

# **2011 8th International Conference on Information, Communications & Signal Processing**

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**Session WA1**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:30**Venue : **Pink Azalea****Biomedical Signal Processing I**Chair : **Syed Muhammad G MONIR**  
Karachi Institute of Economics  
and Technology

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**WA1.1 (Invited) 11:00 - 11:30****Feedback Active Noise Control System  
and Its Application to MRI Noise***Yoshinobu KAJIKAWA*  
Kansai University**WA1.2 11:30 - 11:50****Data-Driven Analysis of Functional MRI  
Time-Series using a Region-Growing  
Approach***Syed Muhammad G MONIR, \*Mohammed  
Yakoob SIYAL*  
Karachi Institute of Economics and  
Technology  
\*Nanyang Technological University**WA1.3 11:50 - 12:10****Spread Spectrum for Chaotic  
Compressed Sensing Techniques in  
Parallel Magnetic Resonance Imaging***Tan TRAN DUC, Vu-Ha LE, Linh Trung  
NGUYEN*  
Vietnam National University**WA1.4 12:10 - 12:30****Introduction Of C/A (Covariance/Area)  
with Applications to Tooth  
Segmentation in Dental CT Image***Yohei KUROIWA*

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**Session WA2**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:30**Venue : **White Azalea****Image and Information Retrieval**Chair : **Christian PLATZER**  
*Vienna University of Technology*

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**WA2.1 (Invited) 11:00 - 11:30****Biased Subspace Learning for SVM  
Relevance Feedback in Content-Based  
Image Retrieval***Lining ZHANG, Lipo WANG, Weisi LIN*  
Nanyang Technological University**WA2.2 11:30 - 11:50****Multi-Feature Content-Based Product  
Image Retrieval Based on Region of  
Main Object***Lunshao CHAI, Honggang ZHANG, \*Zhen  
QIN, Jie YU, Yonggang QI*  
Beijing University of Posts and  
Telecommunications  
\*University of California, Riverside**WA2.3 11:50 - 12:10****Fast Music Information Retrieval Using  
PAT Tree Based Dynamic Time Warping***ZongChao CHENG, ChingShun LIN,  
YiHen CHEN*  
National Taiwan University of Science and  
Technology**WA2.4 12:10 - 12:30****Sequence-Based Bot Detection in  
Massive Multiplayer Online Games***Christian PLATZER*  
Vienna University of Technology

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**Session WA3**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:10**Venue : **Red Azalea****Direction of Arrival**Chair : **Hon Tat HUI**  
*National University of Singapore*

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**WA3.1 (Invited) 11:00 - 11:30****Direction-of-Arrival (DOA) Estimation in  
the Presence of Array Signal Coupling***Hon Tat HUI*  
National University of Singapore**WA3.2 11:30 - 11:50****Direction of Arrival Tracking in  
Impulsive Noise Using Particle Filtering  
with Fractional Lower Order Moment  
Likelihood***Xionghu ZHONG, A. B. PREMKUMAR, A.  
S. MADHUKUMAR*  
Nanyang Technological University**WA3.3 11:50 - 12:10****Optimal Sensor Pairing for TDOA Based  
Source Localization in Sensor Networks***Wei MENG, \*Wendong XIAO, Lihua XIE*  
Nanyang Technological University  
\*Institute for Infocomm Research, A\*STAR

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**Session WA4 - Special Session**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:30**Venue : **Green Orchid****Emerging Technologies in Cooperative Communication Networks**Chair : **Wee Peng TAY**  
*Nanyang Technological University*

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**WA4.1 (Invited) 11:00 - 11:30****A Preliminary Study on Lifetime Maximization in Clustered Wireless Sensor Networks with Energy Harvesting Nodes\*\*\*\*)***Pengfei ZHANG, Gaoxi XIAO, \*Hwee-Pink TAN**Nanyang Technological University  
\*Institute for Infocomm Research, A\*STAR*

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**WA4.2 11:30 - 11:50****Co-existence with ARQ-Based Primary System through Cooperative-and-Access Spectrum Sharing\*\*\*\*\*\$***Qiang LI, See Ho TING, \*Ashish PANDHARIPANDEY, \*\*Mehul MOTANI**Nanyang Technological University  
\*Philips Research, High Tech Campus  
\*\*National University of Singapore*

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**WA4.3 11:50 - 12:10****Cooperative and Distributed Localization for Wireless Sensor Networks in Multipath Environments\*\*\*\*\*)***Mei LENG, Wee Peng TAY, \*Tony Q.S. QUEK**Nanyang Technological University  
\*Institute for Infocomm Research, A\*STAR*

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**WA4.4 12:10 - 12:30****A Home-Oriented IPTV Service Platform on Residential Gateway\*\*\*\*\*+\$***Pyung-Soo KIM, Soo Ho AHN*  
*Korea Polytechnic University*

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**Session WA5**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:30**Venue : **Yellow Orchid****MIMO and Space Time Communication**Chair : **Marc A ARMAND**  
*National University of Singapore*

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**WA5.1 (Invited) 11:00 - 11:30****Capacity and BER Performance Considerations on Single-Carrier Frequency-Domain Equalization\*\*\*\*+)***Fumiyuki ADACHI, Tatsunori OBARA, Tetsuya YAMAMOTO*  
*Tohoku University*

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**WA5.2 11:30 - 11:50****Novel Node Pair Selection Algorithms for Sum-Rate Enhancement in MIMO Interference Channel\*\*\*\*, \$***Myeong-Jin KIM, Hyun-Ho LEE, Young-Chai KO, \*Seungkeun PARK*  
*Korea University**\*Electronic and Telecommunications Research Institute*

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**WA5.3 11:50 - 12:10****Novel Block Construction using Tail Sequences for Space Time Block Coded CPM\*\*\*\*, )***Wenwen WANG, Saman S ABEYSEKERA*  
*Nanyang Technological University*

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**WA5.4 12:10 - 12:30****Keyhole and Multi-Keyhole MIMO Channels: Modeling and Simulation\*\*\*\*- \$***Hieu Duy NGUYEN, Xuan WANG, Hon Tat HUI**National University of Singapore*

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**Session WA6**Date : **Wednesday, 14 December 2011**Time : **11:00 - 12:30**Venue : **Red Gardenia****Optical Communication I**Chair : **Xiaoke YI**  
*The University of Sydney*

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**WA6.1 (Invited) 11:00 - 11:30****Wavelength-Agile Hybrid Passive Optical Networks with Dynamic ONU Re-Grouping Functionality\*\*\*\*-)***Xiaofei CHENG, Zhaowen XU, Yong-kee YEO, Xu SHAO, Luying ZHOU*  
*Institute for Infocomm Research, A\*STAR*

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**WA6.2 11:30 - 11:50****Integration of a Modified Distributed Coordination Function (DCF) in Wireless LAN using IEEE 802.11n to Mitigate Interference and Optimize Transmission Capacity in Full Duplex Gigabits Passive Optical Network (GPON)\*\*\*\*- -***Wan Hafiza WAN HASSAN, Horace KING, Mike FAULKNER*  
*Victoria University*

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**WA6.3 11:50 - 12:10****Passive Q-Switching in 25-km Ultra Long Cavity All-Fiber Ring Laser\*\*\*\*%\****Nanxi LI, Jin XUE, Jia Haur WONG, Kan WU, Chunmei OUYANG, Sheel ADITYA, Perry Ping SHUM*  
*Nanyang Technological University*

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**WA6.4 12:10 - 12:30****Dynamic Decision Threshold and Adaptive Coherent Detection in FSO Communication Systems\*\*\*\*%\****Zixiong WANG, Wen-De ZHONG, \*Changyuan YU*  
*Nanyang Technological University  
\*National University of Singapore / Institute of Infocomm Research, A\*STAR*

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**Session WM1 - Special Session**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:50**Venue : **Pink Azalea****Human Centered Systems**

Chair : **Carlos Antonio ACOSTA CALDERON**  
*Singapore Polytechnic*  
**Rajesh Elara MOHAN**  
*Singapore University of Technology and Design*

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**WM1.1** 13:30 - 13:50**Automating the Assessment of Rehabilitative Grasping and Reach**

*Tracey K. M. LEE, \*Kee Hao LEO, \*Sen ZHANG*  
Singapore Polytechnic / Monash University  
\*Singapore Polytechnic

**WM1.2** 13:50 - 14:10**Intelli-Sense Bed Patient Movement Sensing and Anti-Sweating System for Bed Sore Prevention in a Clinical Environment**

*Jaichandar Kulandadaasan SHEBA, \*Edgar Alonzo Martínez GARCÍA*  
Singapore Polytechnic  
\*Universidad Autonoma de Ciudad Juarez

**WM1.3** 14:10 - 14:30**An Approach to Design a Robust and Intelligent Multi-Agent System**

*Asadollah NOROUZI, Carlos Antonio ACOSTA CALDERON, Changjiu ZHOU*  
Singapore Polytechnic

**WM1.4** 14:30 - 14:50**Virtual Game Approach for Rehabilitation in Autistic Children**

*Weilun LOO, \*Rajesh Elara MOHAN, \*\*Edgar Alonzo Martínez GARCÍA*  
Singapore Institute of Management University  
\*Singapore University of Technology and Design  
\*\*Universidad Autonoma de Ciudad Juarez

**WM1.5** 14:50 - 15:10**Extended Neglect Tolerance Model & Human Robot Teams**

*Rajesh Elara MOHAN, \*Carlos Antonio ACOSTA CALDERON, \*Changjiu ZHOU*  
Singapore University of Technology and Design  
\*Singapore Polytechnic

**WM1.6** 15:10 - 15:30**Software Framework for a Humanoid Robotic Arm**

*Jörg WIEDEMANN, Maximilian BARO, Paul SEYBOLD, \*Carlos Antonio ACOSTA CALDERON, \*Liandong ZHANG*  
Munich University of Applied Sciences  
\*Singapore Polytechnic

**WM1.7** 15:30 - 15:50**Development of an Autonomous Service Robot for Social Interactions**

*Carlos Antonio ACOSTA CALDERON, Changjiu ZHOU, \*Rajesh Elara MOHAN*  
Singapore Polytechnic  
\*Singapore University of Technology and Design

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**Session WM2**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:30**Venue : **White Azalea****Object Recognition**

Chair : **Ce ZHU**  
*Nanyang Technological University*

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**WM2.1** 13:30 - 13:50**A Low Complexity JPEG Domain Face Recognition Approach Using Low Frequency Coefficients**

*M. Shahram MOIN, Alireza SEPASMOGHADDAM, \*Hamidreza RASHIDY KANAN*  
Islamic Azad University Qazvin Branch  
\*Bu-Ali Sina University

**WM2.2** 13:50 - 14:10**Content and Context Information Fusion for Mobile Landmark Recognition**

*Tao CHEN, Kim-Hui YAP, Lap-Pui CHAU*  
Nanyang Technological University

**WM2.3** 14:10 - 14:30**A Soft Relevance Method for Content-Based Scene Categorization in the BoW Framework**

*Zhen LI, Kim-Hui YAP, Ce ZHU*  
Nanyang Technological University

**WM2.4** 14:30 - 14:50**Online Structural Analysis for Handwritten Chemical Expression Recognition**

*Peng TANG, Siu Cheung HUI, Chi-Wing FU*  
Nanyang Technological University

**WM2.5** 14:50 - 15:10**A Static Hand Gesture Recognition Algorithm using K-Mean Based Radial Basis Function Neural Network**

*Dipak Kumar GHOSH, Samit ARI*  
National Institute of Technology Rourkela

**WM2.6** 15:10 - 15:30**Object Recognition by Combined Invariants of Orthogonal Fourier-Mellin Moments**

*Qian LIU, Hongqing ZHU, Qian LI*  
East China University of Science and Technology

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**Session WM3**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:30**Venue : **Red Azalea****Speech Signal Processing**

Chair : **Eliathamby AMBIKAI RAJAH**  
*The University of New South Wales*

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**WM3.1** 13:30 - 13:50**Preferred Frame Length for the Short-Time Magnitude Spectrum on Speech Intelligibility and Speech Quality**

*Bin JIANG, Jun YANG*  
Institute of Acoustics, Chinese Academy of Sciences

**WM3.2** 13:50 - 14:10**An Adaptive Soft Voice Activity Detector for Automatic Speech Recognition System**

*Peng DAI, Ing Yann SOON*  
Nanyang Technological University

**WM3.3** 14:10 - 14:30**Investigation of the Robustness of a Non-Uniform Filterbank for Cognitive Load Classification**

*Phu Ngoc LE, Vidhyasaharan SETHU, Eliathamby AMBIKAI RAJAH, Jia Min Karen KUA*  
The University of New South Wales

**WM3.4** 14:30 - 14:50**A Nested Superdirective Generalized Sidelobe Canceller for Speech Enhancement**

*Parinaz KHAYERI, Hamid Reza ABUTALEBI, Vahid ABOOTALEBI*  
Yazd University

**WM3.5** 14:50 - 15:10**Complexity Scalability Design in Coding of the Adaptive Codebook for ITU-T G.729 Speech Coder**

*Fu-Kun CHEN, Guan-Ming CHEN, \*Yue-Dar JOU*  
Southern Taiwan University  
\*R. O. C. Military Academy

**WM3.6** 15:10 - 15:30**Data Fusion for Text-Independent Speaker Identification: Application to NTIMIT**

*Imen TRABELSI, \*Dorra Ben AYED*  
Institute of Computer Science of Tunis  
\*National School of Engineering of Tunis-ENIT

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**Session WM4**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:20**Venue : **Green Orchid****Wireless Communication I**Chair : **Sheng-Chou LIN**  
*Fu-Jen Catholic University***WM4.1** 13:30 - 13:50**Dual Band M-Shaped UWB Patch Antenna for Wireless Body Area Networks***Sunil H. KARAMCHANDANI, Shubham SHUKLA, H. D. MUSTAFA, Shabbir N. MERCHANT, Uday B. DESAI*  
Indian Institute of Technology Bombay**WM4.2** 13:50 - 14:10**Combination of Code Orthogonalized Transmitted Reference and Energy Detection in UWB Systems***Salar BYBORDI, \*Said NADER-ESFAHANI*  
Islamic Azad University South Tehran Branch  
\*University of Tehran**WM4.3** 14:10 - 14:30**Analysis and Optimization of PAPR in SC-FDMA Systems***Chung Him (George) YUEN, Behrouz FARHANG-BOROJENY*  
University of Utah**WM4.4** 14:30 - 14:50**An Improved Synchronization System for OFDM Communications***Jui-Yuan LIN*  
Southern Taiwan University**WM4.5** (Invited) 14:50 - 15:20**Debugging Ants: How Ants find the Shortest Route***Jayadeva ., Sameena SHAH, \*Ravi KOTHARI, Suresh CHANDRA*  
IIT Delhi  
\*IBM India Research

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**Session WM5**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:30**Venue : **Yellow Orchid****Equalization and Detection**Chair : **Hon Tat HUI**  
*National University of Singapore*  
**Saman S ABEYSEKERA**  
*Nanyang Technological University***WM5.1** 13:30 - 13:50**Blind Reconstruction of a Helical Scan Interleaver***Jeonghun JEONG, Dongweon YOON, Jubyung LEE, Sunghwan CHOI*  
Hanyang University**WM5.2** 13:50 - 14:10**Adaptive Single-Carrier Transmission Using QRM-ML Block Signal Detection***Tetsuya YAMAMOTO, Fumiyuki ADACHI*  
Tohoku University**WM5.3** 14:10 - 14:30**Robust Threshold Compressed Sensing Based Sparse Multipath Channel Estimation in OFDM System***Hui XIE, \*Andrieux GUILLAUME, \*Yide WANG, \*Jean-francois DIOURIS, \*\*Suili FENG*  
South China University of Technology / University de Nantes  
\*University de Nantes  
\*\*South China University of Technology**WM5.4** 14:30 - 14:50**Non-invasive, Reflection Coefficient Based Channel Estimation on PLC Systems***H. D. MUSTAFA, Singh ASHUTOSH, Sunil H. KARAMCHANDANI, Shabbir N. MERCHANT, Uday B. DESAI*  
Indian Institute of Technology Bombay**WM5.5** 14:50 - 15:10**Blind Robust Multiuser Detection in Asynchronous Chaotic Communication Systems***Raju B. V. S. S. N., \*Deergha Rao KORRAI*  
S.R.K.R. Engineering College  
\*Osmania University**WM5.6** 15:10 - 15:30**MMSE Space-Time Multiuser Decision-Feedback Detection in Multiple-Antenna SDMA Systems over Dispersive Fading Channels***Sheng-Chou LIN, Chi-Wei WU*  
Fu-Jen Catholic University

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**Session WM6**Date : **Wednesday, 14 December 2011**Time : **13:30 - 15:10**Venue : **Red Gardenia****Communication Networks**Chair : **Peter Han Joo CHONG**  
*Nanyang Technological University***WM6.1** 13:30 - 13:50**Theoretical Analysis of The Modified Binary Countdown Scheme***Koichiro HASHIURA, Hiromasa HABUCHI*  
Ibaraki University**WM6.2** 13:50 - 14:10**Research on QoS-Guaranteed Multi-Path Routing Protocol for WVSNs***Zhixing LIU, Jing ZHANG, Li ZHUO, Lei SUI*  
Beijing University of Technology**WM6.3** 14:10 - 14:30**An Object-Centric Name System for Mobile-Oriented Future Internet***Pyung-Soo KIM, Soo Ho AHN*  
Korea Polytechnic University**WM6.4** 14:30 - 14:50**Improving Congestion Control for Concurrent Multipath Transfer through Bandwidth Estimation based Resource Pooling***Samar SHAILENDRA, Ratnajit BHATTACHARJEE, Sanjay Kumar BOSE*  
Indian Institute of Technology Guwahati**WM6.5** 14:50 - 15:10**Packet Classification with Filter Categorization***Pi-Chung WANG*  
National Chung Hsing University

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**Session WP1 - Special Session**Date : **Wednesday, 14 December 2011**Time : **16:00 - 18:00**Venue : **Pink Azalea****Large Scale Visual Object Search and Categorization**Chair : **Gang WANG**

Nanyang Technological University

**WP1.1** 16:00 - 16:20**Topic Level Sampling Towards Optimized Locality Sensitive Vocabulary Coding***Jie CHEN, Ling-Yu DUAN, \*Bing LI, Rongrong Ji, Wen GAO*

Peking University

\*Peking University / Chinese Academy of Sciences

**WP1.2** 16:20 - 16:40**Multiple Instance Boosting with Global Smoothness Regularization***Chaoqun WENG, \*Gang HUA, Junsong YUAN*

Nanyang Technological University

\*Stevens Institute of Technology

**WP1.3** 16:40 - 17:00**Multilinear Locality Preserving Canonical Correlation Analysis for Face Recognition***Jiwen LU, \*Gang WANG, \*Yap-Peng TAN*

Advanced Digital Sciences Center

\*Nanyang Technological University

**WP1.4** 17:00 - 17:20**Fast Kernel Machines for Image Categorization***Gang WANG*

Nanyang Technological University

**WP1.5** 17:20 - 17:40**Towards Large Scale Land-Cover Recognition of Satellite Images***Noel C. F. CODELLA, \*Gang HUA, \*\*Apostol NATSEV, \*\*John R. SMITH*

IBM T.J. Watson Research Center /

Stevens Institute of Technology

\*Stevens Institute of Technology

\*\*IBM T.J. Watson Research Center

**WP1.6** 17:40 - 18:00**Non Linear and Dynamic Time Warping Classification of Morphological Patterns Identified from Plethysmographic Observations in the Radial Pulse***Sunil H. KARAMCHANDANI, Mahadesh**PANJU, H. D. MUSTAFA, Shabbir N.**MERCHANT, Uday B. DESAI, \*G. D.**JINDAL*

Indian Institute of Technology Bombay

\*Bhabha Atomic Research Center

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**Session WP2**Date : **Wednesday, 14 December 2011**Time : **16:00 - 18:00**Venue : **White Azalea****Image Processing**Chair : **Lap-Pui CHAU**

Nanyang Technological University

**WP2.1** 16:00 - 16:20**Image Denoising using Sparse Approximation with Adaptive Window Selection***Sujit Kumar SAHOO, Wenmiao LU*

Nanyang Technological University

**WP2.2** 16:20 - 16:40**An Improved Contrast-Tone Mapping Algorithm for Image Contrast Enhancement***Zhiyuan ZHOU, Xiaokang YANG, Li CHEN, Guangtao ZHAI, Wenjun ZHANG*

Shanghai Jiao Tong University

**WP2.3** 16:40 - 17:00**Class-Specific Object Contour Detection by Iteratively Combining Context Information***Cong YAO, Wei SHEN, Xiang BAI, Wenyu LIU*

Huazhong University of Science and Technology

**WP2.4** 17:00 - 17:20**Image Interpolation Using a Variation-Based Approach***Jinglun SHI, \*Zhilong SHAN*

South China University of Technology

\*South China Normal University

**WP2.5** 17:20 - 17:40**A Low Complexity Embedded Image Coding Algorithm Using Hierarchical Listless DTT***Ranjan K SENAPATI, Umesh C PATI,**Kamala Kanta MAHAPATRA*

National Institute of Technology Rourkela

**WP2.6** 17:40 - 18:00**Finite Field DWT and MCKBA for Image Encryption and Its VLSI Realization***Deergha Rao KORRAI, Gangadhar CH*

Osmania University

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**Session WP3**Date : **Wednesday, 14 December 2011**Time : **16:00 - 18:00**Venue : **Red Azalea****Statistical & Array Processing**Chair : **Jie ZHUANG**

University of Electronic Science and Technology of China

**WP3.1** 16:00 - 16:20**Source Localization on Solids Using Kullback-Leibler Discrimination Information***Kattukandy Rajan ARUN, Eunice ONG, Andy W. H. KHONG*

Nanyang Technological University

**WP3.2** 16:20 - 16:40**Handling Missing Data in Medical Questionnaires Using Tensor Decompositions***Justin DAUWELS, Lalit GARG, \*Arul EARNEST, \*\*Leong Khai PANG*

Nanyang Technological University

\*Duke-NUS Graduate Medical School

\*\*Tan Tock Seng Hospital

**WP3.3** 16:40 - 17:00**Matched Subspace Beamforming Using Signal Subspace***Jie ZHUANG, Wei HUANG*

University of Electronic Science and

Technology of China

**WP3.4** 17:00 - 17:20**Transmit Beampattern Synthesis Using Eigenvalue Decomposition In MIMO Radar***Kamal SHADI, Fereidoon BEHNIA*

Sharif University of Technology

**WP3.5** 17:20 - 17:40**Extension of the Signal-Subspace Projection Method to Multi-Dimension Using CCA***Jie ZHUANG, Wei HUANG, Hong PANG*

University of Electronic Science and

Technology of China

**WP3.6** 17:40 - 18:00**An Alternative Approach to Generalized ESPRIT with a better Performance***Aye Su YEE, Boon Poh NG*

Nanyang Technological University



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**Session WP4**Date : **Wednesday, 14 December 2011**Time : **16:00 - 18:00**Venue : **Green Orchid****Signal Processing for Communication I**Chair : **Saman S ABEYSEKERA**  
*Nanyang Technological University***WP4.1** 16:00 - 16:20**Multitone Interference Detection after Dehopping Process in Slow FH/BFSK Systems over Rayleigh Fading Channels** ( )*Aye AUNG, Kah Chan TEH, Kwok Hung LI*  
Nanyang Technological University**WP4.2** 16:20 - 16:40**Detection and Classification of Unknown MTI and PBN in Slow FH/BFSK Systems over Rayleigh Fading Channels** ( ) -*Aye AUNG, Kah Chan TEH, Kwok Hung LI*  
Nanyang Technological University**WP4.3** 16:40 - 17:00**Spectrum Sensing of Wireless Microphone Signals Based on LHT** ( ) \* (*Shan LUO, Guoan BI*  
Nanyang Technological University**WP4.4** 17:00 - 17:20**Low Complexity M-ary Continuous Phase Modulation Receiver Design using the Instantaneous Frequency** ( ) \* -*Saman S ABEYSEKERA*  
Nanyang Technological University**WP4.5** 17:20 - 17:40**Broadband Interference Suppression in Fractional Fourier Domain Communication System** ( ) (*Haixin SUN, \*Shan LUO, Yaowu SHI*  
Jilin University  
\*Nanyang Technological University**WP4.6** 17:40 - 18:00**Optimizing Sensing Matrix for Compressed Sensing Systems** ( ) (*Lifeng YU, Gang LI, Liping CHANG*  
Zhejiang University of Technology

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**Session WP5**Date : **Wednesday, 14 December 2011**Time : **16:00 - 18:00**Venue : **Yellow Orchid****Coding and Modulation**Chair : **Marc A ARMAND**  
*National University of Singapore***WP5.1** 16:00 - 16:20**On Reed-Solomon Codes as Outer Codes in the Davey-MacKay Construction for Channels with Insertions and Deletions** ( ) , (*Tong WU, Marc A ARMAND, Xiaopeng JIAO*  
National University of Singapore**WP5.2** 16:20 - 16:40**Iterative Symbol Decoding of Convolutionally-Encoded Variable-Length Codes** ( ) , -*Chun-Feng WU, Tzu-Fan HSU, Wen-Whei CHANG*  
National Chiao-Tung University**WP5.3** 16:40 - 17:00**Low-Complexity Architecture Design for Modified WiMAX Low-Density Parity-Check Codes** ( ) - (*Kuang-Hao LIN, Meng-Yi LIN, Jan-Dong TSENG*  
National Chin-Yi University of Technology**WP5.4** 17:00 - 17:20**Effect of Unequal Transmission Power Allocation In Turbo-Coded Optical Wireless Communication System** ( ) - ,*Tomoaki MURATA, Hiromasa HABUCHI*  
Ibaraki University**WP5.5** 17:20 - 17:40**A Lower-Complexity Iterative Trellis-based Factor Search Algorithm and Blind Detector for PTS-Based OFDM Systems** ( ) ( \$*Yen-Ming CHEN, Yeong-Luh UENG, Jhong-Jheng SU, \*Jen-Yuan HSU, \*Pangan TING*  
National Tsing Hua University  
\*Industrial Technology Research Institute**WP5.6** 17:40 - 18:00**Manifold Signal Receiver for Powerline Communication Systems** ( ) ( \$ ,*H. D. MUSTAFA, Sunil H. KARAMCHANDANI, Shabbir N. MERCHANT, Uday B. DESAI*  
Indian Institute of Technology Bombay

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**Session WP6**Date : **Wednesday, 14 December 2011**Time : **16:00 - 17:40**Venue : **Red Gardenia****Ad-Hoc Networks**Chair : **Sanjay Kumar BOSE**  
*Indian Institute of Technology Guwahati***WP6.1** 16:00 - 16:20**Real-Life Experiments of Multi-Radio Multi-Channel Wireless Mesh Networks: 802.11n is not any better than 802.11a!** ( ) ( %*Ivan Wang-Hei HO, Patrick P. LAM, \*Peter Han Joo CHONG, \*\*Soung Chang LIEW*  
P2 Mobile Technologies Limited  
\*Nanyang Technological University  
\*\*The Chinese University of Hong Kong**WP6.2** 16:20 - 16:40**CPN Validation of Neighbor Detection Protocol for Ad Hoc Networks** ( ) ( %*Suchismita CHINARA, Santanu Kumar RATH*  
National Institute of Technology Rourkela**WP6.3** 16:40 - 17:00**An Improvement of Guarantee Time Slot Allocation in IEEE 802.15.4 Low-Rate Wireless Sensor Networks** ( ) ( B#*Chi-Ming WONG, \*Hsun-Hung CHAN*  
Jinwen University of Science and Technology  
\*Technology and Science Institute of Northern Taiwan**WP6.4** 17:00 - 17:20**Routing Performance of Mobile Ad Hoc Network in Urban Street-Grid Environment Using Non-Line-of-Sight Propagation Model** ( ) ( &*Pengty NGOR, Soon Yim TAN, Peter Han Joo CHONG*  
Nanyang Technological University**WP6.5** 17:20 - 17:40**Study of Effect of Timeout Settings on Energy Saving of Lighting Systems using Queueing Model** ( ) ( &*Xue Jun LI, Xuguang SHAO, Maode MA*  
Nanyang Technological University

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**Session TA1**Date : **Thursday, 15 December 2011**Time : **10:30 - 12:30**Venue : **Pink Azalea****Data Mining & Databases**Chair : **Lihui CHEN**  
*Nanyang Technological University***TA1.1** **10:30 - 10:50****Context Aware M-Commerce Services:  
C-JOB Model Approach***Pushpa P.V., Pallapa VENKATARAM*  
Indian Institute of Science**TA1.2** **10:50 - 11:10****QBE: A Queriable Binary Encoding  
Index for XML Document***Wararat JAKAWAT, Sirirut  
VANICHAYOBON*  
Prince of Songkla University**TA1.3** **11:10 - 11:30****MUTE: Majority Under-Sampling  
Technique***Chumphol BUNKHUMPORNPAT, Krung  
SINAPIROMSARAN, Chidchanok  
LURSINSAP*  
Chulalongkorn University**TA1.4** **11:30 - 11:50****A Hybrid Solving Algorithm for DCSP-  
Based Configuration System***Lin WANG, Wee Keong NG*  
Nanyang Technological University**TA1.5** **11:50 - 12:10****Label-Based Semi-Supervised Fuzzy  
Co-Clustering for Document  
Categorization***Yang YAN, Lihui CHEN*  
Nanyang Technological University**TA1.6** **12:10 - 12:30****Document Clustering Around Weighted-  
Medoids***Jian-Ping MEI, Lihui CHEN*  
Nanyang Technological University

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**Session TA2**Date : **Thursday, 15 December 2011**Time : **10:30 - 12:30**Venue : **White Azalea****Image Analysis**Chair : **Zhiqi SHEN**  
*Nanyang Technological University***TA2.1** **10:30 - 10:50****Unconstrained Iris Recognition using F-  
SIFT***Hunny MEHROTRA, Banshidhar MAJHI,  
Pankaj Kumar SA*  
National Institute of Technology Rourkela**TA2.2** **10:50 - 11:10****Utilizing Region Cardinality and  
Dependency for Object Categorization  
in Non-Parametric Bayesian Framework***K KRISTO, Chin Seng CHUA*  
Nanyang Technological University**TA2.3** **11:10 - 11:30****Semantic Image Segmentation Using  
Oriented Pattern Analysis***Hui Ting ONG, Kai-Kuang MA*  
Nanyang Technological University**TA2.4** **11:30 - 11:50****Fast Face Detection and Localization  
from Multi-Views using Statistical  
Approach***Seyed Mohammad Hassan ANVAR, \*Wei-  
Yun YAU, Eam Khwang TEOH*  
Nanyang Technological University  
\*Institute for Infocomm Research, A\*STAR**TA2.5** **11:50 - 12:10****Local Sensitive Frontier Analysis Based  
Facial Expression Recognition***Chao WANG, Zhiqi SHEN*  
Nanyang Technological University**TA2.6** **12:10 - 12:30****High Resolution Vehicle License Plate  
Reconstruction Using Soft Recognition  
Learning***Yushuang TIAN, Kim-Hui YAP, Yu HE*  
Nanyang Technological University

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**Session TA3**Date : **Thursday, 15 December 2011**Time : **10:30 - 12:30**Venue : **Red Azalea****Audio Signal Processing**Chair : **Saeid SANEI**  
*University of Surrey***TA3.1** **10:30 - 10:50****Robustness Analysis of Time-Domain  
and Frequency-Domain Adaptive Null-  
Forming Schemes***Xiaohu HU, Shiwei WANG, Yi ZHOU,  
Xiaodong LI, Chengshi ZHENG*  
Institute of Acoustics, Chinese Academy of  
Sciences**TA3.2** **10:50 - 11:10****A Particle Swarm Optimization Based  
Audio Watermarking Scheme***Baiying LEI, Ing Yann SOON, Zhen LI,  
Peng DAI*  
Nanyang Technological University**TA3.3** **11:10 - 11:30****A Spatial Notch Filtering Approach for  
Improving Frequency Domain Complex  
BSS of Audio Signals***Amran ABDUL HADI, Saeid SANEI*  
University of Surrey**TA3.4** **11:30 - 11:50****Noise Power Estimation Based on a  
Sequential Hidden Markov Model***Dongwen YING, Yonghong YAN, \*Jianwu  
DANG, \*\*Frank K. SOONG*  
Institute of Acoustics, Chinese Academy of  
Sciences  
\*Tianjin University  
\*\*Microsoft Research Asia**TA3.5** **11:50 - 12:10****Empirical Mode Decomposition Based  
Near-Field Equivalence Source Imaging  
System for Sound Identification***ChingShun LIN, YungCheng CHAO*  
National Taiwan University of Science and  
Technology**TA3.6** **12:10 - 12:30****Audiovisual Speaker Localization in  
Medium Smart Meeting Room***Andrey RONZHIN, Alexander RONZHIN,  
Viktor BUDKOV*  
St. Petersburg Institute for Informatics and  
Automation



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**Session TA4**

Date : Thursday, 15 December 2011

Time : 10:30 - 12:30

Venue : Green Orchid

**Signal Processing for Communication II**Chair : Kah Chan TEH  
Nanyang Technological University**TA4.1** 10:30 - 10:50**Fusion of Multiple Positioning Algorithms** \$,Lei WANG, Wai Choong WONG  
National University of Singapore**TA4.2** 10:50 - 11:10**Multiple Peer-to-Peer Communications for Two-Way Relay Networks** %Tao WANG, Boon Poh NG, \*Ying ZHANG, Meng Hwa ER  
Nanyang Technological University  
\*University of Electronic Science and Technology of China**TA4.3** 11:10 - 11:30**Source Localization by Collaborating Multiple Measurements with inaccurate Sensor Positions** %Zhen XU, Jing WANG  
Beihang University**TA4.4** 11:30 - 11:50**Parameters Measurement of Marine Power System Based on Multi-Sensors Data Fusion Theory** &Jianxin CHU, Wei GU, Hui HUANG  
Shanghai Maritime University**TA4.5** 11:50 - 12:10**Cooperative Non-Line-of-Sight Localization Technique for Indoor Wireless Network** &\*Si Wen CHEN, Soon Yim TAN  
Nanyang Technological University**TA4.6** 12:10 - 12:30**Collocated MIMO Radar Waveform Coding Using Costas and Quadratic Congruence Arrays** %Guang HUA, Saman S ABEYSEKERA  
Nanyang Technological University

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**Session TA5**

Date : Thursday, 15 December 2011

Time : 10:30 - 12:30

Venue : Yellow Orchid

**Mobile Communication**Chair : Hidekazu MURATA  
Kyoto University  
Jui-Yuan LIN  
Southern Taiwan University**TA5.1** 10:30 - 10:50**Investigation of PUCCH Structure with SRS Transmission Based on BS-CDMA for LTE-Advanced Carrier Aggregation** \* \*Kazuaki TAKEDA, Yoshihisa KISHIYAMA, \*Teruo KAWAMURA, \*Takehiro NAKAMURA  
NTT DoCoMo Inc.  
\*NTT DOCOMO INC.**TA5.2** 10:50 - 11:10**Distributed Pricing-Based Power Control for Multicell Downlink Communication Systems** %Qian (Clara) LI, \*Kah Chan TEH, \*Kwok Hung LI  
Utah State University  
\*Nanyang Technological University**TA5.3** 11:10 - 11:30**Distributed Power Allocation for Network MIMO with a Bayesian Game-Theoretic Approach** (\*Yong ZENG, Erry GUNAWAN, Yong Liang GUAN  
Nanyang Technological University**TA5.4** 11:30 - 11:50**Performance Analysis for Optimum Transmission and Comparison with Maximal Ratio Transmission for MIMO Systems with Cochannel Interference** %Sheng-Chou LIN, Ya-Chen CHIANG  
Fu-Jen Catholic University**TA5.5** 11:50 - 12:10**An Energy Efficient Hybrid MAC Protocol for WSN containing Mobile Nodes** \*) \*Srikanth BHAVANA, Harish MUSTHYALA, Ratnajit BHATTACHARJEE  
Indian Institute of Technology Guwahati**TA5.6** 12:10 - 12:30**Pseudo Noise Sequence Combining Logic for Ranging of Near Earth Satellites** % \*Jeonghun JEONG, Dongweon YOON, Sunghwan CHOI, Seoungjun JEE  
Hanyang University

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**Session TA6 - Special Session**

Date : Thursday, 15 December 2011

Time : 10:30 - 12:00

Venue : Red Gardenia

**Recent Advances of Green Optical Networks**Chair : Gangxiang SHEN  
Soochow University  
Debasish DATTA  
Indian Institute of Technology Kharagpur**TA6.1** (Invited) 10:30 - 11:00**Green Backbone Optical Networks: the Way Forward** \*) \*Gangxiang SHEN, Jing DENG, Pin-Han HO  
Soochow University**TA6.2** 11:00 - 11:20**Analysis of Sleep-Mode Downlink Scheduling Operations in EPON Systems** \*) \*-Ying YAN, Lars DITTMANN  
Technical University of Denmark**TA6.3** 11:20 - 11:40**Low Power Consumption Routing and Spectrum Allocation in Optical OFDM Networks** \*) +{Siwei QIANG, Xuan LUO, Yaohui JIN  
Shanghai Jiao Tong University**TA6.4** 11:40 - 12:00**Sustainable Next Generation Networks Design - A New BlueGreen Approach** \*) +-William LIU  
Auckland University of Technology

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**Session TM1**Date : **Thursday, 15 December 2011**Time : **13:30 - 14:50**Venue : **Pink Azalea****Biomedical Signal Processing II**Chair : **Vijayan K. ASARI**  
*University of Dayton*

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**TM1.1** **13:30 - 13:50****Investigation of Temporal Variability of Sleep EEG** , '*Suparek JANJARASJITT*  
*Ubon Ratchathani University***TM1.2** **13:50 - 14:10****A Wavelet-CSP Method to Classify Hand Movement Directions in EEG based BCI System** , ,*Neethu ROBINSON, A. P. VINOD, \*Cuntai GUAN, \*Kai Keng ANG, \*Tee Keng PENG*  
*Nanyang Technological University*  
*\*Agency for Science, Technology and Research***TM1.3** **14:10 - 14:30****Wavelet-Based Fractal Analysis of Sleep EEG** - '*Suparek JANJARASJITT*  
*Ubon Ratchathani University***TM1.4** **14:30 - 14:50****Log Power Representation of EEG Spectral Bands for the Recognition of Emotional States of Mind** - ,*Theus H. ASPIRAS, Vijayan K. ASARI*  
*University of Dayton*

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**Session TM2**Date : **Thursday, 15 December 2011**Time : **13:30 - 14:50**Venue : **White Azalea****Image/Video Analysis**Chair : **Toshihisa TANAKA**  
*Tokyo University of Agriculture and Technology*  
**Lap-Pui CHAU**  
*Nanyang Technological University*

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**TM2.1** **13:30 - 13:50****Vision-Based Attention in Maritime Environments** , '\$'*Thomas ALBRECHT, Tele TAN, Geoff A.W. WEST, \*Thanh LY, Simon MONCRIEFF*  
*Curtin University of Technology*  
*\*DSTO Australia***TM2.2** **13:50 - 14:10****Motion Capture Keyframing by Motion Change Manipulation** , '\$,*Ming-Hwa KIM, Lap-Pui CHAU, \*Wan-Chi SIU*  
*Nanyang Technological University*  
*\*The Hong Kong Polytechnic University***TM2.3** **14:10 - 14:30****Fast Intra Mode Decision of HEVC Based on Hierarchical Structure** , '%&*Jaehwan KIM, Jungyoup YANG, Hoyoung LEE, Byeungwoo JEON*  
*Sungkyunkwan University***TM2.4** **14:30 - 14:50****An Objective Criterion for the Comparison of Reconstructed Images** , '%&*Rachel Mabanag CHONG, Toshihisa TANAKA*  
*Tokyo University of Agriculture and Technology*

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**Session TM3 - Special Session**Date : **Thursday, 15 December 2011**Time : **13:30 - 14:50**Venue : **Red Azalea****Recent Advances on Adaptive Filtering**Chair : **Masahiro YUKAWA**  
*Niigata University*

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**TM3.1** **13:30 - 13:50****Rank-Selection Criterion for Krylov-Subspace-Based Adaptive Filtering Techniques** , '%&*Masahiro YUKAWA*  
*Niigata University***TM3.2** **13:50 - 14:10****Detection of Periodic Signals Using a New Adaptive Line Enhancer Based on Singular Spectrum Analysis** , '%&*Saeid SANEI, \*Tracey K. M. LEE*  
*University of Surrey*  
*\*Singapore Polytechnic / Monash University***TM3.3** **14:10 - 14:30****Exponential Normalized Sign algorithm for System Identification** , '\$*Jae Jin JEONG, Sang Woo KIM*  
*Pohang University of Science and Technology (POSTECH)***TM3.4** **14:30 - 14:50****An Adaptive Subspace Based Multichannel Equalization Algorithm for Room Acoustics Equalization with Sparseness Constraint** , '\$ (*Rajan S. RASHOBH, Di LIU, Andy W. H. KHONG*  
*Nanyang Technological University*

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**Session TM4**Date : **Thursday, 15 December 2011**Time : **13:30 - 14:50**Venue : **Green Orchid****System Identification & Modeling**Chair : **Andy W. H. KHONG**  
*Nanyang Technological University***TM4.1** **13:30 - 13:50****A MEMS Inertial Sensor and AMR  
Magnetic Sensor Calibration Method**\*\*\*\*' -*Wenming LI, Qingxiu DU, Peng MI*  
Institute of Automation, Chinese Academy  
of Sciences**TM4.2** **13:50 - 14:10****A Robust Deterministic Method for  
Blind Multiple Channel Identification**\*\*\*\* ( (*Chengpu YU, \*Cishen ZHANG, Lihua XIE*  
Nanyang Technological University  
\*Swinburne University of Technology**TM4.3** **14:10 - 14:30****Existence and Uniqueness of Solution  
to Second-Order Interpolation Problem  
via Topological Degree Theory**\*\*\*\*\* (-*Yohei KUROIWA***TM4.4** **14:30 - 14:50****An Image-Based Video Copy Detection  
using Ordinal Bitmap Signature**\*\*\*\*\*) (*Janya SAINUI, Ladda  
PREECHAVEERAKUL, \*Lekha  
CHAIORN*  
Prince of Songkla University  
\*Institute for Infocomm Research, A\*STAR

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**Session TM5**Date : **Thursday, 15 December 2011**Time : **13:30 - 14:30**Venue : **Yellow Orchid****Antennas & Propagation**Chair : **Soon Yim TAN**  
*Nanyang Technological  
University***TM5.1** **13:30 - 13:50****A Wideband High Gain Double EBG  
Reflector Antenna**\*\*\*\*\*) -*Pui-Yi LAU, \*Kenneth Kin-On YUNG, Zhi-  
Ning CHEN*  
Institute for Infocomm Research, A\*STAR  
\*City University of Hong Kong**TM5.2** **13:50 - 14:10****Design of Wideband Fractal Antenna  
with Combination of Fractal Geometries**\*\*\*\*\*)'*Yogesh Kumar CHOUKIKER, Santanu  
Kumar BEHERA*  
National Institute of Technology Rourkela**TM5.3** **14:10 - 14:30****The Characteristics of Multipath  
Propagation by Antenna Directivity at  
60 GHz**\*\*\*\*\*)B#*Jong Ho KIM, Myoung-Won JUNG,  
YoungKeun YOON*  
Electronic and Telecommunications  
Research Institute

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**Session TM6**Date : **Thursday, 15  
December 2011**Time : **13:30 - 15:00**Venue : **Red Gardenia****Optical Communication II**Chair : **Shilin XIAO**  
*Shanghai Jiao Tong  
University*  
**Vinod CHANDRA**  
Indian Institute of  
Technology Delhi**TM6.1** (Invited) **13:30 - 14:00****Photonic Approaches for Processing  
High Frequency Microwave Signals**\*\*\*\*\*)*Xiaoke YI, Robert MINASIAN*  
The University of Sydney**TM6.2** **14:00 - 14:20****Photonic Generation of Microwave  
Signals with Tunable Frequency**\*\*\*\*\*) +\$*Jia Haur WONG, Sheel ADITYA, \*Peng  
Huei LIM, Perry Ping SHUM, Huy Quoc  
LAM, \*Kenneth Eng Kian LEE, \*Vincent  
WONG*  
Nanyang Technological University  
\*Temasek Laboratories @ NTU**TM6.3** **14:20 - 14:40****An Optical MPPM-PSM Scheme for  
Increasing Data Transmission Rate**\*\*\*\*\*) +)*Takayoshi NUMATA, Hiromasa HABUCHI*  
Ibaraki University**TM6.4** **14:40 - 15:00****A Novel LED Arrangement to Reduce  
SNR Fluctuation for Multi-User in  
Visible Light Communication Systems**\*\*\*\*\*)', \$*Zixiong WANG, Wen-De ZHONG,  
\*Changyuan YU, \*\*Jian CHEN*  
Nanyang Technological University  
\*National University of Singapore / Institute  
of Infocomm Research, A\*STAR  
\*\*Nanjing University of Posts and  
Telecommunications

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**Session FA1**Date : **Friday, 16 December 2011**Time : **11:00 - 12:20**Venue : **Pink Azalea****Transforms & Spectrum**Chair : **Yoshifumi UKITA**  
Yokohama College of Commerce**FA1.1** 11:00 - 11:20**Substitution Coder – A Reversible Data Transform for Lossless Text Compression***Rexline S. JERARD, \*Robert LOURDUSAMY*  
Loyola College, Chennai  
\*Shaqra University, KSA**FA1.2** 11:20 - 11:40**A Note on Relation between the Fourier Coefficients and the Effects in the Experimental Design***Yoshifumi UKITA, \*Toshiyasu MATSUSHIMA*  
Yokohama College of Commerce  
\*Waseda University**FA1.3** 11:40 - 12:00**Relationship between the Haar Transform and the MRT***Rajesh Cherian ROY, \*R. GOPIKAKUMARI*  
FISAT, Angamaly  
\*CUSAT, Cochin, Kerala**FA1.4** 12:00 - 12:20**Estimation of Spectral Correlation Function Based on Evolutionary Spectral***Seyed Mohammad Ali TAYARANIAN HOSSEINI, Hamidreza AMINDAVAR*  
Amirkabir University of Technology

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**Session FA2**Date : **Friday, 16 December 2011**Time : **11:00 - 12:20**Venue : **White Azalea****Watermarking and Authentication**Chair : **Yoshinobu KAJIKAWA**  
Kansai University**FA2.1** 11:00 - 11:20**An Untraceable and Server-Independent RFID Authentication Scheme***Bin WANG, Maode MA*  
Nanyang Technological University**FA2.2** 11:20 - 11:40**Generalized Binned Linear Binary Codes as Dirty-Paper Codes for Digital Watermarking Application***Xiaoli XU, Xiaotian XU, Yong Liang GUAN*  
Nanyang Technological University**FA2.3** 11:40 - 12:00**Biometrics Authentication Method Using Lip Motion in Utterance***Atsushi SAYO, Yoshinobu KAJIKAWA, Mitsuji MUNAYASU*  
Kansai University**FA2.4** 12:00 - 12:20**Quantization Index Modulation Audio Watermarking System Using a Psychoacoustic Model***Xuemin ZHAO, \*Yuhong GUO, \*Jian LIU, \*\*Yonghong YAN*  
Key Laboratory of Speech Acoustics and Content Understanding, Chinese Academy of Sciences  
\*Key Laboratory of Speech Acoustics and Content Understanding, Chinese Academy of Science  
\*\*Institute of Acoustics, Chinese Academy of Sciences

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**Session FA3**Date : **Friday, 16 December 2011**Time : **11:00 - 12:20**Venue : **Red Azalea****Acoustic Signal Processing**Chair : **Jun YANG**  
Institute of Acoustics, Chinese Academy of Sciences**FA3.1** 11:00 - 11:20**A Study of the Ambiguity Problem in Footstep Bearing Estimation Using Tri-Axial Geophone***Divya VENKATRAMAN, Vinod REDDY, Andy W. H. KHONG*  
Nanyang Technological University**FA3.2** 11:20 - 11:40**Environmental Sound Classification using Spectral Dynamic Features***Mahdie KARBASI, Seyed Mohammad AHADI, Meysam BAHMANIAN*  
Amirkabir University of Technology**FA3.3** 11:40 - 12:00**Spectrally Correlated Sound Source Localization in a Noisy Environment Based on A New Mask for DUET***Ali POURMOHAMMAD, Seyed Mohammad AHADI*  
Amirkabir University of Technology**FA3.4** 12:00 - 12:20**Calibration of Parametric Acoustic Array***Chuang SHI, Woong-Seng GAN, Yong-Kim CHONG*  
Nanyang Technological University

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**Session FA4**Date : **Friday, 16 December 2011**Time : **11:00 - 12:30**Venue : **Green Orchid****Signal Processing Architecture**Chair : **Dake LIU**  
*Beijing Institute of Technology*  
**Gang LI**  
*Zhejiang University of Technology*

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**FA4.1** (Invited) **11:00 - 11:30**  
**ePUMA Embedded Parallel DSP Processor with Unique Memory Access**\*\*\*+ (%*Dake LIU, \*Andreas KARLSSON, \*Joar SOHL, \*Jian WANG, \*Magnus PETERSSON, Wenbiao ZHOU*  
Beijing Institute of Technology  
\*Linkoping University**FA4.2** **11:30 - 11:50****An Improved Lattice IIR Digital Filter Structure**\*\*\*\*+ (\**Chaogeng HUANG, Zhixing XU, Gang LI, Hong XU, Liping CHANG*  
Zhejiang University of Technology**FA4.3** **11:50 - 12:10****A High Resolution Temperature Detection Circuit**\*\*\*\*+)%*Shu-Xian LIAO, Zhi-Ming LIN*  
National Changhua University of Education**FA4.4** **12:10 - 12:30****An 8-bit 1.42GS/s 0.54mW CMOS Flash ADC**\*\*\*\*+))*You-Yi HSIEH, Zhi-Ming LIN*  
National Changhua University of Education

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**Session FA5**Date : **Friday, 16 December 2011**Time : **11:00 - 12:30**Venue : **Yellow Orchid****Cooperative Relay Communication**Chair : **Kah Chan TEH**  
*Nanyang Technological University*

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**FA5.1** (Invited) **11:00 - 11:30****Experimental Results of Two-Way Channel Estimation Technique for Coordinated Multi-Point Transmission**\*\*\*\*+)-*Hidekazu MURATA, Koji YAMAMOTO, Susumu YOSHIDA, \*Satoshi DENNO, \*\*Daisuke UMEHARA, Masahiro MORIKURA*  
Kyoto University  
\*Okayama University  
\*\*Kyoto Institute of Technology**FA5.2** **11:30 - 11:50****Interference Alignment for Degrees of Freedom Improvement in 3-Relay Half-Duplex Systems**\*\*\*\*+\*'*Seong-Ho PARK, Young-Chai KO, \*Ki-Hong PARK, \*Mohamed-Slim ALOUINI*  
Korea University  
\*KAUST**FA5.3** **11:50 - 12:10****Multi-User Transmission Scheduling for a Hybrid of Full- and Half-Duplex Relaying**\*\*\*\*+\* +*Makoto MIYAGOSHI, Koji YAMAMOTO, \*Katsuyuki HANEDA, Hidekazu MURATA, Susumu YOSHIDA*  
Kyoto University  
\*Aalto University**FA5.4** **12:10 - 12:30****On the DMT of Symmetric Two-User Interference Channel with Full-Duplex Multiple-Antenna Relay**\*\*\*\*+&*Qian (Clara) LI, \*Kah Chan TEH, \*Kwok Hung LI, \*Yongxu HU*  
Utah State University  
\*Nanyang Technological University

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**Session FA6**Date : **Friday, 16 December 2011**Time : **11:00 - 12:20**Venue : **Red Gardenia****Wireless Sensor Networks**Chair : **Suchismita CHINARA**  
*National Institute of Technology Rourkela*

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**FA6.1** **11:00 - 11:20****Application of Model Predictive Control in Wireless Sensor Networks**\*\*\*\*+&&*Xue Jun LI, Xuguang SHAO, Keck Voon LING, Boon Hee SOONG*  
Nanyang Technological University**FA6.2** **11:20 - 11:40****Distributed Transmit Power Control for Distributed Antenna Systems Using MRC**\*\*\*\*+, &*Shigemasa KUMAGAWA, Koji YAMAMOTO, Hidekazu MURATA, Susumu YOSHIDA, \*Daisuke UMEHARA, \*\*Satoshi DENNO, Masahiro MORIKURA*  
Kyoto University  
\*Kyoto Institute of Technology  
\*\*Okayama University**FA6.3** **11:40 - 12:00****EnergySim – A Novel, Fast, Extensible Wireless Sensor Network MAC Protocol Simulator for Evaluating Energy Efficiency**\*\*\*\*+, +*Adnan NASIR, Boon Hee SOONG*  
Nanyang Technological University**FA6.4** **12:00 - 12:20****Combining Channel Estimation and Sensor Fault Protection in Wireless Sensor Networks**\*\*\*\*+&*Si-Yao HUANG, \*Chia-Lung WU, Po-Ning CHEN, \*\*Tsang-Yi WANG, \*\*\*Yunghsiang S. HAN*  
National Chiao-Tung University  
\*Mobile Devices Inc.  
\*\*National Sun Yat-sen University  
\*\*\*National Taiwan University of Science and Technology

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**Session FM1**

Date : **Friday, 16 December 2011**  
Time : **13:30 - 15:30**  
Venue : **Pink Azalea**

**Filters and Filter Bank**

Chair : **Tian-Bo DENG**  
*Toho University*

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**FM1.1** **13:30 - 13:50**

**Unsupervised Design of Stack Filters by Tree Structure Optimization**

*Tatsuya SUZUKI, Yoshiko HANADA, Mitsuji MUNAYASU*  
Kansai University

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**FM1.2** **13:50 - 14:10**

**Spectrum Sensing in Cognitive Radios: Design of DFT Filter Banks Achieving Maximal Time-Frequency Resolution**

*Thomas HUNZIKER, Ubaid Ur REHMAN, Dirk DAHLHAUS*  
University of Kassel

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**FM1.3** **14:10 - 14:30**

**Odd-Order Variable Fractional-Delay Filters with Generalized Polygonal Constraints**

*Tian-Bo DENG*  
Toho University

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**FM1.4** **14:30 - 14:50**

**Reduction of Transients During Lifting Based Spatial Adaptation of Filter Banks**

*Dakala JAYACHANDRA, Anamitra MAKUR*  
Nanyang Technological University

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**FM1.5** **14:50 - 15:10**

**An Analytical Expression of FIR Filters with Derivative Constraints at Two Frequencies**

*Peng-Hua WANG*  
National Taipei University

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**FM1.6** **15:10 - 15:30**

**Design of Equiripple FIR Digital Differentiators Using Neural Weighted Least-Squares Algorithm**

*Yue-Dar JOU, \*Fu-Kun CHEN*  
R. O. C. Military Academy  
\*Southern Taiwan University

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**Session FM2 - Special Session**

Date : **Friday, 16 December 2011**  
Time : **13:30 - 15:30**  
Venue : **White Azalea**

**Computer Vision**

Chair : **Hyeran BYUN**  
*Yonsei University*

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**FM2.1** **13:30 - 13:50**

**Visual Tracking with Online Discriminative Learning**

*Se-In JANG, Kwontaeg CHOI, Youngsung KIM, Beom-Seok OH, Kar-Ann TOH*  
Yonsei University

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**FM2.2** **13:50 - 14:10**

**Person Independent Facial Expression Analysis using Gabor Features and Genetic Algorithm**

*Seyedehsamaneh SHOJAELANGARI, \*Wei-Yun YAU, Eam Khwang TEOH*  
Nanyang Technological University  
\*Institute for Infocomm Research, A\*STAR

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**FM2.3** **14:10 - 14:30**

**Signal and Feature Domain Enhancement Approaches for Robust Speech Recognition**

*Jinkyu LEE, Soonho BAEK, Hong-Goo KANG*  
Yonsei University

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**FM2.4** **14:30 - 14:50**

**Automatic Head Pose Estimation from a Single Camera Using Projective Geometry**

*Woo Won KIM, Sangheon PARK, Jinkyu HWANG, Sangyoun LEE*  
Yonsei University

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**FM2.5** **14:50 - 15:10**

**Human Interaction Recognition in YouTube Videos**

*Sunyoung CHO, Seongho LIM, Hyeran BYUN, \*Haejin PARK, \*\*Sooyeong KWAK*  
Yonsei University  
\*Miss Potter's School  
\*\*Hanbat National University

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**FM2.6** **15:10 - 15:30**

**Detail-Enhanced Fusion of Differently Exposed Images**

*Zhengguo LI, Jinghong ZHENG, Susanto RAHARDJA*  
Institute for Infocomm Research, A\*STAR

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**Session FM3 - Special Session**

Date : **Friday, 16 December 2011**  
Time : **13:30 - 15:10**  
Venue : **Red Azalea**

**Recent Advances in Multimedia & Human Computer Interfaces**

Chair : **Huaqun GUO**  
*Institute for Infocomm Research, A\*STAR*  
**Ying WEI**  
*Shandong Unviersity*

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**FM3.1** **13:30 - 13:50**

**Balancing Safety and Danger in Gaming for Better User Engagement**

*Qin En LOOI, Swee Lan SEE*  
Institute for Infocomm Research, A\*STAR

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**FM3.2** **13:50 - 14:10**

**A Design of Digital FIR Filter Banks with Adjustable Subband Distribution for Hearing Aids**

*Ying WEI, Debao LIU*  
Shandong Unviersity

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**FM3.3** **14:10 - 14:30**

**Depth Camera Based Hand Gesture Recognition and its Applications in Human-Computer-Interaction**

*Zhou REN, Jingjing MENG, Junsong YUAN*  
Nanyang Technological University

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**FM3.4** **14:30 - 14:50**

**Design and Implementation of Sub-Cover Difference Broadcast Encryption Algorithm**

*Qingqing Yi, \*Huaqun GUO, Wai Choong WONG*  
National University of Singapore  
\*Institute for Infocomm Research, A\*STAR

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**FM3.5** **14:50 - 15:10**

**Known-Item Search (KIS) in Video: Survey, Experience and Trend**

*Lekha CHAISORN, Yan-Tao ZHENG, Kelvin SIM*  
Institute for Infocomm Research, A\*STAR



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**Session FM4**Date : **Friday, 16 December 2011**Time : **13:30 - 15:30**Venue : **Green Orchid****Wireless Communication II**Chair : **Kwok Hung LI**  
*Nanyang Technological University***FM4.1** 13:30 - 13:50**Theoretical Analysis of Parallel Combinatory Spread-Spectrum Communication System for Optical Wireless Communications**, +*Yusuke KOZAWA, Hiromasa HABUCHI*  
Ibaraki University**FM4.2** 13:50 - 14:10**Effects of Composite PBNJ and MTJ on FFH/MFSK Systems with Maximum-Likelihood Receiver over Frequency-Selective Fading Channels**, , (*Ly-Minh-Duy LE, Kah Chan TEH, Kwok Hung LI*  
Nanyang Technological University**FM4.3** 14:10 - 14:30**Frequency Dependency of Propagation along a Lift Shaft on board a Merchant Ship**, , -*Xiao Hong MAO, Yee Hui LEE*  
Nanyang Technological University**FM4.4** 14:30 - 14:50**Sigma Delta Architecture Integration with Digital Pre-Distortion to Enhance Optimal Switch Mode Power Amplification (OSMPA) in FEMTO Cell Transceiver Design**, - , -*Sirmayanti SIRMAYANTI, Horace KING, Vandanna BASSO, Mike FAULKNER*  
Victoria University**FM4.5** 14:50 - 15:10**Tracking Markov Targets in Binary Sensor Networks: Source Coding and Large Deviation Limits on the Required Number of Queries**, - , +*Mohammad REZAEIAN, Jonathan H. MANTON, Bill MORAN*  
University of Melbourne**FM4.6** 15:10 - 15:30**Indoor Localization System using Wireless Sensor Networks for Stationary and Moving Target** B#*Panarat CHERNTANOMWONG, Dwi Joko SUROSO*  
King Mongkut's Institute of Technology Ladkrabang

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**Session FM5**Date : **Friday, 16 December 2011**Time : **13:30 - 15:00**Venue : **Yellow Orchid****Network Applications**Chair : **Boon Hee SOONG**  
*Nanyang Technological University***FM5.1** (Invited) 13:30 - 14:00**Adaptive Algorithm and Relay Selection for Decode-and-Forward Cooperative Multiple-Antenna Terminals** - \$'*Weixiao MENG, \*Yuhui HAN, Ye ZHANG*  
Harbin Institute of Technology  
\*Harbin Institute of Technology; Harbin University of Science and Technology**FM5.2** 14:00 - 14:20**Performance Study of ENUM Service Based in Modeling and Simulation** - \$,*Saulo Henrique DA MATA, Paulo Roberto GUARDIEIRO, \*Alexandre CARDOSO, \*Edgard LAMOUNIER, \*Luiz C. THEODORO*  
Federal University of Uberlândia  
\*Federal University of Uberlandia**FM5.3** 14:20 - 14:40**Pilot-Assisted Channel Estimation for Coexisting Heterogeneous Wireless Personal Area Networks** - %*Abolfazl MEHBODNIYA, Fumiyuki ADACHI, Gui GUAN*  
Tohoku University**FM5.4** 14:40 - 15:00**MC-OR: Opportunistic Routing Based Multicast Protocol for Wireless Mesh Networks** - %*Vicky CHHEDA, Sanjay Kumar BOSE, \*Wen-De ZHONG*  
Indian Institute of Technology Guwahati  
\*Nanyang Technological University

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**Session FM6**Date : **Friday, 16 December 2011**Time : **13:30 - 15:10**Venue : **Red Gardenia****Optical Networks**Chair : **Xiaofei CHENG**  
*Institute for Infocomm Research, A\*STAR*  
**Horace KING**  
*Victoria University***FM6.1** (Invited) 13:30 - 14:00**Evolution Scenarios for Passive Optical Access Networks** - &*Shilin XIAO, Zhao ZHOU, Meihua BI, Min ZHU, He CHEN*  
Shanghai Jiao Tong University**FM6.2** 14:00 - 14:20**4x4 Optical Data Vortex Switch Fabric: Fault Tolerance and Network Reliability Analysis** - &*R.G. SANGEETHA, Devi CHADHA, Vinod CHANDRA*  
Indian Institute of Technology Delhi**FM6.3** 14:20 - 14:40**Heuristic Algorithms for Multicast Traffic Grooming in WDM Mesh Networks** - ' (*Rongping LIN, Wen-De ZHONG, \*Sanjay Kumar BOSE, \*\*Moshe ZUKERMAN*  
Nanyang Technological University  
\*Indian Institute of Technology Guwahati  
\*\*City University of Hong Kong**FM6.4** (Invited) 14:40 - 15:10**Design Methodologies for Optical WDM Networks with Awareness of Transmission Impairments** - ' -*Debasish DATTA*  
Indian Institute of Technology Kharagpur

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**Session FP1**Date : **Friday, 16 December 2011**Time : **16:00 - 17:40**Venue : **Pink Azalea****Biomedical Signal Processing III**Chair : **Hsien-Tsai WU**  
*National Dong Hwa University***FP1.1** **16:00 - 16:20****A Signal-Noise Separation Algorithm for the Estimation of Respiratory Rate from Breath Sound** ( (*Ian LIN, Wee SER, Jianmin ZHANG, \*Daniel GOH**Nanyang Technological University  
\*National University of Singapore***FP1.2** **16:20 - 16:40****A New Markovian Approach Towards Neural Spike Sorting** ( ,*Soheila SAMIEE, Mohammad Bagher SHAMSOLLAHI, \*Vincent VIGNERON**Sharif University of Technology  
\*University of Evry***FP1.3** **16:40 - 17:00****Ensemble Empirical Mode Decomposition for Atherosclerosis in High-Risk Subjects** ( (*Ching-Shuen CHEN, Cyuan-Cin LIU, Hsien-Tsai WU, \*An-Bang LIU**National Dong Hwa University  
\*Buddhist Tzu Chi General Hospital and Buddhist Tzu Chi University***FP1.4** **17:00 - 17:20****Quasi-Static Field Modeling with Bone and Joint Effects in Intra-Body Communication** ( (*Xi Mei CHEN, Sio Hang PUN, Ze-tian WANG, Peng-un MAK, Mang I VAI**University of Macau***FP1.5** **17:20 - 17:40****A Morphological Approach to Pulse Feature Extraction from the Digital Volume Pulse** ( (*Dae-Geun JANG, Minsoo HAHN, \*Umar FAROOQ, \*Jae-Keun JANG, \*Seung-Hun PARK**Korea Advanced Institute of Science and Technology  
\*Kyung Hee University*

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**Session FP2**Date : **Friday, 16 December 2011**Time : **16:00 - 18:00**Venue : **White Azalea****Visualization & Imaging**Chair : **Jeehong LEE**  
*LGE*  
**Stefan WINKLER**  
*Advanced Digital Sciences Center (ADSC)***FP2.1** **16:00 - 16:20****Saliency Guided Image-Driven Simplification** ( (*Cheon-Hau TAN, Lap-Pui CHAU*  
*Nanyang Technological University***FP2.2** **16:20 - 16:40****Stereoscopic Image Quality Compendium** ( (*Stefan WINKLER, Dongbo MIN*  
*Advanced Digital Sciences Center (ADSC)***FP2.3** **16:40 - 17:00****A Research on Controlling Three-Dimensional Effect of The Video Frames Obtained from Stereo Camera** ( (*Jeehong LEE, Kyu-yeol CHAE, Simon JI LGE***FP2.4** **17:00 - 17:20****Visualization of Multispectral Video with Moving Background Based on Background Extraction and Fusion** ( (*B Chandra Sekhar REDDY, Parul SHAH, Shabbir N. MERCHANT, Uday B. DESAI*  
*Indian Institute of Technology Bombay***FP2.5** **17:20 - 17:40****Efficient Hierarchical Fusion using Adaptive Grouping Techniques for Visualization of Hyperspectral Images** ( (*Parul SHAH, \*Maxime DRUMETZ, Shabbir N. MERCHANT, Uday B. DESAI*  
*Indian Institute of Technology Bombay  
\*Enseirb Metmecha Bordeaux***FP2.6** **17:40 - 18:00****Edge-Based Image Interpolation Approach for Video Sensor Network** ( (*Jinglun SHI, Kang CAI, Shangkun XIONG, Gang WEI*  
*South China University of Technology*

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**Session FP3**Date : **Friday, 16 December 2011**Time : **16:00 - 18:00**Venue : **Red Azalea****Intelligent and Cloud Computing**Chair : **Tele TAN**  
*Curtin University of Technology***FP3.1** **16:00 - 16:20****Vehicle Simulation and Interception for Military Command and Control Systems** ( (*Stuart SPEIDEL, Justin PERRIE, Aneesh KRISHNA, Tele TAN, \*John WIESE*  
*Curtin University of Technology  
\*Thales Australia***FP3.2** **16:20 - 16:40****A Study on the Effectiveness of Biometrics Based Alternative Communication Tool** ( (*Chin Ann ONG, Bee Theng LAU*  
*Swinburne University of Technology***FP3.3** **16:40 - 17:00****A Review of Some Bayesian Belief Network Structure Learning Algorithms** ( (*Sangeeta MITTAL, Shankar Lall MASKARA*  
*Jaypee Institute of Information Technology, Noida***FP3.4** **17:00 - 17:20****Development of a Navigation System for the Blinds** ( (*Zi-ying YU, Yong XU, Jun YANG, \*Ran BI*  
*Institute of Acoustics, Chinese Academy of Sciences  
\*Xicheng District Disabled Persons Federation***FP3.5** **17:20 - 17:40****Adaptive Traffic Signal Control System with Cloud Computing Based Online Learning** ( (*Dilip K. PRASAD*  
*Nanyang Technological University***FP3.6** **17:40 - 18:00****Towards Security in Sharing Data on Cloud-Based Social Networks** ( (*Duc H. TRAN, Hai-Long NGUYEN, Wei ZHA, Wee Keong NG*  
*Nanyang Technological University*

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**Session FP4**

Date : Friday, 16 December 2011  
Time : 16:00 - 18:00  
Venue : Green Orchid

**Network Coding & Cognitive Radio**

Chair : Weixiao MENG  
Harbin Institute of Technology

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**FP4.1** 16:00 - 16:20**A Real-Time and High Coding Opportunity Discovery Scheme In Multi-Hop Wireless Network**

Yunlong ZHAO, Zhao DONG, \*Masayuki IWAI, \*Kaoru SEZAKI, \*\*Yoshito TOBE  
Harbin Engineering University  
\*The University of Tokyo  
\*\*Tokyo Denki University

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**FP4.2** 16:20 - 16:40**Joint Network Coding for Interfering Wireless Multicast Networks**

Jalaluddin QURESHI, Chuan Heng FOH, Jianfei CAI  
Nanyang Technological University

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**FP4.3** 16:40 - 17:00**Adaptive Power Allocation for Bi-Directional Single-Carrier Relay Using Analog Network Coding**

Hirokyuki MIYAZAKI, Masayuki NAKADA, Tatsunori OBARA, Fumiyuki ADACHI  
Tohoku University

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**FP4.4** 17:00 - 17:20**An Energy Detector for Cognitive Radios in Channels at Low SNR Using Adaptive Threshold**

Prashob R NAIR, A. P. VINOD, \*Anoop Kumar KRISHNA  
Nanyang Technological University  
\*EADS Innovation Works

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**FP4.5** 17:20 - 17:40**Cognitive Spectrum Sensing with the Aid of Location Information**

Muhammad Sibtain HAMAYUN, Yi GONG, \*Junhui ZHAO  
Nanyang Technological University  
\*Beijing Jiaotong University

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**FP4.6** 17:40 - 18:00**Cognitive Beamforming Exploiting Stiefel Manifold for Sum-Transmit Power Minimization**

Sheng-Ming CAI, Yi GONG  
Nanyang Technological University

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**Session FP5**

Date : Friday, 16 December 2011  
Time : 16:00 - 18:00  
Venue : Yellow Orchid

**Microwave Circuits & Systems**

Chair : Pui-Yi LAU  
Institute for Infocomm Research, A\*STAR  
Santanu Kumar BEHERA  
National Institute of Technology Rourkela

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**FP5.1** 16:00 - 16:20**Bandstop Filter Based on Composite Right/Left Handed Transmission Line at Dual WLAN Bands**

Cheng JIN, Arokiaswami ALPHONES  
Nanyang Technological University

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**FP5.2** 16:20 - 16:40**Dual Bandpass Filter using MIM based Composite Right/Left Handed Transmission Line**

George Francis ROSHAN, Cheng JIN, Arokiaswami ALPHONES  
Nanyang Technological University

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**FP5.3** 16:40 - 17:00**Planar Helix Slow-Wave Structure With Straight-Edge Connections in the Presence of Coplanar Ground Planes**

Ciersiang CHUA, Sheel ADITYA, Zhongxiang SHEN, \*Julius M. TSAI  
Nanyang Technological University  
\*Agency for Science, Technology and Research

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**FP5.4** 17:00 - 17:20**A Novel Multiple-Tunable Millimeter-Wave Frequency Synthesizer**

Yuanwang YANG, Jingye CAI, Lianfu LIU  
University of Electronic Science and Technology of China

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**FP5.5** 17:20 - 17:40**System Study of a 60 GHz Wireless-Powered Monolithic Sensor System**

Yan WU, J.P.M.G. LINNARTZ, Hao GAO, P.G.M. BALTUS, \*J.W.M. BERGMANS  
Eindhoven University of Technology  
\*Eindhoven University of Technology

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**FP5.6** 17:40 - 18:00**Fast and Accurate Prediction of Reverberation Chambers' Resonant Frequencies Using Time-Domain Integral Equation and Matrix Pencil Method**

Huapeng ZHAO, Zhongxiang SHEN  
Nanyang Technological University

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**Session FP6**

Date : Friday, 16 December 2011  
Time : 16:00 - 18:00  
Venue : Red Gardenia

**Wireless Communication III**

Chair : Xuguang SHAO  
Nanyang Technological University

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**FP6.1** 16:00 - 16:20**An Efficient and Secured Multi-Server Authentication Scheme**

Bin WANG, Maode MA  
Nanyang Technological University

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**FP6.2** 16:20 - 16:40**A Low Complexity Linear Regression Approach to Time Synchronization in Underwater Networks**

Tarik-UI Islam KHANDOKER, Defeng (David) HUANG, Victor SREERAM  
University of Western Australia

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**FP6.3** 16:40 - 17:00**Performance of Frequency-Domain Oversampling Based Receiver for MIMO-OFDM in Doubly Selective Fading Channels**

Qinghua SHI, Y. KARASAWA  
University of Electro-Communications

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**FP6.4** 17:00 - 17:20**Data-Aided Joint Symbol Timing and CFO Estimation for OFDM/OQAM Systems**

Gang YANG, Hao CHEN, Su HU, Gang WU, Shaoqian LI  
University of Electronic Science and Technology of China

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**FP6.5** 17:20 - 17:40**A Forward-Parsing Randomness Test Based on the Expected Codeword Length of T-Codes**

Ulrich SPEIDEL  
The University of Auckland

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**FP6.6** 17:40 - 18:00**Packet Flow Histograms to Improve Firewall Efficiency**

Zouheir TRABELSI, Liren ZHANG, Safaa ZEIDAN  
UAE University