and Marie Curie University, UPMC (UPMC Paris 06), France
P3-10	1062	Partial Sums Generation Architecture for Successive Cancellation Decoding of Polar Codes <i>Guillaume Berhault, Camille Leroux, Christophe Jégo, Dominique Dallet</i> IMS laboratory, Institut Polytechnique De Bordeaux, France
P3-11	1086	Automated GATEWARE Discovery Using Open Firmware <i>Shanly Rajan{1}, Michael Inggs{1}, Marc Welz{2}</i> {1}University of Cape Town, South Africa; {2}Square Kilometer Array South Africa,

Session P3: Optimization of Signal Processing Algorithms and Architectures**Time: Oct 18 12:10~13:10****Session Chair: Bo-Cheng Lai, National Chiao Tung University, Taiwan**

Session ID	Paper ID	Topic/Author
		South Africa
P3-12	1106	Closed-Form Design of Maximally Flat FIR Fractional Delay Filters Using Interlaced Sampling Method <i>Peng-Hua Wang</i> National Taipei University, Taiwan

