

2010 International Conference on Green Circuits and Systems

(ICGCS 2010)

**Shanghai, China
21 – 23 June 2010**



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SESSION SCHEDULE

Plenary Session

Date & time: June 21, 2010, 8:30 – 10:10
Location: Regal Hall 5, 6, and 7
Chair: Dr. Yong Ching Lim, Nanyang Technological University
Dr. Zhigang Mao, Shanghai Jiaotong University

Opening of the conference

Keynote I: An EMI Reduction Methods Based on Nonlinear Dynamics
Speaker: Dr. Gianluca Setti, University of Ferrara

Special Session: Green Technologies for Reliable Circuits and Advanced Systems

Session Code: D1-AM2-R5
Session Type: Lecture
Date & Time: June 21, 2010, 10:50-12:30
Location: Regal 5
Chair: Dr. Lan Da Van, National Chiao Tung University

10:50-11:10	Green Design Techniques for RF Front-end Circuits Wu-Shiung Feng, <i>Chang Gung University</i> Hui-Chen Hsu, Chia-Hsun Chen, <i>Chang Gung University</i>	1
11:10-11:30	Green Energy Harvesting Technology in 3D IC Wei Wang, <i>State University Of New York</i> W.H. Teh, <i>Intel</i>	5
11:30-11:50	A Green FFT Processor with 2.5-GS/s for IEEE 802.15.3c (WPANs) Shen-Jui Huang, Sau-Gee Chen, <i>National Chiao Tung University</i>	9
11:50-12:10	Energy-Efficient 128~2048/1536-point FFT Processor with Resource Block Mapping for 3GPP-LTE System Sheng-Yeng Peng, Kai-Ting Shr, <i>National Tsing-Hua University</i> Chao-Ming Chen, Yuan-Hao Huang, <i>National Tsing-Hua University</i>	14
12:10-12:30	A Low Power Biomedical Signal Processing SoC Design for Portable Brain-Heart Monitor Systems Wai-Chi Fang, Chiu-Kuo Chen, <i>National Chiao Tung University</i> Chih-Chung Fu, Shao-Yen Tseng, <i>National Chiao Tung University</i> Shih Kang, <i>National Chiao Tung University</i> Ericson Chua, <i>Soc Design And System Integration Laboratory</i>	18

Special Session: Energy Constrained Signal Processing

Session Code: D1-AM2-R6

Session Type: Lecture

Date & Time: June 21, 2010, 10:50-12:30

Location: Regal 6&7

Chair: Dr. Yih-Fang Huang, University Of Notre Dame

10:50-11:10	A Low Power and Standard-Compliant RDO Motion Estimation Hardware Architecture for VBSME Xing Wen, <i>Hong Kong University of Science and Technology</i> Oscar Au, <i>Hong Kong University of Science and Technology</i> Lu Fang, <i>Hong Kong University of Science and Technology</i> Jiang Xu, <i>Hong Kong University of Science and Technology</i>	24
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Special Session: Low Power Design of Large Order DSP Systems

Session Code:D1-PM1-R5

Session Type: Lecture

Date & Time: June 21, 2010, 13:30-15:10

Location: Regal 5

Chair: Dr. Mrityun Chakraborty, Indian Institute Of Technology

13:10-13:50	A Low Complexity Realization of the Sign-LMS Algorithm Shakti Shankar Rath, <i>Texas Instruments, India</i> Mrityunjy Chakraborty, <i>Indian Institute Of Technology</i>	51
13:50-14:10	Area Efficient Time-shared FIR Filters in Nanoscale CMOS Navin Michael, <i>Nanyang Technological University</i> A.P Vinod, <i>Nanyang Technological University</i> Christophe Moy, <i>Supelec/IETR</i> Jacques Palicot, <i>Supelec/IETR</i>	54
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Special Session: Application of Numerical Optimization to Signal Processing

Session Code: D1-PM1-R6

Session Type: Lecture

Date & Time: June 21, 2010, 13:30-15:10

Location: Regal 6

Chair: Dr. Chang Zhi Wu, Chongqing Normal University

13:10-13:50	A Low-Complexity Method For the Design of Low-Delay Cosine-Modulated Filter Banks Chang Zhi Wu, <i>Chongqing Normal University</i>	69
13:50-14:10	A Multi-agent Differential Evolution for Linear Array Synthesis Chuanxin Zhao, <i>Suzhu University</i> Changzhi Wu, <i>Chongqing Normal University</i>	73
14:10-14:30	A Kind of Interval Combination Forecasting Method Based on IOWGA Operators Lihui Jiang, <i>Hefei University</i> Huayou Chen, <i>Anhui University</i>	77
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Special Session: Advances in Designing Robust Low Complexity Digital Systems

Session Code: D1-PM1-R7

Session Type: Lecture

Date & Time: June 21, 2010, 13:30-15:10

Location: Regal 7

Chair: Dr. Gang Li, Zhejiang University of Technology

13:10-13:50	A Canonical Representation of Input-Balanced Realizations for Discrete-Time Systems Shuping Zhu, <i>Zhejiang University Of Technology</i> Yue Wang, <i>Zhejiang University Of Technology</i> Gang Li, <i>Zhejiang University Of Technology</i> Chunru Wan, <i>Nanyang Technological University</i>	87
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Low Power Digital Circuits and VLSI Systems

Session Code: D1-PM2-R5

Session Type: Lecture

Date & Time: June 21, 2010, 15:30-17:30

Location: Regal 5

Chair: Dr. Yong Lian, National University of Singapore

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Lei Wang, Shenzhen Institutes Of Advanced Technology, Chinese Academy Of Sciences</i> | |
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Shih-Wen Chiu, Dept. of EE, National Tsing Hua University
Hsu-Chao Hao, Institute Of Nanoengineering And Microsystems, National Tsing Hua University
Shang-Chia Wei, Department Of Industrial Engineering And Engineering Management, National Tsing Hua University
Tai-Hsuan Lin, Institute Of Nanoengineering And Microsystems, National Tsing Hua University
Chia-Min Yang, Department Of Chemistry, National Tsing Hua University
Da-Jeng Yao, Institute Of Nanoengineering And Microsystems, National Tsing Hua University
Wei-Chang Yeh, Department Of Industrial Engineering And Engineering Management, National Tsing Hua University</i> | |
| 16:10-16:30 | Markov Clustering Based Placement Algorithm for Island-style FPGAs | 123 |
| | <i>Hui Dai, Tsinghua University
Qiang Zhou, Tsinghua University
Jinian Bian, Tsinghua University</i> | |
| 16:30-16:50 | Efficient IR Drop Analysis and Alleviation Methodologies Using Dual Threshold Voltages with Gate Resizing Techniques | 129 |
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Yap-Chung Phong, Feng-Chia University
Jiun-In Guo, National Chung-Cheng University</i> | |
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Leona Okamura, Waseda University
Mengshu Huang, Waseda University
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Special Session: Variable Fractional-Delay Filters

Session Code: D1-PM2-R6

Session Type: Lecture

Date & Time: June 21, 2010, 15:30-17:30

Location: Regal 6

Chair: Dr. Tian-Bo Deng, Toho University

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| | <i>Sorawat Chivapreecha, King Mongkut's Institute Of Technology Ladkrabang</i> | |
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| | <i>Su-Ling Lee, Chung-Jung Christian University</i> | |
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| | <i>Vesa Välimäki, Aalto University School Of Science And Technology, Dept. Of Signal Processing And Acoustics</i> | |
| | <i>Juhan Nam, Stanford University, Center For Computer Research In Music And Acoustics</i> | |
| | <i>Julius Smith, Stanford University, Center For Computer Research In Music And Acoustics</i> | |
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| 16:30-16:50 | Design of Complex Coefficient Variable Fractional-delay Allpass Filters by Eigenfilter Approach | 154 |
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| | <i>Cheng-Han Chan, Department Of Computer And Communication Engineering, National Kaohsiung First University Of Science</i> | |
| 16:50-17:10 | A Parallel Linear-Complexity Implementation Structure for Lagrange Interpolation | 158 |
| | <i>Andreas Franck, Fraunhofer IDMT</i> | |

Special Session: Advances in Noise Reduction Techniques

Session Code: D1-PM2-R7

Session Type: Lecture

Date & Time: June 21, 2010, 15:30-17:30

Location: Regal 7

Chair: Dr. Yuexian Zou, Peking University Shenzhen Graduate School
Dr. Jwu-Sheng Hu, National Chiao Tung University
Dr. Shing-Chow Chan, The University Of Hong Kong

15:30-15:50	Active Noise Control: Open Problems and Challenges Sen M. Kuo, <i>Northern Illinois University</i> Kevin Kuo, <i>Northern Illinois University</i> Woon Seng Gan, <i>Nanyang Technological University</i>	164
15:50-16:10	Active Noise Control for Motorcycle Helmets Kishan P. Raghunathan, <i>Northern Illinois University</i> Sen M Kuo, <i>Northern Illinois University</i> Woon-Seng Gan, <i>Nanyang Technological University</i>	170
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16:30-16:50	Spatially Pre-processed Target-to-Jammer Ratio Weighted Wiener Filter Using Two Microphones Ming-Tang Lee, <i>National Chiao Tung University</i> Jwu-Sheng Hu, <i>National Chiao Tung University</i>	180
16:50-17:10	Microphone Array Beamformer with Robust Spatial and Temporal Responses Zhu Liang Yu, <i>South China University Of Technology</i> Zhenghui Gu, <i>South China University Of Technology</i> Wee Ser, <i>Nanyang Technological University</i> Meng Hwa Er, <i>Nanyang Technological University</i>	186
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Plenary Session

Date & time: June 22, 2010, 8:30 – 10:10
Location: Regal Hall 5, 6, and 7
Chair: Dr. Yong Lian, National University of Singapore
Dr. Tor S. Lande, University of Oslo

Keynote Speech II: Distributed On-Demand Sensing and Estimation (DOSE)

Speaker: Dr. Yih-Fang Huang, University of Notre Dame

Keynote Speech III: Green Wireless Sensors Networks: An Integrated Design Paradigm

Speaker: Dr. Magdy A. Bayoumi, University of Louisiana at Lafayette

Special Session: Energy-Efficient Design Technologies for Real-Time Applications

Session Code: D2-AM2-R5

Session Type: Lecture

Date & Time: June 22, 2010, 10:50-12:30

Location: Regal 5

Chair: Dr. Youn-Long Lin, National Tsing Hua University

10:50-11:10	Application of Low Power Technologies on Video Codec VLSI Designs Kuo Huang-Chih, Wei-Cheng Hung, <i>National Tsing Hua University</i> Youn-Long Lin, <i>National Tsing Hua University</i>	196
11:10-11:30	Design of Energy-Aware Video Codec-Based System Sangkwon Na, Jungsoo Kim, Jaemoon Kim, Giwon Kim, Chong-Min Kyung, <i>KAIST</i>	201
11:30-11:50	A Clock-Controlled Self-Stabilized Voltage Technique with High Dynamic Power Reduction for Portable Multimedia Applications Cheng-An Chien, <i>National Chung-Cheng University</i> Ching-Hwa Cheng, <i>Feng-Chia University</i> Jiun-In Guo, <i>National Chung-Cheng University</i>	207
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12:10-12:30	Voltage and Frequency Island Optimizations for Many-Core/Networks-on-Chip Designs Wooyoung Jang, Duo Ding, <i>The University Of Texas At Austin</i> David Pan, <i>The University Of Texas At Austin</i>	217

Special Session: Advanced in Power Efficient Digital Filters

Session Code: D2-AM2-R6

Session Type: Lecture

Date & Time: June 22, 2010, 10:50-12:30

Location: Regal 6 & 7

Chair: Dr. Lars Wanhammar, Linköping University

- | | | |
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| 10:50-11:10 | Power Estimation of Recursive and Non-Recursive CIC Filters Implemented in Deep-Submicron Technology
Muhammad Abbas, <i>Linköping University</i>
Oscar Gustafsson, <i>Linköping University</i>
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| 11:10-11:30 | Low Power Sharpened Comb Decimation Filter
Gordana Jovanovic Dolecek, <i>INAOE</i> | 226 |
| 11:30-11:50 | Approaching Green Electronics: Power Efficient Arithmetic in Nano-scale CMOS
Peter Nilsson, <i>Lund University</i> | 230 |
| 11:50-12:10 | Performance Analysis of Different Special Moduli Sets for RNS-based Inner Product Step Processor
Bin Cao, <i>Seagate Technology International, Singapore</i>
Jeremy Yung Shern Low, <i>Nanyang Technological University</i>
Chip Hong Chang, <i>Nanyang Technological University</i>
Thambipillai Srikanthan, <i>Nanyang Technological University</i> | 236 |
| 12:10-12:30 | A New Formulation for the Design of FIR Filters with Reduced Hardware Implementation Complexity
Zhi Guo Feng, <i>Chongqing Normal University</i>
Ka Fai Yiu, <i>The Hong Kong Polytechnic University</i> | 242 |

Special Session: OFDM Systems

Session Code: D2-PM1-R5

Session Type: Lecture

Date & Time: June 22, 2010, 13:30-15:10

Location: Regal 5

Chair: Dr. See-May Phoong, National Taiwan University
Dr. Yuan Pei Lin, National Chiao Tung University

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|-------------|---|-----|
| 13:10-13:50 | Joint Estimation of Transmitter and Receiver I/Q Imbalances, CFO, and Channel Response for OFDM Systems
Yuan-Hwui Chung, <i>Electrical Engineering</i>
See-May Phoong, <i>Dept Of EE and Grad. Inst. Communication Engr.</i> | 247 |
| 13:50-14:10 | Iterative Correction of Frequency Response Mismatches in TIADCs: A Novel Framework and Case Study in OFDM Systems
K. M. Tsui, <i>The University Of Hong Kong</i>
S. C. Chan, <i>The University Of Hong Kong</i> | 253 |
| 14:10-14:30 | A Study on Reduced MLD Utilizing the QR Decomposition for MIMO Communication Systems
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An Liu, <i>Hiroshima University</i>
Shuichi Ohno, <i>Hiroshima University</i> | 259 |
| 14:30-14:50 | Maximizing Sum Rate of OFDM Transmission with Decode-and-Forward Relaying
Chih-Ning Hsu, <i>National Taiwan University</i>
Hsuan-Jung Su, <i>National Taiwan University</i>
Pin-Hsun Lin, <i>National Taiwan University</i> | 263 |
| 14:50-15:10 | Channel Estimation for OFDM Systems with Subspace Pursuit Algorithm
Wen-Rong Wu, <i>National Chiao-Tung University</i>
Ruey-Ching Chiueh, <i>National Chiao-Tung University</i>
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Special Session: Advances in Low-Complexity Digital Filtering

Session Code: D2-PM1-R6

Session Type: Lecture

Date & Time: June 22, 2010, 13:30-15:10

Location: Regal 6

Chair: Dr. Ljiljana Milic, University Of Belgrade

- | | | |
|-------------|---|-----|
| 13:10-13:50 | A Class of FRM-based All-pass Digital Filters with Applications in Half-band Filters and Hilbert Transformers
Ljiljana Milic, <i>University Of Belgrade</i>
Jelena Certic, <i>University Of Belgrade</i>
Miroslav Lutovac, <i>University Of Belgrade</i> | 273 |
| 13:50-14:10 | Design of Sparse Non-Periodic Narrow-Band and Wide-Band FRM-Like FIR Filters
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Oscar Gustafsson, <i>Linköping University</i>
Lars Wanhammar, <i>Linköping University</i> | 279 |
| 14:10-14:30 | Simplified Rotated Sinc (RS) Filter for Sigma-Delta A/D Converters
Gordana Jovanovic Dolecek, <i>INAOE</i> | 283 |
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Håkan Johansson, <i>Linköping University</i>
Tapio Saramäki, <i>Tampere University Of Technology</i>
Per Löwenborg, <i>Linköping University</i> | 289 |
| 14:50-15:10 | Efficient Linear-Phase Directional Filters with Selectable Centre Frequencies
Heinz G. Goeckler, <i>University Of Bochum</i>
Daniel Alfsmann, <i>University Of Bochum</i> | 293 |

Special Session: Networks-on-Chip

Session Code: D2-PM1-R7

Session Type: Lecture

Date & Time: June 22, 2010, 13:30-15:10

Location: Regal 7

Chair: Dr. Sao-Jie Chen, National Taiwan University

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|-------------|--|-----|
| 13:30-13:50 | Formal Modeling and Verification for Network-on-chip
Yean-Ru Chen, <i>National Taiwan University</i>
Wan-Ting Su, Pao-Ann Hsiung, <i>National Chung Cheng University</i>
Ying-Cherng Lan, <i>National Taiwan University</i>
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Wei Hwang, <i>Institute Of Electronics, National Chiao-Tung University</i> | 305 |
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Myong Hyon Cho, <i>Massachusetts Institute Of Technology</i>
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| 14:30-14:50 | ACO-Based Cascaded Adaptive Routing for Traffic Balancing in NoC Systems
En-Jui Chang, <i>National Taiwan University</i>
Chih-Hao Chao, Kai-Yuan Jheng, <i>Graduate Institute Of Electronics Engineering, National Taiwan University</i>
Hsien-Kai Hsin, <i>Graduate Institute Of Electronics Engineering, National Taiwan University</i>
An-Yeu Wu, <i>Graduate Institute Of Electronics Engineering, National Taiwan University</i> | 317 |
| 14:50-15:10 | Performance Evaluation of On-Chip Sensor Network (SENoC) in MPSoC
Yao Wang, <i>Tsinghua University</i>
Yu Wang, <i>Tsinghua University</i>
Jiang Xu, <i>Hong Kong University of Science and Technology</i>
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Circuits and Systems for Communications

Session Code: D2-PM2-R5

Session Type: Lecture

Date & Time: June 22, 2010, 15:30-17:30

Location: Regal 5

Chair: Xiaoqiang Ma, Shanghai Jiao Tong University

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Ping-Yuan Tsai, <i>National Chiao-Tung University</i>
Jui-Yuan Yu, <i>National Chiao-Tung University</i>
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| 16:10-16:30 | Smart Antenna Performance and Complexity for Estimated Rician Fading with Correlated Azimuth Spread and K-Factor | 338 |
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Yoshikazu Miyanaga, <i>Hokkaido University</i>
Steven Blostein, <i>Queen's University</i> | |
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Manuel Delgado-Restituto, <i>Institute Of Microelectronics Of Seville</i>
Ángel Rodríguez-Vázquez, <i>Institute Of Microelectronics Of Seville</i> | |
| 16:50-17:10 | Spectrum Allocation Algorithm in Cognitive Ad-Hoc Networks with high energy efficiency | 349 |
| | Li Yu, <i>Huazhong Univ Sci&Technol, Elect&Informat Engn Dept</i>
Cong Liu, <i>Huazhong Univ Sci&Technol, Elect&Informat Engn Dept</i>
Wenyu Hu, <i>Huazhong Univ Sci&Technol, Elect&Informat Engn Dept</i> | |

Special Session: Energy Efficient Signal Processing Algorithm Design and Implementation

Session Code:D2-PM2-R6

Session Type: Lecture

Date & Time: June 22, 2010, 15:30-17:30

Location: Regal 6

Chair: Dr. Cedric Yiu, The Hong Kong Polytechnic University

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17:10-17:30	Textile Fabric Flaw Detection Using Singular Value Decomposition Kai Ling Mak, <i>The University Of Hong Kong</i> X. Wen Tian, <i>The University Of Hong Kong</i>	381

Special Session: Optimization and Network Information Security

Session Code: D2-PM2-R7

Session Type: Lecture

Date & Time: June 22, 2010, 15:30-17:30

Location: Regal 7

Chair: Dr. Wu Liu, Tsinghua University

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|-------------|---|-----|
| 15:30-15:50 | Weakness Analysis and Attack Test for WLAN
Wu Liu, <i>Tsinghua University</i>
Haixin Duan, <i>Network Reseach Center, Tsinghua University</i>
Ping Ren, <i>Network Reseach Center, Tsinghua University</i>
Jianping Wu, <i>Network Reseach Center, Tsinghua University</i> | 387 |
| 15:50-16:10 | Optimal Design of FRM-Based FIR filters by Using Hybrid Taguchi Genetic Algorithm
Wanmei Tang, <i>Chongqing Normal University</i>
Tian Shen, <i>School of Electrical And Electronic Engineering, Nanyang Technology University, Singapore</i> | 392 |
| 16:10-16:30 | A New Technique for Global Optimization Methods
Zhiyou Wu, <i>University Of Ballarat</i> | 398 |
| 16:30-16:50 | A Light-weighted Extension of Anonymous Communications in IPv6 Network
Jia Zhang, <i>Tsinghua University</i>
Haixin Duan, <i>Tsinghua University</i>
Wu Liu, <i>Tsinghua University</i>
Jianping Wu, <i>Tsinghua University</i> | 404 |
| 16:50-17:10 | Quadratic Smoothing Approximation to 1/2-order Exact Penalty Function
Fusheng Bai, <i>University Of Ballarat</i>
Zhiyou Wu, <i>University Of Ballarat</i> | 409 |
| 17:10-17:30 | The Growing Model of Botnet
Xuefeng Li, <i>Tsinghua University</i>
Haixin Duan, <i>Department Of Computer Science And Technology, Tsinghua University</i>
Wu Liu, <i>Department Of Computer Science And Technology, Tsinghua University</i>
Jianping Wu, <i>Department Of Computer Science And Technology, Tsinghua University</i> | 414 |

Low Power Analog Circuits

Session Code: D3-AM1-R5

Session Type: Lecture

Date & Time: June 23, 2010, 8:30-10:10

Location: Regal 5

Chair: Dr. Tor S. Lande, University of Oslo

- | | | |
|------------|--|-----|
| 8:30-8:50 | Analyze and Design 10-GHz 0.8-VDD -117dBc/Hz Quadrature LC-VCO in 120nm CMOS Technology
Bangli Liang, <i>Carleton University</i>
Dianyong Chen, <i>Carleton University</i>
Haizheng Guo, <i>Carleton University</i>
Bo Wang, <i>Carleton University</i>
Tad Kwasniewski, <i>Carleton University</i>
Zhigong Wang, <i>Southeast University</i> | 420 |
| 8:50-9:10 | A Wide Input Range Pipelined ADC without Rail-to-rail Opamp
Yajie Qin, <i>Fudan University</i>
Bo Lu, <i>Department Of Microelectronics, Fudan University</i>
Qihui Chen, <i>Department Of Microelectronics, Fudan University</i>
Svante Signell, <i>Cos, The Royal Institute Of Technology, Sweden</i> | 424 |
| 9:10-9:30 | A Low Voltage and Low Ground Current Low-Dropout Regulator with Transient Enhanced Circuit for SoC
Jia Hui Wang, <i>National Cheng Kung University</i>
Sheng-Wen Lai, <i>Department Of Electrical Engineering, National Cheng Kung University</i> | 428 |
| 9:30-9:50 | Low Power FSK Demodulation using Analogue Signal Processing
Yannick Maret, <i>ABB Switzerland Ltd.</i>
Clément Bernard, <i>ABB Switzerland Ltd.</i>
Richard Bloch, <i>ABB Switzerland Ltd.</i>
Daniel Schrag, <i>ABB Switzerland Ltd.</i> | 432 |
| 9:50-10:10 | A Low Noise Bandpass Neuro-Amplifier with Adjustable Bandwidth for Bio-Medical Applications
Cheng Liu, <i>University Of Wisconsin-Stout</i>
Jian Chang, <i>Texas Instruments</i> | 438 |

Special Session: Computationally Efficient Algorithms for Multimedia Processing, Visualization and Communications

Session Code: D3-AM1-R6

Session Type: Lecture

Date & Time: June 23, 2010, 8:30-10:10

Location: Regal 6

Chair: Dr. Susanto Rahardja, Institute of InfoComm Research

- | | | |
|------------|---|-----|
| 8:30-8:50 | An Efficient Video Signature & Bitmap Indexing Algorithm for Video Copy Detection | 442 |
| | Lekha Chaisorn, Huili Tan, <i>Institute For Infocomm Research</i>
Yongwei Zhu, <i>Institute For Infocomm Research</i>
Tian Shiang Kok, <i>Institute For Infocomm Research</i> | |
| 8:50-9:10 | Smart Swap for More Efficient Clustering | 446 |
| | Jinhua Chen, <i>University Of Eastern Finland</i>
Qinpei Zhao, <i>University Of Eastern Finland</i>
Pasi Fränti, <i>University Of Eastern Finland</i> | |
| 9:10-9:30 | Image Denoising Using Context Quantization and Local Linear Regression | 451 |
| | Wen Tian, <i>Huazhong University Of Science And Technology</i>
Minjie Chen, <i>Unverisity Of East Finland</i>
Mantao Xu, <i>Shanghai Dianji University</i>
Pasi Franti, <i>Unverisity Of East Finland</i>
Hongyuan Wang, <i>Huazhong University Of Science And Technology</i> | |
| 9:30-9:50 | VLIW Architecture Optimization for an Efficient Computation of Stereoscopic Video Applications | 457 |
| | Guillermo Paya-Vaya, <i>Leibniz University Of Hannover</i>
Javier Martin-Langerwerf, <i>Leibniz University Of Hannover</i>
Christian Banz, <i>Leibniz University Of Hannover</i>
Florian Gieseemann, <i>Leibniz University Of Hannover</i>
Peter Pirsch, <i>Leibniz University Of Hannover</i>
Holger Blume, <i>Leibniz University Of Hannover</i> | |
| 9:50-10:10 | Robust Outdoor Human Segmentation Based on Color-based Statistical Approach and Edge Combination | 463 |
| | Punnarai Siricharoen, <i>Chulalongkorn University</i>
Supavadee Aramvith, <i>Chulalongkorn University</i>
Thanarat Chalidabhongse, <i>KMITL</i>
Supakorn Siddhichai, <i>NECTEC</i> | |

Green Power Systems and Power Electronic Circuits

Session Code: D3-AM1-R7

Session Type: Lecture

Date & Time: June 23, 2010, 8:30-10:10

Location: Regal 7

Chair: Dr. Guoxing Wang, Shanghai Jiao Tong University

- | | | |
|------------|---|-----|
| 8:30-8:50 | Integrated Circuits Towards Reducing E-Waste: Future Design Directions
Torsten Lehmann, <i>The University Of New South Wales</i>
Tara Hamilton, <i>The University Of New South Wales</i> | 469 |
| 8:50-9:10 | A New Energy Management Approach for User-Centric Applications
Vasily Moshnyaga, <i>Fukuoka University</i> | 473 |
| 9:10-9:30 | A Novel Decoupling Component for the Power Distribution Network
Hirokazu Tohya, <i>ICAST Inc.</i>
Notitaka Toya, <i>ICAST Inc.</i> | 479 |
| 9:30-9:50 | Supplying a Brushless DC Motor by Z-Source PV Power Inverter with FL-IC MPPT
Seyed Hossein Hosseini, <i>Islamic Azad University, Bonab Branch</i>
Saeid Danyali, <i>University Of Tabriz</i>
Farzam Nejabatkhah, <i>University Of Tabriz</i>
Khalegh Mozafari Niapoor, <i>University Of Tabriz</i> | 485 |
| 9:50-10:10 | Optimization of a High Gate Trench MOS Process
Zhongfei Shan, <i>Shanghai Jiao Tong University</i>
Guoxing Wang, <i>Shanghai Jiao Tong University</i>
Yongxin Zhu, <i>Shanghai Jiao Tong University</i>
Guoguang Rong, <i>Shanghai Jiao Tong University</i> | 491 |

Special Session: Low Power Regulators and Mixed-signal Techniques

Session Code: D3-AM2-R5

Session Type: Lecture

Date & Time: June 23, 2010, 10:50-12:30

Location: Regal 5

Chair: Dr. Bin-Da Liu, National Cheng Kung University

- | | | |
|-------------|--|-----|
| 10:50-11:10 | Behavior Model for Comparator-Based Switched-Capacitor SDM with Relaxed DEM Timing | 495 |
| | <i>I-Jen Chao, National Cheng Kung University</i>
<i>Chung-Lun Hsu, National Cheng Kung University</i>
<i>Bin-Da Liu, National Cheng Kung University</i>
<i>Chun-Yueh Huang, National University Of Tainan</i>
<i>Soon-Jyh Chang, National Cheng Kung University</i> | |
| 11:10-11:30 | Adaptive Minimum Supply Voltage for Subthreshold Circuits Considering Noise Margin and PT Variations | 499 |
| | <i>Shien-Chun Luo, National Cheng Kung University</i>
<i>Lih-Yih Chiou, National Cheng Kung University</i> | |
| 11:30-11:50 | Design of a Wide Input Range DC-DC Converter with Switched-Capacitor Technique | 504 |
| | <i>Ming-Hsien Shih, National Cheng Kung University</i>
<i>Chia-Ling Wei, National Cheng Kung University</i> | |
| 11:50-12:10 | A High PSR over Wideband Frequency Range Low Dropout Voltage Regulator | 508 |
| | <i>Huei Sheng Jhuang, National Cheng Kung University</i>
<i>Jia-Hui Wang, National Cheng Kung University</i>
<i>Chien-Hung Tsai, National Cheng Kung University</i> | |
| 12:10-12:30 | An Output Buffer with Slew-Rate Calibration for Different TFT-LCD Loadings | 512 |
| | <i>Chun-Chi Yeh, National Cheng Kung University</i>
<i>Jia-Hui Wang, National Cheng Kung University</i>
<i>Chien-Hung Tsai, National Cheng Kung University</i> | |

Special Session: Signal Processing Techniques for Green Multimedia Systems

Session Code: D3-AM2-R6

Session Type: Lecture

Date & Time: June 23, 2010, 10:50-12:30

Location: Regal 6

Chair: Dr. Yoshikazu Miyanaga, Hokkaido University

Dr. Canhui Cai; Huaqiao University

- | | | |
|-------------|--|-----|
| 10:50-11:10 | An Analysis of TZ Search Algorithm in JMVC
Xiuli Tang, <i>Huaqiao University</i>
Shengkui Dai, <i>Huaqiao University</i>
Canhui Cai, <i>Huaqiao University</i> | 516 |
| 11:10-11:30 | Green Cooperative Communication Using Threshold-Based Relay Selection Protocols
Viet-Anh Le, <i>Queens University</i>
Renaud-Alexandre Pitaval, <i>Queens University</i>
Steven Blostein, <i>Queens University</i>
Taneli Riihonen, <i>Technical Univ. Of Helsinki</i>
Risto Wichman, <i>Technical Univ. Of Helsinki</i> | 521 |
| 11:30-11:50 | Raptor-Network Coding Strategies for Energy Efficient Cooperative DVB-H Multimedia Communications
Lucien Benacem, <i>Queens University</i>
Steven Blostein, <i>Queens University</i> | 527 |
| 11:50-12:10 | Improvement on Error Concealment for H.264 Spatial Scalable Video Coding
Simon Jude Q. Lam, <i>Chulalongkorn University</i>
Rhandley D. Cajote, <i>Chulalongkorn University</i>
Supavadee Aramvith, <i>Chulalongkorn University</i> | 533 |
| 12:10-12:30 | A Green Computation H.264/AVC Encoder with Reconfigurable Motion Estimation
Tsung-Han Tsai, <i>National Central Univ.</i>
Yu-Nan Pan, <i>Dept. Of E. E., National Central Univ.</i>
Zong-Hui Hou, <i>Dept. Of E. E., National Central Univ.</i> | 539 |

Special Session: Digital Signal Processing for Green Power Systems and Delivery

Session Code: D3-AM2-R7

Session Type: Lecture

Date & Time: June 23, 2010, 10:50-12:30

Location: Regal 7

Chair: Dr. Shing-Chow Chan, The University of Hong Kong

10:50-11:10	Tracking of Voltage Flicker in Power Distribution Systems: A Local Polynomial Modelling Approach Zhiguo Zhang, <i>The University Of Hong Kong</i> Shing-Chow Chan, <i>The University Of Hong Kong</i>	543
11:10-11:30	Modeling of Electricity Prices Yunhe Hou, <i>The University Of Hong Kong</i> Yang He, <i>The University Of Hong Kong</i>	549
11:30-11:50	Wind Power Forecasting and Integration to Power Grids Jin Zhong, <i>Univ. Of Hong Kong</i> Felix F Wu, <i>Univ. Of Hong Kong</i>	555
11:50-12:10	Fault Diagnosis Based on Fault Recorder Data and Temporal Constraint Network in HV Transmission System Ling Yue, <i>South China University Of Technology</i> Zhiwei Liao, <i>South China University Of Technology</i> Shaoxian Huang, <i>South China University Of Technology</i>	561
12:10-12:30	Harmonic Analysis of Power System Signals Using A New Regularized Adaptive Windowed Lomb Periodogram Zhiguo Zhang, <i>The University Of Hong Kong</i> Shing-Chow Chan, <i>The University Of Hong Kong</i>	567

Special Session: 3D Green Circuits

Session Code: D3-PM1-R5

Session Type: Lecture

Date & Time: June 23, 2010, 13:30-15:10

Location: Regal 5

Chair: Dr. Huazhong Yang, Tsinghua University
Dr Yu Wang, Tsinghua University

- | | | |
|-------------|---|-----|
| 13:10-13:50 | Simulation and Analysis of Power Ground Noise in TSV based 3D MPSoC | 573 |
| | Shuai Tao, <i>Tsinghua University</i>
Yu Wang, <i>Tsinghua University</i>
Jiang Xu, <i>Hong Kong University of Science and Technology</i>
Yuchun Ma, <i>Tsinghua University</i>
Yuan Xie, <i>PSU</i>
Huazhong Yang, <i>Tsinghua University</i> | |
| 13:50-14:10 | Thermal Effects of Leakage Power in 3D ICs | 578 |
| | Yuchun Ma, <i>Tsinghua University</i>
Kan Wang, <i>Tsinghua University</i>
Sheqin Dong, <i>Tsinghua University</i>
Yu Wang, <i>Tsinghua University</i>
Xianlong Hong, <i>Tsinghua University</i> | |
| 14:10-14:30 | Through-Silicon Via Planning in 3D Fixed-Outline Floorplanning | 584 |
| | Ming-Chao Tsai, <i>National Tsing Hua University</i>
Ting-Chi Wang, <i>National Tsing Hua University</i>
Tingting Hwang, <i>National Tsing Hua University</i> | |
| 14:30-14:50 | Thermal Analysis Experiences of a Tri-Core SoC System | 589 |
| | Chiao-Ling Lung, <i>National Tsing Hua University</i>
Yi-Lun Ho, <i>Dept. Of Computer Science, National Tsing Hua University</i>
Shih-Hsiu Huang, <i>Dept. Of Computer Science, National Tsing Hua University</i>
Chen-Wei Hsu, <i>Dept. Of Electrical Engineering, National Tsing Hua University</i>
Jia-Lu Liao, <i>Dept. Of Electrical Engineering, National Tsing Hua University</i>
Si-Yu Huang, <i>Dept. Of Electrical Engineering, National Tsing Hua University</i>
Shih-Chieh Chang, <i>Dept. Of Computer Science, National Tsing Hua University</i> | |

Signal Processing and VSLI Implementation for Multimedia

Session Code: D3-PM1-R6

Session Type: Lecture

Date & Time: June 23, 2010, 13:30-15:10

Location: Regal 6

Chair: Dr. Yoshikazu Miyanaga, Hokkaido University
Dr. Chien-Cheng Tseng, National Kaohsiung First University Of Science And Technology

- 13:10-13:50 **An Efficient Architecture of Multiple 8x8 Transforms for H.264/AVC and VC-1 Decoders** 595
Yi-Chih Chao, *National Cheng Kung University*
Shih-Tse Wei, *National Cheng Kung University*
Chia-Hung Kao, *National Cheng Kung University*
Bin-Da Liu, *National Cheng Kung University*
Jar-Ferr Yang, *National Cheng Kung University*
- 13:50-14:10 **Low Power and Low EM Emission DRAM Memory Interface for HD Video Recording in Mobile Devices** 599
Tsunwai Gary Yip, *Rambus Inc*
Deborah Dressler, *Rambus Inc.*
Brian Tsang, *Rambus Inc.*
Adrian Torres, *Rambus Inc.*
Philip Yeung, *Rambus Inc.*
- 14:10-14:30 **Lossless Bit-plane Compression of Images with Context Tree Modeling** 605
Minjie Chen, *University of Eastern Finland*
Pasi Fränti, *University of Eastern Finland*
Mantao Xu, *Shanghai Dianji University*
- 14:30-14:50 **Ultra Low Bit Rate Video Coding for Surveillance Systems** 611
Muchen Li, *Waseda University*
Xin Jin, *Waseda University*
Goto Satoshi, *Waseda University*
- 14:50-15:10 **Acceleration of Pedestrian Detection Algorithm on Novel C2RTL HW/SW Co-design Platform** 615
Yi Hao Zhu, *Tsinghua University*
Pei Zhang, *Y Explorations, Inc.*
Yongpan Liu, *Dept. of EE, Tsinghua University*
Daming Zhang, *Dept. of EE, Tsinghua University*
Shuangchen Li, *Dept. of EE, Tsinghua University*

Special Session: Learning-based Adaptive Processing and Green Applications

Session Code: D3-PM1-R7

Session Type: Lecture

Date & Time: June 23, 2010, 13:30-15:10

Location: Regal 7

Chair: Dr. Xi Zhi Shi, Shanghai Jiao Tong University

- | | | |
|-------------|---|-----|
| 13:10-13:50 | Learning the Local Molecular Pattern of Alzheimer's Disease by Non-negative Matrix Factorization | 621 |
| | <i>Wei Kong, Shanghai Maritime University</i> | |
| | <i>Xiaoyang Mou, Harvard Medical School</i> | |
| | <i>Qiao Li, Shanghai Maritime University</i> | |
| 13:50-14:10 | Sparse Representation for Weed Seeds Classification | 626 |
| | <i>Ming Zhang, Northwest A&F University</i> | |
| | <i>Cheng Cai, Northwest A&F University</i> | |
| | <i>Junping Zhu, Northwest A&F University</i> | |
| 14:10-14:30 | A Survey of Semi-blind ICA for Speech Separation in Frequency Domain | 632 |
| | <i>Qihua Lin, Dalian University Of Technology</i> | |
| | <i>Yingguang Hao, Dalian University Of Technology</i> | |
| 14:30-14:50 | Signal Processing for Fish Monitoring System of Net-cage in Deep Water Based on LabVIEW | 637 |
| | <i>Xiaomei Xu, Xiamen University</i> | |
| | <i>Xiao-Kang Zhang, Xiamen University</i> | |
| | <i>Lun-Hao Zhang, Xiamen University</i> | |

Special Session: Circuits & Systems for Energy-Harvesting Applications

Session Code: D3-PM2-R5

Session Type: Lecture

Date & Time: June 23, 2010, 15:30-17:30

Location: Regal 5

Chair: Dr. Huazhong Yang, Tsinghua University
Dr. Xiaojun Guo, Shanghai Jiao Tong University

- | | | |
|-------------|---|-----|
| 15:30-15:50 | Efficient Solar Power Scavenging and Utilization in Mobile Electronics System
Pei He, <i>Shanghai Jiao Tong University</i>
Qingyu Cui, <i>Shanghai Jiao Tong University</i>
Xiaojun Guo, <i>Shanghai Jiao Tong University</i> | 641 |
| 15:50-16:10 | A Compare-and-write Ferroelectric Nonvolatile Flip-Flop for Energy-Harvesting Applications
Jue Wang, <i>Tsinghua University</i>
Yongpan Liu, <i>Tsinghua University</i>
Huazhong Yang, <i>Tsinghua University</i>
Hui Wang, <i>Tsinghua University</i> | 646 |
| 16:10-16:30 | A Three-dimension Localization Algorithm for Wireless Sensor Network Nodes Based on SVM
Ruohong Huan, <i>Zhejiang University Of Technology</i>
Qingzhang Chen, <i>College Of Computer Science And Technology, Zhejiang University Of Technology</i>
Keji Mao, <i>College Of Computer Science And Technology, Zhejiang University Of Technology</i>
Yun Pan, <i>Institute Of VLSI Design, Zhejiang University</i> | 651 |
| 16:30-16:50 | Risk Management in Smart Civil Infrastructures
Xiaohui Cheng, <i>Tsinghua University</i>
Hong-Xian Guo, <i>Tsinghua University</i>
Yong-Pan Liu, <i>Tsinghua University</i>
Hua-Zhong Yang, <i>Tsinghua University</i> | 655 |

Special Session: Smart Vehicle Imaging Systems

Session Code: D3-PM2-R6

Session Type: Lecture

Date & Time: June 23, 2010, 15:30-17:30

Location: Regal 6

Chair: Dr. Pei-Yung Hsiao, National University of Kaohsiung

- | | | |
|-------------|---|-----|
| 15:30-15:50 | Occupant Classification for Smart Airbig Using Bayesian Filtering
Shih-Shinh Huang, <i>National Kaohsiung First University Of Science And Technology</i>
Pei-Yung Hsiao, <i>National University of Kaohsiung</i> | 660 |
| 15:50-16:10 | Image-Based Vehicle Tracking and Classification on the Highway
Shih-Shinh Huang, <i>National Kaohsiung First University Of Science And Technology</i>
Chien-Cheng Tseng, <i>National Kaohsiung First University Of Science And Technology</i>
Jin-Cyuan Lai, <i>National Kaohsiung First University Of Science And Technology</i> | 666 |
| 16:10-16:30 | Adaptive Filter Based on TDBLMS Algorithm for Image Noise Cancellation
Chuen-Yau Chen, <i>National University Of Kaohsiung</i>
Chih-Wen Hsia, <i>National University Of Kaohsiung</i> | 671 |
| 16:30-16:50 | Construction of Constrained Multi-Bit Flip-Flops for Clock Power Reduction
Jin-Tai Yan, <i>Chung-Hua University</i>
Zhi-Wei Chen, <i>Chung-Hua University</i> | 675 |
| 16:50-17:10 | An Enhanced Segmentation on Vision-based Shadow Removal for Vehicle Detection
Chun-Ting Chen, <i>National Taiwan Normal University</i>
Chung-Yen Su, <i>National Taiwan Normal University</i>
Wen-Chung Kao, <i>National Taiwan Normal University</i> | 679 |
| 17:10-17:30 | Video Recording in High Dynamic Range Scenes
Wen-Chung Kao, <i>National Taiwan Normal University</i>
Chih-Hsiang Huang, <i>National Taiwan Normal University</i>
Guan-Fan Wu, <i>National Taiwan Normal University</i>
Chung-Yen Su, <i>National Taiwan Normal University</i>
Pei-Yung Hsiao, <i>National University Of Kaohsiung</i> | 683 |

Green Circuits and Systems

Session Code: D3-PM2-R7

Session Type: Poster

Date & Time: June 23, 2010, 15:30-15:30

Location: Regal 7

Chair: Dr. Guoxing Wang, Shanghai Jiao Tong University

- P1 **Wideband Body Enabled Low-Noise Amplifier in 0.18 μ m Technology** 687
Jeremy Dennis Asmussen, *Washington State University*
Duekehyon Heo, *Washington State University*
- P2 **A 2.5GHz CMOS Power Amplifier for WiMAX Application** 691
Meng-Ping Chen, *National Tsing Hua University*
Chun-Hsing Shih, *National United University*
Wei Chang, *National Tsing Hua University*
Chenhsin Lien, *National Tsing Hua University*
- P3 **A Low Power Multiphase All-Digital Phase Locked Loop with Reusing SAR** 695
Pao Lung Chen, *National Kaohsiung First University Of Science And Technology*
- P4 **VLSI Design of HW/SW Interface Logic in FC-2** 699
Jie Jin, *Peking University*
Xiaoxin Cui, *Peking University*
Dunshan Yu, *Peking University*
- P5 **Phase Rotation Optimization in Hybrid of PTS-CAPPR Method by GA for PAPR Reduction in OFDM Systems** 703
Chusit Pradabpet, *Phranakhon Si Ayutthaya Rajabhat University*
Shingo Yoshizawa, *Hokkaido University*
Yoshikazu Miyanaga, *Hokkaido University*
- P6 **LED Driver IC with an Adaptive Slope Compensation Technique** 709
Wooju Jeong, Jungeui Park, *University Of Seoul*
Jungsoo Choi, Junsang Lee, *University Of Seoul*
Jayang Yoon, Seok Lee, *University Of Seoul*
Jaehoon Kim, *University Of Seoul*
Jeongin Cheon, *Samsung Electro-Mechanics Co.*
Joongho Choi, *University Of Seoul*