### Image Coding and Communications I

**Chair:** Shoichiro Yamasaki (Toshiba Corp., Japan)

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6-1-1</td>
<td>233</td>
<td>Overview of MPEG-7 Multimedia Content Description Standard</td>
<td>Atul Puri (AT&amp;T Labs - Research, USA)</td>
</tr>
<tr>
<td>A6-1-2</td>
<td>220</td>
<td>An Efficient Moving Object Segmentation Algorithm for MPEG-4 Encoding Systems</td>
<td>Shyh-Yih Ma, Shao-Yi Chien and Liang-Gee Chen (Dept. of Electrical Engineering, National Taiwan Univ., Taiwan)</td>
</tr>
<tr>
<td>A6-1-3</td>
<td>084</td>
<td>Scalable Multimedia Communication over Heterogeneous Network</td>
<td>Wang Pei Jie, Shang Fuchun, Ding Ping and Lee Seng Luan (Center for Wavelets, Approximation and Information Processing, National Univ. of Singapore, Singapore)</td>
</tr>
<tr>
<td>A6-1-4</td>
<td>187</td>
<td>Coding Videophone Sequences at Better Perceptual Quality by Using Face Localization and Bit Redistribution</td>
<td>Donglas Chai and Abdesselam Bouzerdoum (Edith Cowan Univ., Australia)</td>
</tr>
<tr>
<td>A6-1-5</td>
<td>227</td>
<td>A New Traffic Model for VBR Video</td>
<td>Wai-Chung Poon and Kwok-Tung Lo (Dept. of Electronic and Information Engineering, Hong Kong Polytechnic Univ., Hong Kong)</td>
</tr>
</tbody>
</table>

### Image Coding and Communications II

**Chairs:** Atul Puri (AT&T Labs - Research, USA) and Masayuki Kawamata (Tohoku Univ., Japan)

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6-2-1</td>
<td>228</td>
<td>An Adaptive Scheme for Batching in Video-On-Demand Systems</td>
<td>W.-F. Poon, K.-T. Lo (Hong Kong Polytechnic Univ., Hong Kong) and J. Feng (City Univ. of Hong Kong, Hong Kong)</td>
</tr>
<tr>
<td>A6-2-2</td>
<td>030</td>
<td>Comparative Study of Compression Methodologies for Digital Angiogram Video</td>
<td>David Gibson, Michael Spann and Sandra Woolley (School of Electronic &amp; Electrical Eng., Univ. of Birmingham, UK)</td>
</tr>
</tbody>
</table>
A6-2-3 195 Wireless MPEG-4 Video Communication Using Adaptive Iterative Decoding of Turbo Codes
Shoichiro Yamasaki, Atsushi Asano and Hirokazu Tanaka (YRP Key Tech Labs, Japan)

A6-2-4 007 Turbo TCM Used for Compressed Image Transmission over Noisy Channels
Yao-Jun Wu, C. S. Leung, K. W. Wong (Dept. of Biomedical Engineering, Shanghai Jial Tong Univ., China) and Tian-Ge Zhuang (Dept. of Electronic Engineering, City Univ. of Hong Kong, Hong Kong)

A6-2-5 100 BER Estimation of Reed-Solomon Codes on an Impulse Noise Channel
T. He, S. Y. Tan (Dept. of Electrical Engineering, National Univ. of Singapore, Singapore), Y. H. Chew (Center for Wireless Communications, Singapore), T. T. Tjhung and C. C. Ko (Dept. of Electrical Engineering, National Univ. of Singapore, Singapore)

A6-2-6 120 Optimized Interpolation Filters for Scalable Wavelet Video Coding
Mathias Wien and Bernd Menser (Institute fur Elektrische Nachrichtentechnik, Rheinisch-Westfalische Technische Hochschule Aachen, Germany)

A6-3 Special Session: Wavelet Based Image Coding
Organizers: Hitoshi Kiya (Tokyo Metropolitan Univ., Japan) and Masaaki Ikehara (Keio Univ., Japan)
Chairs: Zixiang Xiong (Texas A&M Univ., USA) and Masahiro Iwahashi (Nagaoka Univ. of Tech, Japan)

A6-3-1 600 Sketch-Based Image Coding Using Multiscale Fuzzy Rule-Based Edge Selection
Makoto Nakashizuka, Hidetoshi Okazaki (Tokyo Univ. of Agriculture and Technology, Japan) and Hisakazu Kikuchi (Niigata Univ., Japan)

A6-3-2 601 A Fast Motion Estimation in the Wavelet Transform Domain for Video Compression
Sanghyun Joo, Shogo Muramatsu and Hisakazu Kikuchi (Niigata Univ., Japan)

A6-3-3 164 Wavelet-Based Lossy-To-Lossless Coding of Cytogenetic Image with Arbitrary Regions of Support
Qiang Wu (Perceptive Scientific Instruments, Inc., USA), Zixiang Xiong, Yuping Wang (Dept. of Electrical Eng., Texas A&M Univ., USA) and Kenneth R. Castleman (Perceptive Scientific Instruments, Inc., USA)

A6-3-4 602 Lossless Coding Gain and Its Application to Evaluating Lossless Wavelets
Somchart Chokchaitam, Masahiro Iwahashi, Pavol Zavarsky and Noriyoshi Kambayashi (Nagaoka Univ. of Technology, Japan)

A6-3-5 603 An Expansion of Visual Frequency Weighting for Image Coding with Wavelet Transform
Katsutoshi Ando, Kiyoshi Nishikawa and Hitoshi Kiya (Tokyo Metropolitan Univ., Japan)
<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6-3-6</td>
<td>159</td>
<td>Memory-Constrained 3D Wavelet Transforms for Video Coding without Boundary Effects</td>
<td>Jizheng Xu, Shipeng Li (Microsoft Research, China), Zixiang Xiong (Dept. of Electrical Eng., Texas A&amp;M Univ., USA) and Ya-Qin Zhang (Microsoft Research, China)</td>
</tr>
<tr>
<td>A7-1</td>
<td></td>
<td>Image Processing I</td>
<td>Chairs: Yoshinao Aoki (Hokkaido Univ., Japan) and Wang Pei Jie (National Univ. of Singapore, Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000/11/7 10:10-11:50</td>
<td></td>
</tr>
<tr>
<td>A7-1-1</td>
<td>125</td>
<td>Proposal of a Video Data Filter for Real-World Information</td>
<td>Xu Xu, Haomin Jin, Yoshimoto Yaginuma and Masao Sakauchi (Institute of Industrial Science, Univ. of Tokyo, Japan)</td>
</tr>
<tr>
<td>A7-1-2</td>
<td>065</td>
<td>Image Enhancement for Noisy Images Considering Continuity of Edges</td>
<td>Yuji Wada, Mitsui Muneyasu, Ryota Nakamura and Takao Hinamoto (Faculty of Engineering, Hiroshima Univ., Japan)</td>
</tr>
<tr>
<td>A7-1-3</td>
<td>177</td>
<td>A Representation of Palette-Based Images for Progressive Transmitting</td>
<td>Osamu Watanabe, Hiroshige Asano and Hitoshi Kiya (Dept. of Electrical Eng., Tokyo Metropolitan Univ., Japan)</td>
</tr>
<tr>
<td>A7-1-4</td>
<td>029</td>
<td>Application of the EZW Algorithm to Content-Based Image Compression</td>
<td>Hon Nin Cheung (School of Mechatronic, Computer and Electrical Engineering, Univ. of Western Australia) and L. Ang (School of Engineering and Mathematics, Edith Cowan Univ., Australia)</td>
</tr>
<tr>
<td>A7-1-5</td>
<td>232</td>
<td>Estimation Motion Vector of Self-Organized Clustering</td>
<td>Hiroki Awakura, Yoshikazu Miyanaga and Norinobu Yoshida (Dept. of Electronic Engineering, Hokkaido Univ., Japan)</td>
</tr>
<tr>
<td>A7-2</td>
<td></td>
<td>Image Processing II</td>
<td>Chairs: Kamisetty R. Rao (Univ. of Texas at Arlington, USA) and Makoto Nakashizuka (Tokyo Univ. of Agriculture and Technology, Japan)</td>
</tr>
<tr>
<td>A7-2-1</td>
<td>115</td>
<td>Automatic Liver Segmentation by Comparing of Gray Value Portion on Abdominal CT Image</td>
<td>Seung-Wha Yoo, Jun-Sik Cho, Seung Moo Noh, Kyung-Suk Shin and Jong-Won Park (Chungnam National Univ., Korea)</td>
</tr>
<tr>
<td>A7-2-2</td>
<td>185</td>
<td>The Different Tissue Types Identification in the Distribution of MR Image Using 3D Scatterplot</td>
<td>Thurdsak Leauhatong, Tippawan Wungsuk, Surapan Airphaiboon, Manas Sangwarasilp (Dept. of Electronics, KMITL, Thailand) and Shozo Kondo (Tokai Univ., Japan)</td>
</tr>
</tbody>
</table>
A7-2-3  116  Tissue Segmentation and Volumetry on Brain MR Image of Coronal Section Having the Partial Volume Artifact
Y. C. Sung, C. J. Song, S. M. Noh and J. W. Park (Chungnam National Univ., Korea)

A7-2-4  069  Embedding and Extracting Digital Watermark Using the Average of DCT Coefficients
Yuji Morita, Yoshino Aoki, Naofumi Aoki and Tsuyoshi Yamamoto (Division of Electronics & Information Engineering, Hokkaido Univ., Japan)

A7-2-5  123  Digital Watermarking Technique for Degraded Low-Resolution Document Image Authentication
Nopporn Chotikakamthorn (Faculty of Information Technology, KMITL, Thailand)

A7-2-6  151  Digital Watermarking Using Computer Generated Hologram by Error Diffusion Methods
Yoshiaki Fukunaga and Yoshino Aoki (Division of Information Media Engineering, Hokkaido Univ., Japan)

---

A7-3  Image Processing III

2000/11/7 15:40-17:20

A7-3-1  022  An Invisible Image Watermarking Algorithm Based on Wavelet Coefficient Bit-Plane Embedding
Michael Spann (School of Electronic and Electrical Engineering, Univ. of Birmingham, UK)

A7-3-2  063  Fast Object Detection and Segmentation in MPEG Compressed Domain
Orachat Sukmarg and K. R. Rao (Dept. of Electrical Engineering, Univ. of Texas at Arlington, USA)

A7-3-3  071  Data-Driven Color Image Segmentation Based on a Multi-Dimensional Histogram
Tatsuya Yamazaki (ATR Adaptive Communications Research Lab., Japan) and Osamu Nishida (Dept. of Electrical Eng., Nagaoka Univ. of Technology, Japan)

A7-3-5  152  Image Restoration Theory Using Interconnection of Images in the Multiresolution Representation
Attasit Lasakul, Manus Sangworasil (Dept. of Industrial Technology, KMITL, Thailand), Shoozo Kondo and Kiyoaki Atsuta (Dept. of Communication Engineering, Tokai Univ., Japan)

A7-3-6  139  Low Bit-Rate Subband Image Coding with Critical Sampling Constraint Using a Weighted Mean Filter
Ho-Cheon Wey and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)
## Speech Processing and Coding I

**Chairs:** Nobuo Hataoka (Hitachi Ltd., Japan) and Atsushi Nakagaki (Kitami Institute of Technology, Japan)

### A8-1-1 121

**Title:** Vector Quantization of Mel-Cepstral Coefficients Based on a Statistical Measure  
**Authors:** Tohru Takahashi, Keiichi Tokuda (Nagoya Institute of Technology, Japan), Takao Kohayashi (Tokyo Institute of Technology, Japan) and Tadashi Kitamura (Nagoya Institute of Technology, Japan)

### A8-1-2 090

**Title:** A Speaker Independent Phonetic Vocoder for the English Language  
**Authors:** John Dines and Sridha Sridharan (Speech Research Laboratory, RCSAVT School of Electrical and Electronic Systems Engineering, Queensland Univ. of Technology, Australia)

### A8-1-3 066

**Title:** Development of a Rule-Based Speech Synthesis System for the Japanese Language Using a MELP Vocoder  
**Authors:** Naofumi Aoki (Graduate School of Engineering, Hokkaido Univ., Japan), Kunio Takaya (Dept. of Electrical Eng., Univ. of Saskatchewan, Canada), Yoshinao Aoki and Tsuyoshi Yamamoto (Graduate School of Engineering, Hokkaido Univ., Japan)

### A8-1-4 201

**Title:** On-Line Cepstral Normalization for Cellular Hands-Free Speech Recognition  
**Authors:** Rathinavelu Chengalvarayan (Speech Processing Group, Lucent Speech Solutions Dept., Lucent Technologies, USA)

## Speech Processing and Coding II

**Chairs:** Keiichi Tokuda (Nagoya Institute of Technology, Japan) and Rathinavelu Chengalvarayan (Lucent Technologies, USA)

### A8-2-1 180

**Title:** Spectral Autocorrelation as a Usability Measure of Speech Segments Under Co-Channel Conditions  
**Authors:** Kasturi R. Krishnamachari, Robert E. Yantorno (Temple Univ., USA), Daniel S. Benincasa and Stanley J. Wenndt (Air Force Research Lab., USA)

### A8-2-2 089

**Title:** Narrowband Speech Enhancement Using Fricative Spreading and Bandwidth Extension  
**Authors:** Michael Mason, Darren Butler, Sridha Sridharan and Vinod Chandran (Speech Research Laboratory, RCSAVT School of Electrical and Electronic Systems Engineering, Queensland Univ. of Technology, Australia)

### A8-2-3 060

**Title:** Improving Speaker Adaptation by Adjusting the Adaptation Data Set  
**Authors:** Chengyi Zheng (Center for Spoken Language Understanding, Oregon Graduate Institute, USA) and Yonghong Yan (Intel Corp., USA)

### A8-2-4 035

**Title:** A Framework for Internet-Based Tutorials on Spoken Language Engineering  
**Authors:** Matthias Eichner, Matthias Wolff and Rudiger Hoffmann (Laboratory of Acoustics and Speech Communication, Dresden Univ. of Technology, Germany)
### A8-3 Noise Reduction & System Identification

**Chair:** Akira Omoto (Kyushu Institute of Design, Japan)


<table>
<thead>
<tr>
<th>Session</th>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>A8-3-1</td>
<td>178</td>
<td>Basis Sequence Approximation for Time-Varying Quadratic Volterra Models</td>
<td>Matthew Green and Abdelhak M. Zoubir (Australian Telecommunications Research Institute &amp; School of Electrical and Computer Engineering, Curtin Univ. of Technology, Australia)</td>
</tr>
<tr>
<td>A8-3-2</td>
<td>244</td>
<td>Separated Linear Prediction-Improved Spectral Modeling by Sample Grouping</td>
<td>Susanna Varho and Paavo Alku (Acoustics and Audio Signal Processing, Helsinki Univ. of Technology, Finland)</td>
</tr>
<tr>
<td>A8-3-3</td>
<td>127</td>
<td>Eigenfilters for Signal Cancellation</td>
<td>Sunil Bharitkar and Chris Kyriakakis (Dept. of EE-Systems, Univ. of Southern California, USA)</td>
</tr>
<tr>
<td>A8-3-4</td>
<td>079</td>
<td>A New Noise Reduction Method Based on Linear Prediction</td>
<td>Arata Kawamura (Dept of Electrical and Electronic Engineering, Tottori Univ., Japan), Kensaku Fujii (Network System Lab., Fujitsu Laboratories Ltd., Japan), Yoshio Itoh and Yutaka Fukui (Dept of Electrical and Electronic Engineering, Tottori Univ., Japan)</td>
</tr>
<tr>
<td>A8-3-5</td>
<td>001</td>
<td>Parameter Identification from Noisy Chaotic Signals with Simultaneous Noise Reduction</td>
<td>Luxi Yang, Yang Chen, Zhenya He (DSP Division, Dept. of Radio Engineering, Southeast Univ., China) and John Cheung (Dept. of Electrical Eng, Univ. of Oklahoma, USA)</td>
</tr>
<tr>
<td>A8-3-6</td>
<td>122</td>
<td>Improved Temporal Weight Spacing for Broadband Beamforming with Signal Acoustic Interfering Signal</td>
<td>Nopporn Chotikakamthorn, Rungrote Phonkam and Klaikangwol Sorntham (Faculty of Information Technology, KMITL, Thailand)</td>
</tr>
</tbody>
</table>

### A8-4 Multidimensional & Nonlinear Signal Processing

**Chairs:** John Cheung (Univ. of Oklahoma, USA) and Masahide Abe (Tohoku Univ., Japan)

2000/11/8 15:40-17:40

<table>
<thead>
<tr>
<th>Session</th>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>A8-4-1</td>
<td>186</td>
<td>Non-Markovian Approach in the Statistical Analysis Problems of Multidimensional Filters</td>
<td>V. A. Kazakov (Dept. of Telecommunications, High School of Mechanics and Electrics of National Polytechnical Institute of Mexico, Mexico)</td>
</tr>
<tr>
<td>A8-4-2</td>
<td>141</td>
<td>Design of Multiplierless 2-D Filters</td>
<td>Ratchaneekorn Thamvichai, Tamal Bose and Delores M. Etter (Dept. of Electrical and Computer Engineering, Univ. of Colorado, USA)</td>
</tr>
<tr>
<td>Session</td>
<td>Time</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>A8-4-3</td>
<td>075</td>
<td>Quadratic Approximation vs. MCMC Predictive Mean Computations and Model Comparisons for Hierarchical Bayes Approach with Neural Nets</td>
<td>Yoshinori Nakajima, Yohei Nakada, Yoshihiro Satoh, Takashi Matsumoto and Masato Asano (Dept. of Electrical, Electronics and Computer Engineering, Waseda Univ., Japan)</td>
</tr>
<tr>
<td>A8-4-4</td>
<td>046</td>
<td>A State Estimation and Correction Method Using Neural Networks for Amplitude-Saturated Observations in Non-Linear Systems and Its Application to the Acoustic Measurement</td>
<td>Noboru Nakasako, Tomoya Yamamoto (School of Biology-Oriented Sc. &amp; Tech, Kinki Univ., Japan), Eiji Watanabe and Yasuo Mitani (Faculty of Eng., Fukuyama Univ., Japan)</td>
</tr>
<tr>
<td>A8-4-5</td>
<td>196</td>
<td>Nonlinear AR Model Identification with Unknown Process Order</td>
<td>E. N. Demiris, S. D. Likothanassis, G. N. Beligiannis and A. V. Adamopolos (Dept. of Computer Engineering and Informatics, Univ. of Patras, Greece)</td>
</tr>
<tr>
<td>A8-4-6</td>
<td>042</td>
<td>Neural Filter with Selection of Input Features and Its Application to Image Quality Improvement of Medical Image Sequences</td>
<td>Kenji Suzuki, Isao Horiba (Faculty of Information Science and Technology, Aichi Prefectural Univ., Japan) and Noboru Sugie (Faculty of Science and Technology, Meijo Univ., Japan)</td>
</tr>
</tbody>
</table>

**B6-1**  
Wavelet & Multirate Signal Processing  
Chairs: Hisakazu Kikuchi (Niigata Univ., Japan) and Truong Nguyen (Univ. of Wisconsin Madison, USA)  
2000/11/6 10:10-11:50

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>B6-1-1</td>
<td>053</td>
<td>Dynamic Approach of Detection Associated with Wavelet Decomposition</td>
<td>Mohamad Khalil (Faculty of Engineering, Lebanese Univ., France) and Jacques Duchene (LM2S Lab., Univ. of Technology of Troyes, France)</td>
</tr>
<tr>
<td>B6-1-2</td>
<td>207</td>
<td>A Custom Design Construction of Semi-Orthogonal Wavelets for Ultrasonic A-Scan Signals Compression</td>
<td>Adb-Krim Seghouane, Sebastien Maizy and Gilles Fleury (Ecole Superieure d'Electricite, France)</td>
</tr>
<tr>
<td>B6-1-3</td>
<td>085</td>
<td>A Pseudo Linear Criterion for Multifilter Bank Design</td>
<td>Lixin Shen, Hwee Huat Tan and Fuchun Shang (Dept. of Mathematics, National Univ. of Singapore, Singapore)</td>
</tr>
<tr>
<td>B6-1-4</td>
<td>147</td>
<td>Solving Initial Boundary Value Problems via Wavelet Collocation Methods in Multi-Dimensional Time Evolution PDES</td>
<td>Tadashi Matsumoto, Masaru Fukusen and Seiichiro Moro (Dept. of Electrical and Electronics Engineering, Fukui Univ., Japan)</td>
</tr>
<tr>
<td>B6-1-5</td>
<td>059</td>
<td>Transmission of Surveillance Images in Airborne GSM Systems</td>
<td>Fabio Dovis, Roberto Lo Cigno and Letizia Lo Presti (Dipart. di Electronica, Politecnico di Torino, Italy)</td>
</tr>
<tr>
<td>Session</td>
<td>Paper No.</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>B6-2</td>
<td>B6-2-1</td>
<td>Complex Approximation of FIR Digital Filters by Transforming the Desired Response on Local Points</td>
<td>M. Yoshida, M. Ikehara and S. Takahashi (Dept. of Science Technology, Keio Univ., Japan)</td>
</tr>
<tr>
<td></td>
<td>B6-2-2</td>
<td>Design of Low-Pass IIR Digital Filters with Flat Monotonic Passbands, Equiripple Stopbands and Prescribed Steepness in Transition Bands</td>
<td>Yoshiro Suhara (Faculty of Engineering, Univ. of East Asia, Japan)</td>
</tr>
<tr>
<td></td>
<td>B6-2-3</td>
<td>Synthesis of Low-Sensitivity Digital Filters Using Genetic Programming with Automatically Defined Functions</td>
<td>Kazuyoshi Uesaka and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)</td>
</tr>
<tr>
<td></td>
<td>B6-2-4</td>
<td>A Designing Stable IIR Filters in the Complex Chebyshev Sense Based on the Correlation Between Individuals in GA</td>
<td>Yukio Mori (Dept. of Electronics and Communication, Salesian Polytechnic, Japan) and Naoyuki Aikawa (School of Engineering, Tokyo Univ. of Technology, Japan)</td>
</tr>
<tr>
<td></td>
<td>B6-2-5</td>
<td>Design and Efficient Implementation of Single Filter Frequency-Response Masking FIR Filter</td>
<td>Oscar Gustafsson, Hakan Johansson and Lars Wanhammer (Dept. of Electrical Engineering, Linkoping Univ., Sweden)</td>
</tr>
<tr>
<td></td>
<td>B6-2-6</td>
<td>Design of Variable IIR Digital Filters Using Equal Subfilters</td>
<td>Georgi Stoyanov, Ivan Uzunov and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6-3</td>
<td>B6-3-1</td>
<td>A New Statistical Sensitivity of Linear Discrete-Time State-Space Systems</td>
<td>Shumon Saito and Masayuki Kawamata (Dept. of Electronic Engineering, Graduate School of Engineering, Tohoku Univ., Japan)</td>
</tr>
<tr>
<td></td>
<td>B6-3-2</td>
<td>Design of Variable Digital Filters Based on State-Space Realizations</td>
<td>Hisashi Matsukawa and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)</td>
</tr>
</tbody>
</table>
An Unwrapping of Signals in Transform Domain and Its Application in Signal Reconstruction

Pavol Zavarsky, Masahiro Kamiya, Noriyoshi Kambayashi and Masahiro Iwahashi (Dept. of Electrical Engineering, Nagaoka Univ. of Technology, Japan)

Design of Variable 2-D Digital Filters with Perfect Linear-Phase Using Matrix-Array Decomposition

Tian-Bo Deng (Dept. of Information Science, Toho Univ., Japan)

Design of 2-D Filter Banks Based on 1-D Lattice Structure

K. Isogimi, M. Ikehara and T. Horibe (Dept. of Science Technology, Keio Univ., Japan)

Optimum Bit Allocation in Subband Coding in Presence of Non Ideal Reconstruction Filters

Carlo Caini and Alessandro Vanelli Coralli (Dipart. di Elettronica, Univ. of Bologna, Italy)

Adaptive Signal Processing I

Chairs: Yih Fang (Univ. of Notre Dame, USA) and Kensaku Fujii (Fujitsu Lab., Ltd., Japan) 2000/11/7 10:10-11:50

Blind Extraction and Deconvolution for Multi-Input Multi-Output Systems

Yuanqing Li (Automatic Control Engineering Dept., South China Univ. of Technology, China) and Jun Wang (Mechanical and Automation Engineering Dept., Chinese Univ. of Hong Kong, Hong Kong)

Noise Robust Blind System Identification Using RLS Method

Mirai Oshiro, Hideyasu Hayashi and Hiroshi Ochi (Dept. of Computer Science and Electronics, Kyushu Institute of Technology, Japan)

Blind Identification and Order Determination of SIMO FIR Systems Using Mutual-Reference Least Squares Approach

Jeng-Kwang Hwang, Feng-Geng Pai and Wen-Da Peng (Dept. of Electrical Eng, Yuan-Ze Univ., ROC)

Blind Separation of Complex Signals in Terms of Complex Hermite Moments

Hisanao Ogura, Noboru Nakasako and Norio Seo (School of Biology-Oriented Sc. & Tech., Kinki Univ., Japan)

A Family of Simple Blind Phase Recovery Algorithms

A. Haidary and M. Nasiri-Kenari (Department of Electronic Engineering, Sharif Univ. of Technology, Iran)
## B7-2

### Adaptive Signal Processing II

**Chair:** Isao Nakanishi (Tottori Univ., Japan)

**2000/11/7 13:20-15:20**

<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7-2-1</td>
<td>048</td>
</tr>
<tr>
<td>B7-2-2</td>
<td>080</td>
</tr>
<tr>
<td>B7-2-3</td>
<td>082</td>
</tr>
<tr>
<td>B7-2-4</td>
<td>142</td>
</tr>
<tr>
<td>B7-2-5</td>
<td>088</td>
</tr>
</tbody>
</table>

**B7-2-1 Global Convergence of Output Error Based Adaptive IIR Filters**

Miloje Radenkovic and Tamal Bose (Dept. of Electrical Engineering, Univ. of Colorado, USA)

**B7-2-2 A New Method for Implementing Pipelined FIR and IIR ADF**

James Okello, Hirohisa Ohtsuki, Yoshio Itoh and Yutaka Fukui (Dept. of Electrical and Electronic Engineering, Tottori Univ., Japan)

**B7-2-3 A New Simple Algorithm for Reducing Frequency Estimation Bias in a Cascaded Notch Filter**

Masaki Nakao, James Okello, Yoshio Itoh (Dept. of Electrical and Electronic Engineering, Tottori Univ., Japan) and Masaki Kobayashi (Faculty of Engineering, Chubu Univ., Japan)

**B7-2-4 Adaptive Estimation of Time-Dependent AR Coefficients by RLS with a Tapered Window**

Atsushi Nakagaki (Kitami Institute of Technology, Japan) and Yoshikazu Miyanaga (Hokkaido Univ., Japan)

**B7-2-5 An Algorithm for Lattice Allpass-FIR ADF and Its Analysis Under a Colored Input Signal**

Yasutomo Kinugasa (Matsue National College of Technology, Japan), James Okello, Yashio Itoh (Tottori Univ., Japan) and Masaki Kobayashi (Ibaraki Univ., Japan)

---

## B7-3

### Adaptive Signal Processing III

**Chairs:** Ingvar Claesson (Univ. of Karlskrona/Ronneby, Sweden) and Makoto Ohki (Yamanashi Univ., Japan)

**2000/11/7 15:40-17:40**

<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7-3-1</td>
<td>209</td>
</tr>
<tr>
<td>B7-3-2</td>
<td>086</td>
</tr>
</tbody>
</table>

**B7-3-1 A Prefiltering Technique for Improving the Convergence of LMS Adaptive Equalizer**

Toshiro Fujii and Tetsuya Shimamura (Dept. of Information and Computer Sciences, Saitama Univ., Japan)

**B7-3-2 A Variable Step-Size Algorithm for 2-D Doubly-Indexed LMS Adaptive Filters**

Makoto Ohki and Sumihisa Hashiguchi (Dept. of Electrical and Electronics System Eng., Yamanashi Univ., Japan)
B7-3-3 034  Adaptive Constrained Transformed Domain Normalized LMS Time-Delay Estimation Algorithm
Shiunn-Jang Chern (Dept. of Electrical Eng., National Sun Yat-Sen Univ., ROC), Shyh-Neng Lin (Dept. of Electrical Eng., Nan-Joen Institute of Technology, ROC) and Jiun-je Jian (Dept. of Electrical Eng., National Sun Yat-Sen Univ., ROC)

B7-3-4 136  Convergence Behavior of Partitioned Evolutionary Digital Filters
Masahide Abe and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)

B7-3-5 131  Adaptive Equalizers Using GA and LMA-Type Algorithms
Nam-Yong Kim and Hyung-Gi Byun (Dept. of Information & Communication Engineering, Samchok National Univ., Korea)

B7-3-6 179  2-D Adaptive Digital Filters for Gaussian Noise Cancellation and Edge Preservation
Justo Seiji Oshino-Ortiz and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)

B8-1  Algorithms for Signal Processing
2000/11/8 8:30-9:50
Chair: Masakiyo Suzuki (Hokkaido Univ., Japan)

B8-1-1 109  Fast Fractional Fourier-Clifford Transforms
E. Rundblad-Labunets, V. Labunets, J. Astola and K. Egiazarian (Digital Media Institute, Tampere Univ. of Technology, Finland)

B8-1-2 110  Lower Bound of Computational Complexity and Asymptotically Fast Algorithms of Discrete Fourier Transforms on Finite Abelian Groups
Karen Egiazarian and Jaakko Astola (Digital Media Institute, Tampere Univ. of Technology, Finland)

B8-1-3 070  Low-Peak Orthogonal-Base-Set Sequences Synthesis by Using Trigonometric Function Aliasing
Takafumi Hayashi (Department of Computer Software, Univ. of Aizu, Japan)

B8-1-4 143  Determining N-D Convex Hull Using Parallel Facial Lattice Exploration
Edet O. Eyoh (Computer Science Dept., Tennessee State Univ., USA)

B8-2  Signal Processing for Communications I
2000/11/8 10:10-11:50
Chair: Shigenori Kinjo (Texas Instruments, Japan)
<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>B8-2-1</td>
<td>019</td>
<td>Transformation Searching Algorithm for Partially Adaptive Linearly Constrained Structure DS-CDMA Receiver</td>
<td>Suwich Kunaruttanapruk, Somchai Jitapunkul Voravit Kaweevat and Pianporn Linprasert (Dept. of Electrical Engineering, Chulalongkorn Univ., Thailand)</td>
</tr>
<tr>
<td>B8-2-2</td>
<td>210</td>
<td>Optimal Linear Space-Time Multiuser Detector for DS-CDMA System</td>
<td>Wenjie Wang, Bofeng Jiang and Qinye Yin (Institute of Information Engineering, Xi'au Jiaotong Univ., P. R. China)</td>
</tr>
<tr>
<td>B8-2-3</td>
<td>026</td>
<td>Low-Power Decimation and Matched Channel Selection Filter for a WCDMA Receiver</td>
<td>Lauri Koskinen, Marko Kosunen, Saska Lindfors and Kari Halonen (Electronic Circuit Design Laboratory, Helsinki Univ. of Technology, Finland)</td>
</tr>
<tr>
<td>B8-2-4</td>
<td>206</td>
<td>Optimum Precoder and Equalizer Designs for Fixed Rate MIMO Systems</td>
<td>H. Sampath (Stanford Univ., USA), P. Stoica (Uppsala Univ., Sweden) and A. Paulraj (Stanford Univ., USA)</td>
</tr>
<tr>
<td>B8-2-5</td>
<td>199</td>
<td>Detection of Spread Spectrum Transmissions Using Fluctuations of Correlation Estimators</td>
<td>Gilles Burel (L. E. S. T., Univ. of Brest, France)</td>
</tr>
</tbody>
</table>

**B8-3**

Signal Processing for Communications II

Chair: Hiroshi Ochi (Kyushu Institute of Technology, Japan)

2000/11/8 13:20-15:00

<table>
<thead>
<tr>
<th>B8-3-1</th>
<th>191</th>
<th>Blind Equalization Schemes with Different Error Equations</th>
<th>Pulakesh Roy and A. A. Beex (Bradley Dept. of Electrical and Computer Engineering, Virginia Tech, USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B8-3-2</td>
<td>211</td>
<td>A Multiuser Detection Based on Blind Uplink Channel Estimation</td>
<td>Bofeng Jiang, Wenjie Wang and Qinye Yin (Institute of Information Engineering, Xi'au Jiaotong Univ., P. R. China)</td>
</tr>
<tr>
<td>B8-3-3</td>
<td>170</td>
<td>Use of Quadratic Congruence (QC) Codes in Generating Sequence Family Sets with Good Correlation Properties</td>
<td>C. S. Lim, S. S. Abeysekera and S. K. Amarasinghe (School of Electrical and Electronic Engineering, Nanyang Technological Univ., Singapore)</td>
</tr>
<tr>
<td>B8-3-4</td>
<td>114</td>
<td>An Anchored Blind Equalizer Using Differential Constant Modulus Algorithm in AR Channels</td>
<td>Teruyuki Miyajima (Dept. of Systems Engineering, Ibaraki Univ., Japan)</td>
</tr>
</tbody>
</table>
A New Strategy of Blind System Identification with Channel Order Estimation
Yoshito Higa (Texas Instruments, Japan), Tomohide Miyagi, Hiroshi Ochi (Kyushu Institute of Technology, Japan), Shigennori Kinjo and Hirohisa Yamaguchi (Texas Instruments, Japan)

Array Signal Processing
Chair: Tamal Bose (Univ. of Colorado, USA) 2000/11/8 15:40-17:40

SAR Image Enhancement Based on Phase Extension Inverse Filtering
Dae-Won Do and Woo-Jin Song (Division of Electronics & Computer Engineering, Pohang Univ. of Science & Technology, Korea)

Estimation DOA of Coherent Signal via Modified SC-SSF Method
Dongmin Guo and Yilin Wang (Xi'an Institute of Electromechanical Information Technology, P. R. China)

An Improvement of Alternating Projection Algorithm for Bearing Estimation Using a Uniform Linear Array
Masakiyo Suzuki, Hirofumi Sanada and Nobuo Nagai (Research Institute for Electronic Science, Hokkaido Univ., Japan)

Complex Approximation by Semi-Infinite Quadratic Programming
Mattias Dahl, Sven Nordebo and Ingvar Claesson (Dept. of Telecommunications and Signal Processing, Univ. of Karlskrona/Ronneby, Sweden)

Complex Chebyshev Approximation Using Conventional Linear Programming
Sven Nordebo, Mattias Dahl and Ingvar Claesson (Dept. of Telecommunications and Signal Processing, Univ. of Karlskrona/Ronneby, Sweden)

Wave-Domino Pipelining by Using a Common Clock
Pongstorn Maidee and Somsak Choomchuay (Electronic Department, KMITL, Thailand)

Scalable Binary Sorting Architecture Based on Rank Ordering
I. Hatirmaz and Y. Leblebici (Dept. of Electrical and Computer Engineering, Worcester Polytechnic Institute, USA)
C6-1-3 064  Content Addressable Memory with Hamming Distance Search  
Yoshitaka Hamada, Chikagoshi Kazumasa, Masahiro Yoshida and Yasoji Suzuki (Dept. of Communications Eng., School of Eng., Tokai Univ., Japan)

C6-1-4 157  Memory Exploration and Assignment for Low Power in VLSI Systems  
Wen-Tsong Shiue (Center for Low Power Electronics, Arizona State Univ., USA)

C6-1-5 181  A New Optimal Hardware Resource Scheduling Algorithm for ASIC Design  
Chi-Ho Kin (Dept. of Computer Science, Semyung Univ., Korea) and Hi-Seok Kim (Dept. of Electronic Engineering, Chongju Univ., Korea)

C6-1-6 087  C++ Classes for Fast Design of Fixed-Point Algorithms  
Cheng-Chieh Lee (Broadcom Corporation, USA)

C6-2 064  Architectures for Multimedia and Signal Processing  
Chairs: Ichiro Kuroda (NEC, Japan) and Tsung-Han Tsai (Fu-Jen Catholic Univ., Taiwan)

C6-2-1 203  A Low-Cost VLSI Architecture for 2-D Biorthogonal Discrete Wavelet Transforms  
Chu Yu (Dept. of Computer and Information Science, Aletheia Univ., ROC) and Sao-Jie Chen (Dept. of Electrical Engineering, National Taiwan Univ., ROC)

C6-2-2 135  A Low-Power 2-D DCT/IDCT Through Dynamic Control of Data Driven and Fine-Grain Partitioned Bit-Slices  
Kyeounsoo Kim (Korea Telecom R&D Group, Korea) and Peter A. Beerel (Dept. of EE-Systems, Univ. of Southern California, USA)

C6-2-3 163  Flexible Architecture for System-On-Chip Video Codec  
Tero Kangas, Erno Salminen, Kimmo Kuusilinna, Timo Hamalainen and Jukka Saarinen (Tampere Univ. of Technology, Digital and Computer Systems Laboratory, Finland)

C6-2-4 236  A Low-Cost Vector Quantization System for Voice Compression Based on Analog-Flash and Neuron-MOS Technologies  
Qian-Rong Gu and Tadashi Shibata (Univ. of Tokyo, Japan)

C6-2-5 189  Memory-Optimized AAC Decoder  
Vladimir Mesarovic and Miroslav Dokic (Crystal Audio Division, Cirrus Logic Corporation, USA)
### C6-2-6 117
Enhancement of Color Image Obtained from Principal Component Analysis Using Local Area Histogram Equalization
S. Chitwong, F. Cheevasuvit, K. Dejhan, S. Mithatha, T. Namman and T. Paungma (Faculty of Engineering, KMITL, Thailand)

### C7-1 Wireless Communication Systems
Chair: Kiseon Kim (K-JIST, Korea) 2000/11/7 10:10-11:50

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C7-1-1</td>
<td>160</td>
<td>Effect of Timing Jitters in an Ultra Wideband Impulse Radio System</td>
<td>Yoan Shin and Jinchul Ahn (School of Electronic Engineering, Soonsil Univ., Korea)</td>
</tr>
<tr>
<td>C7-1-2</td>
<td>124</td>
<td>A Performance Comparison of Three Communication Diversity Schemes</td>
<td>X. Feng and C. Leung (Dept. of Electrical and Computer Engineering, Univ. of British Columbia, Canada)</td>
</tr>
<tr>
<td>C7-1-3</td>
<td>162</td>
<td>A Space-Time Multiuser Receiver for TDMA Systems and Its Performance under Power Imbalance Situation</td>
<td>Jeng-Kwang Hwang, Chiuan-Hsiu Chen and Rhi-Lung Chung (Dept. of Electrical Engineering, Yuan-Ze Univ., ROC)</td>
</tr>
<tr>
<td>C7-1-4</td>
<td>226</td>
<td>Performance Analysis of Reverse Channel in an IS-95 CDMA Network</td>
<td>Min-Kon Kwang, Duk-In Jung and In-Cheol Shin (Telecommunication Division R&amp;D Lab., Hyundai Electronics Industries, Ltd., Korea)</td>
</tr>
</tbody>
</table>

### C7-2 Network Systems and Protocols

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C7-2-2</td>
<td>028</td>
<td>Tree Network for Token Passing Communication Among Cooperative Mobile Robots</td>
<td>Hisayoshi Sugiyama and Masashi Murata (Dept. of Information and Communication Engineering, Osaka City Univ., Japan)</td>
</tr>
<tr>
<td>C7-2-3</td>
<td>061</td>
<td>Automatic C-Code Generation from SDL for a Wireless MAC Protocol</td>
<td>Marko Hannikainen (Tampere Univ. of Technology, Finland), Jarno Knuutila (Nokia Mobile Phones, Finland), Antti Takko, Timo Hamalainen and Jukka Saarinen (Tampere Univ. of Technology, Finland)</td>
</tr>
<tr>
<td>Session</td>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>C7-2-4</td>
<td>013</td>
<td>A New Approach to Implement Self-Modifying Protocols</td>
<td>Sheng-Uei Guan and Zhiquiang Jiang (Dept. of Electrical Engineering, National Univ. of Singapore, Singapore)</td>
</tr>
<tr>
<td>C7-2-5</td>
<td>050</td>
<td>Performance Evaluation of Divided-Loop Networks</td>
<td>Jun Sasaki, Takashi Mitsuishi and Yutaka Funyu (Faculty of Software and Information Science, Iwate Prefectual Univ., Japan)</td>
</tr>
<tr>
<td>C7-2-6</td>
<td>078</td>
<td>Data Transmission over Analog Speech Channel Utilizing Spread Spectrum Modulation</td>
<td>Jouji Suzuki (Nippon Institute of Technology, Japan), Shuichi Chiba and Hiroyuki Yashima (Faculty of Engineering, Saitama Univ., Japan)</td>
</tr>
</tbody>
</table>

**C7-3 Communication Theory**

Chair: Prasit Prapinmongkolkarn (Chulalongkorn Univ., Thailand)

2000/11/7 15:40-17:40

<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>C7-3-1</td>
<td>146</td>
<td>Performance of Coded Multicarrier Modulation on a Correlated Multipath Fading Channel Using a Gilbert Model</td>
<td>Tomoyuki Yamazaki (Saitama Univ., Japan), Yukitoshi Sanada (Tokyo Institute of Technology, Japan), Hiroyuki Yashima (Saitama Univ., Japan) and T. Ohtsuki (Science Univ. of Tokyo, Japan)</td>
</tr>
<tr>
<td>C7-3-2</td>
<td>213</td>
<td>Simulation of Nakagami Fading with Given Autocovariance Function</td>
<td>M. Lara and V. Kontorovitch (Dept. de Ingenieria Electrica, Centro de Investigacion y de Estudios Avanzados del I. P. N., Mexico)</td>
</tr>
<tr>
<td>C7-3-3</td>
<td>057</td>
<td>Block Coded MPSK Modulation Employing Huffman and Array Codes</td>
<td>K. M. S. Soyjaudah and M. A. Hosany (Dept. of Electrical and Electronic Engineering, Univ. of Mauritius, Mauritius)</td>
</tr>
<tr>
<td>C7-3-4</td>
<td>129</td>
<td>Bandwidth Doubling in Combined Source-Channel Coding of Memoryless Gaussian Sources</td>
<td>Helge Coward and Tor A. Ramstad (Dept. of Telecommunications, Norwegian Univ. of Science and Technology, Norway)</td>
</tr>
<tr>
<td>C7-3-5</td>
<td>144</td>
<td>Coherent Ultrashort Light Pulse CDMA Influenced by Fiber Dispersion</td>
<td>Yasutaka Igarashi and Hiroyuki Yashima (Dept. of Information and Science, Saitama Univ., Japan)</td>
</tr>
<tr>
<td>C7-3-6</td>
<td>096</td>
<td>A Stop-And-Go Dual Mode Modified CMA for Blind Equalization of QAM Signals</td>
<td>Changhyun Yim (Samsung Electronics Co., Korea), Kiyun Kim and Hyungjin Choi (Comsys. Lab. SungKyunKwan Univ., Korea)</td>
</tr>
</tbody>
</table>
C8-1
Antenna & Propagation
Chair: Monai Krairiksh (KMITL, Thailand)
2000/11/8 8:30-9:50

C8-1-1 175  A Conical Beam Antenna Using Circular Array of Monopole on the Ground Plane
Chuwong Phongcharoenpanich (ReCCIT, KMITL, Thailand), Titipong Lertwiriyaprapa (Faculty of Technical Education, KMITL, Thailand), Phaisan Ngamjanyaporn and Monai Krairiksh (ReCCIT, KMITL, Thailand)

C8-1-2 240  A Study on Layered Adaptive Array Antenna Based on Variable Sector According to Distribution of DOA (Direction-of-Arrival)
Hiroyuki Yamasuge, Kazunori Watanabe and Ryuji Kohno (Division of Electrical and Computer Engineering, Yokohama National Univ., Japan)

C8-1-3 165  Effects of Antenna Correlation on Transmit Diversity in UMTS
Magnus Sandell (Bell Labs, Lucent Technologies, UK)

C8-1-4 106  A Multiple Guard Interval Based Frequency Error Detector for OFDM Systems Under Two-Ray Multipath Fading Channel
Hyunjae Kim, Youngil Kim, Hongku Kang, Woonchel Hwang and Kiseon Kim (Dept. of Information and Communications, K-JIST, Korea)

C8-2
Wideband Communication Systems I
Chairs: Takis Mathiopoulos (Univ. of British Columbia, Canada) and Hiroshi Yasukawa (Aichi Prefectural Univ., Japan)
2000/11/8 10:10-11:50

C8-2-1 025  Erlang Capacity for IS-95B Type DS-CDMA Systems Supporting Voice and Data Services with the Limited Number of Channel Elements
Insoo Koo (Dept. of Info. & Comm., K-JIST, Korea), Yeondae Yang, Taeyoup Kim (Network Engineering Team, SK Telecom, Korea), Jeongrok Yang and Kiseon Kim (Dept. of Info. & Comm., K-JIST, Korea)

C8-2-2 104  Orthogonal Multicarrier-CDMA Techniques with MRC Scheme on Two-Ray Multipath Fading Channels
Sungdon Moon, Gwangzeen Ko and Kiseon Kim (Dept. of Information and Communications, K-JIST, Korea)

C8-2-3 074  Design of Channel Estimation Filter in DS-CDMA Uplink System
Ji-Woong Choi and Yong-Hwan Lee (School of Electrical Engineering, Seoul National Univ., Korea)

C8-2-5 044  European Wireless ATM Project Median-Physical Layer Performance Measurements
S. Zeisberg, A. Finger (Commun. Lab., Dresden Univ. of Technology, Germany), H. Ludiger, S. Wolters (Commun. Systems, Germany) and R. In'T Velt (Telecommun. & Security Division, TNO Physics & Electronic Lab., Germany)
C8-3  Wideband Communication Systems II
Chair: Yong-Hwan Lee (Seoul National Univ., Korea)

C8-3-1 237  Joint Equalization Using Multi-Dimensional Lattice Filter for OFDM Transmission
Yoichi Maeda, Masayuki Motegi, Kenta Umebayashi and Ryuji Kohno (Division of Electrical and Computer Engineering, Yokohama National Univ., Japan)

C8-3-2 108  The Effect of Carrier Frequency Offset on the Performance of OFDM over a Shadowed Multipath Channel
Wooncheol Hwang, Hongku Kang, Hyunjae Kim, Seungguen Kim and Kiseon Kim (Dept. of Information and Communications, K-JIST, Korea)

C8-3-3 073  Parallel Acquisition of PN Sequences in Flat Rayleigh Fading
June Moon and Yong-Hwan Lee (School of Electrical Engineering, Seoul National Univ., Korea)

C8-3-4 111  A Distributed Maxmin Channel Assignment Scheme with Interference Information
Kar Wing Ho and Cyril Leung (Dept. of Electrical and Computer Engineering, Univ. of British Columbia, Canada)

C8-3-5 093  Access Code Searcher in a Short-Ranged Bluetooth Network

C8-3-6 014  A New 2D Cap System
Ian Li-Jin Thng, Tang Xiaosong and Quek Yang Boon (Dept. of Electrical Engineering, National Univ. of Singapore, Singapore)

C8-4  Intelligent Networking
Chair: Ryuji Kohno (Yokohama National Univ., Japan)
2000/11/8 15:40-17:40

C8-4-1 010  An Intelligent Routing Framework for High-Speed Large-Scale Networks Using Cooperative Agents
Leonard Barolli (Yamagata Univ., Japan), Akio Koyama (Univ. of Aizu, Japan), Genci Capi, Takako Yamada and Shoichi Yokoyama (Yamagata Univ., Japan)

C8-4-2 011  An Agent-Based WWW Mirror Server Selection Method
Akio Koyama (Univ. of Aizu, Japan), Leonard Barolli, Shoichi Yokoyama (Yamagata Univ., Japan) and Zixue Cheng (Univ. of Aizu, Japan)
<table>
<thead>
<tr>
<th>Session</th>
<th>Paper Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8-4-3</td>
<td>A Bluetooth Receiver with Channel Estimation and Link Quality Control (LQC) in Short-Ranged Radio Links</td>
</tr>
<tr>
<td>C8-4-4</td>
<td>A Coherent Detection Scheme for Automatic Link Establishment Signal in HF Band</td>
</tr>
<tr>
<td>C8-4-5</td>
<td>A Study on Communication and Ranging System Between a Roadsider and a Vehicle with OMF for Co-Channel Interference Cancellation</td>
</tr>
<tr>
<td>C8-4-6</td>
<td>Performance Re-Evaluation of Point-To-Multipoint ABR Service in ATM Network</td>
</tr>
</tbody>
</table>

**D8-1**

**Communication Circuits**

Chairs: Kobchai Dejhan (KMITL, Thailand) and Yoshikazu Miyanaga (Hokkaido Univ., Japan)

<table>
<thead>
<tr>
<th>Session</th>
<th>Paper Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>D8-1-1</td>
<td>A Programmable Architecture for Digital Communications: The Mono-Carrier Study</td>
</tr>
<tr>
<td>D8-1-2</td>
<td>A Multicarrier QAM-Modulator for WCDMA Basestation Using Interleaved FIR-Filter Structure</td>
</tr>
<tr>
<td>D8-1-3</td>
<td>Digital Transmissions with Chaotic Signals: Fast Receiver Synchronization Using Duplicated Chaotic Oscillators</td>
</tr>
<tr>
<td>D8-1-4</td>
<td>Advanced Receiver to Dip Ingress Noise in HFC Return Channel</td>
</tr>
</tbody>
</table>

**D8-2**

**Sigma-Delta Modulators**

Chairs: Kwong S. Chao (Texas Tech Univ., USA) and Akira Hyogo (Science Univ. of Tokyo, Japan)

<table>
<thead>
<tr>
<th>Session</th>
<th>Paper Title</th>
</tr>
</thead>
</table>

2000/11/8 8:30-9:50

19/26
D8-2-1 192  A Novel Mash-Kind Third-Order Sigma-Delta Converter Structure
C. Caduff, R. Caillet, A. Heubi, P. Balsiger and F. Pellandini (Electronics and Signal Processing Lab., Institute of Microtechnology, Switzerland)

D8-2-2 171  Design of Optimal and Narrow-Band Laguerre Filters for Sigma-Delta Demodulators
Xue Yao and Saman S. Abeysekera (School of Electrical and Electronic Engineering, Nanyang Technological Univ., Singapore)

D8-2-3 023  A Multi-Bit Sigma-Delta Modular with High Order Noise Shaped Integrator Leakage
L. Fang and K. S. Chao (Department of Electrical Engineering, Texas Tech Univ., USA)

D8-2-4 243  Oversampling Sigma-Delta Modulator Stabilized by Local Nonlinear Feedback Loop Technique
Chian C. Ho and Chung K. Kuo (Dept. Electrical Engineering, National Chung Cheng Univ., Taiwan)

D8-2-5 172  Sdh/Sonet Desynchroniser Design Using the Concept of Phase Filtering
Saman S. Abeysekera (School of Electrical and Electronic Engineering, Nanyang Technological Univ., Singapore)

D8-3-1 183  A Fault Tolerant Learning Algorithm Considering the Worst-Case Fault of Neural Networks
Masakatsu Nishigaki, Teruyasu Tsuzuki (Shizuoka Univ., Japan), Masakazu Soga (Iwate Prefectural Univ., Japan), Tadanori Mizuno (Shizuoka Univ., Japan)

D8-3-2 130  Implementation RBF Network for Complex Volatile Chemicals Classification Using Conducting Polymer Sensor Array
Hyung-Gi Byun, Nam-Yong Kim, Jeong-Do Kim (Samchok National Univ., Korea) and Krishna C. Persand (UMIST, UK)

D8-3-3 194  Identification Basic Digital Circuits from Radiated EMI by Using Neural Network
K. Aunchaleevarapan, K. Paitthoonwanakij, Y. Preampraneerach, W. Khan-Ngern and N. Shuichi (ReCCIT, KMITL, Thailand)

D8-3-4 231  A Three-Dimensional Cellular Neural Network Circuit System Using a Neuron-MOS Circuit
M. Akazawa, T. Fujiwara and Y. Amemiya (Dept. of Electrical Engineering, Hokkaido Univ., Japan)
Evolutionary Synthesis of Sequential Arithmetic Circuits

Toshiki Terasaki, Takafumi Aoki and Tatsuo Higuchi (Graduate School of Information Sciences, Tohoku Univ., Japan)

Neural Networks

Chair: Yasuaki Sumi (Tottori Sanyo Electric Co. Ltd., Japan)

Approximation of Periodic Functions Using a Fuzzy Neural Network

Ching-Hung Lee and Ching-Cheng Teng (Dept. of Electrical and Control Engineering, National Chiao Tung Univ., ROC)

Neural Network Based Fuzzy Membership Function Estimation Application to Uncertain Time-Varying Systems Supervision

R. Lengelle, C. Richard (Lab. de Modelisation et Surete des Systemes, Univ. de Technologie de Troyes, France) and S. Millemann (Kurtosis Ingenierie, France)

The Utility of Wavelet Mosaic Pattern for Neural Network Human-Face Recognition

Hiroshi Kondo, Kazuaki Shibata and Lifeng Zhang (Electrical Engineering Dept., Kyushu Institute of Technology, Japan)

Speech Recognition by Neuro-Wavelet Algorithm

Nopadol Uchaipichat (Dept. of Electrical Engineering, Thammasat Univ., Thailand) and Manukid Parnichkun (School of Advanced Technologies, Asian Institute of Technology, Thailand)

Implement of a DT-CNN for Image Edge Detection, Thresholding and Thinning

Hector Sandoval (Dept. of Information Tech., Tokyo Univ. of Technology, Japan), Taizoh Hattori (Tokyo International Univ., Japan), Sachiko Kitagawa, Yasutami Chigusa (Dept. of Information Tech., Tokyo Univ. of Technology, Japan)

An Approach to Parallel Growing and Training of Neural Networks

Sheng-Uei Guan and Shanchun Li (Dept. of Electrical Engineering, National Univ. of Singapore, Singapore)

Image Recognition

Chair: Takashi Matsumoto (Waseda Univ., Japan)

An On-Line Pen Input Signature Verification Algorithm

T. Ohishi, Y. Komiya and T. Matsumoto (Dept. of Electrical, Electronics and Computer Engineering, Waseda Univ., Japan)
<table>
<thead>
<tr>
<th>Session Time</th>
<th>Paper No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>E7-1-2</td>
<td>148</td>
<td>Minutia-Ridge Shape Algorithm for Fast On Line Fingerprint Identification System</td>
<td>Abd Allah Mohamed Mostafa, Dongju Li and Hiroaki Kunieda (Tokyo Institute of Technology, Japan)</td>
</tr>
<tr>
<td>E7-1-3</td>
<td>081</td>
<td>Automatic Counting Method of Number of Chlorella Using Neural Network</td>
<td>Makoto Ota (Tottori Univ., Japan), Yasuaki Sumi (Tottori Sanyo Electric Co., Ltd., Japan), Noboru Yabuki (Tsuyama National College of Technology, Japan), Shigeki Obote, Yoshitaka Matsuda and Yutaka Fukui (Tottori Univ., Japan)</td>
</tr>
<tr>
<td>E7-1-4</td>
<td>247</td>
<td>Wavelet Features Based On-Line Character Recognition for Handwritten Kannada Characters</td>
<td>R. Srinivasa Rao Kunte (Electronics &amp; Communication Dept., J. N. N. College of Engineering, India) and R. D. Sudhaker Samuel (Electronics &amp; Communication Dept., S. J. College of Engineering, India)</td>
</tr>
<tr>
<td>E7-1-5</td>
<td>097</td>
<td>A Fast Discrete Hmm Algorithm for Online Hand Written Character Recognition</td>
<td>T. Hasegawa and T. Matsumoto (Waseda Univ., Japan)</td>
</tr>
</tbody>
</table>

**E7-2**

**Intelligent Systems**

Chair: Hitoshi Kiya (Tokyo Metropolitan Univ., Japan)

2000/11/7 15:40-17:40

<table>
<thead>
<tr>
<th>Session Time</th>
<th>Paper No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>E7-2-1</td>
<td>248</td>
<td>VLSI Processor for Hierarchical Template Matching and Its Application to a Ball-Catching Robot System</td>
<td>Masanori Hariyama, Hideki Kazama and Michitaka Kameyama (Graduate School of Information Sciences, Tohoku Univ., Japan)</td>
</tr>
<tr>
<td>E7-2-2</td>
<td>077</td>
<td>Monocular Stereo Vision for Autonomous Mobile Robot</td>
<td>K. Izumida, S. Derrouich, K. Shiiya and T. Toyama (Dept. of Electronics, Miyazaki Univ., Japan)</td>
</tr>
<tr>
<td>E7-2-4</td>
<td>216</td>
<td>VLSI-Oriented Algorithm for Reliable Stereo Matching</td>
<td>Masanori Hariyama, Toshiki Takeuchi and Michitaka Kameyama (Graduate School of Information Sciences, Tohoku Univ., Japan)</td>
</tr>
<tr>
<td>E7-2-5</td>
<td>205</td>
<td>Construction of a 3D Facial Model from Two Image Views</td>
<td>Nikolaos Sarris and Michael G. Strintzis (Information Processing Laboratory, Electrical and Computer Engineering Dept., Aristotle Univ. of Thessaloniki, Greece)</td>
</tr>
<tr>
<td>E7-2-6</td>
<td>138</td>
<td>IFS Coding of High Order Non-Homogeneous Fractal Images</td>
<td>Toshimizu Abiko and Masayuki Kawamata (Dept. of Electronic Engineering, Tohoku Univ., Japan)</td>
</tr>
</tbody>
</table>
Special Session: Analog Integrated Circuits and Signal Processing for the 21st Century
Organizer: Akira Hyogo (Science Univ. of Tokyo, Japan)
Chairs: Keitaro Sekine (Science Univ. of Tokyo, Japan) and Changku Hwang (Hitachi America Ltd., USA)

F7-1-1 700 1.5-V OTA Using MOSFET's in Weak-Inversion Region
Takahide Sato, Kazuyuki Wada, Shigetaka Takagi and Nobuo Fujii (Tokyo Institute of Technology, Japan)

F7-1-3 702 Low-Voltage CDBA and Its Application to High Frequency Active Filter
Worapong Tangsirirat (KMITL, Thailand), Nobuo Fujii (Tokyo Institute of Technology, Japan) and Wanlop Surakampontorn (KMITL, Thailand)

F7-1-4 703 3 Port Gyrator Using 3 Active Elements and a Passive Element
Yoshinori Arita, Masaru Ishida, Yutaka Fukui (Tottori Univ., Japan) and Masami Higashimura (Matsue National College of Technology, Japan)

F7-1-5 704 Generalized Synthesizing Method of Floating High Order Series Immittances
Hirohisa Ohtsuki, Shigeo Kawaoka, Masaru Ishida and Yutaka Fukui (Tottori Univ., Japan)

F7-1-6 705 Current-Mode Sample and Hold Circuits Using CCII's with Simple Designs
Fumito Watanabe, Akira Hyogo, Eitake Ibaragi and Keitaro Sekine (Science Univ. of Tokyo, Japan)

F7-1-7 706 Current-Mode CMOS VGA's with DB-Linear Gain Control
Yasuhide Kuramochi, Akira Hyogo, Eitake Ibaragi and Keitaro Sekine (Science Univ. of Tokyo, Japan)

Analog Circuits
Chair: Shigeki Obote (Ibaraki Univ., Japan)

F7-2-1 021 Prescaler PLL Frequency Synthesizer with the Gate Controller System (GCS) Introduced to the Multi-Programmable Divider Method
Yasuaki Sumi (Tottori Sanyo Electric Co., Ltd.), Hidekazu Ishii, Shigeki Obote, Naoki Kitai and Yutaka Fukui (Dept. of Electrical and Electronics Eng., Tottori Univ., Japan)

F7-2-2 230 Switched Capacitor Higher Order Immittance Simulation Circuits Realized with One Unity Gain Buffer
Toshio Ono (Dept. of Electronic Engineering, Saitama Institute of Technology, Japan)
F7-2-3 008  Electronically Tunable Current-Mode Multifunctional OTA-Grounded Capacitor Filter
Worapong Tangsrirat, Wanlop Surakampontorn (ReCCIT, KMITL, Thailand), Sumalee Unhavanich and Teerasilapa Dumawipata (Faculty of Engineering, KMITL, Thailand)

F7-2-4 009  Low-Voltage Translinear-Based Current Source for Temperature Compensation
Worapong Tangsrirat, Wanlop Surakampontorn (ReCCIT, KMITL, Thailand), Sumalee Unhavanich and Teerasilapa Dumawipata (Faculty of Engineering, KMITL, Thailand)

F7-2-5 056  Voltage Down Converter (VCD) with Low Consuming Current for Large Driving Output Current
Yataka Arayashiki, Yasoji Suzuki, Masahiro Yoshida, Manabu Hirata (Dept. of Communication Eng., Tokai Univ., Japan), Tetsuya Yamamoto (ASIC Design Eng. Dept., Toshiba Microelectronics Corp., Japan) and A. Thanachayanont (ReCCIT, KMITL, Thailand)

X6-1 505  Behavior for Moving Noise Source of Adaptive Algorithm Used with Active Noise Control System
Akira Omoto, Daisuke Morie and Kyoji Fujiwara (Kyushu Institute of Design, Japan)

X6-1-2 049  Convergence Analysis of Feedforward Multiple-Point ANC System Using Adaptive FIR Filter
Tak Keung Yeung and Sze Fong Yau (Dept. of Electrical & Electronic Engineering, Hong Kong Univ. of Science and Technology, China)

X6-1-3 506  Concurrent Equations Method for Active Noise Control
Kensaku Fujii (Fujitsu Lab., Ltd., Japan), Mitsuji Muneyasu (Hiroshima Univ., Japan) and Yoshinori Tanaka (Fujitsu Lab., Ltd., Japan)

X6-1-4 507  Application of Frequency Domain Adaptive Filter Using Modified DFT Pair to Noise Reduction Systems
Isao Nakanishi, Youichi Nakamura, Yoshio Itoh and Yutaka Fukui (Tottori Univ., Japan)

X6-1-5 508  A Noise Reduction Method Using Adaptive Notch Filter
Shigeki Obote and Masaki Kobayashi (Ibaraki Univ., Japan)

X6-2 505  Special Session: Noise Cancellation and Reduction Techniques II
Organizers: Yoshio Itoh (Tottori Univ., Japan) and Isao Nakanishi (Tottori Univ., Japan)
Chairs: Margaret Mortz (Washington State Univ., USA) and Yoshio Itoh (Tottori Univ., Japan)
Adaptive Narrow-Band Interference Suppression Using IIR Notch Filter
Shotaro Nishimura and Mvuma Aloys (Shimane Univ., Japan)

Array Antenna Pattern Synthesis Performing the Tapered Minor Lobes for Radar and Low Noise Applications
Chuwong Phongcharoenpanich, Titipong Lertwiriyaprapa and Monai Krairiksh (KMITL, Thailand)

Evaluation of Signal Processing and Enhancement Application to Telephone Speech Transmission
Hiroshi Yasukawa (Aichi Prefectural Univ., Japan)

HMM-Based Echo Model for Noise Cancellation Avoiding the Problem of False Triggers
Rathinavelu Chengalvarayan, D. L. Thomson, A. R. Setlur and R. H. Ketchum (Lucent Technologies Inc., USA)

Improvement of Wiener Filter with Iterative Algorithm for Noise Reduction
Shinya Ogata and Tetsuya Shimamura (Saitama Univ., Japan)

Fusion of Sobel, Mean, and Adaptive Wiener Filters for Restoring Images Degraded with Gaussian White Noise
Tuan D. Pham (School of Computing, Univ. of Canberra, Australia)

A Design of Data-Dependent Weighted Mean Filters Based on Neural Networks
Mitsuji Muneyasu, Yuuichi Miyake and Takao Hinamoto (Hiroshima Univ., Japan)

Signal-Preserving Training for Neural Networks for Signal Processing
Kenji Suzuki, Isao Horiba (Faculty of Information Science and Technology, Aichi Prefectural Univ., Japan) and Noboru Sugie (Faculty of Science and Technology, Meijo Univ., Japan)

A Novel Structure of LWOS Filters Based on Threshold Decomposition
Akita Taguchi and Haruyuki Ishihara (Musashi Institute of Technology, Japan)
Min-Sung Koh and Margaret Mortz (Washington State Univ. at Spokane, USA)

Speech Enhancement Through Perceptual Wavelets with Truncated Singular Value Decomposition (TSVD)

Tanawat Mathurasai, Tamal Bose, Miloje Radenkovic and Delores M. Etter (Univ. of Colorado, USA)

Wavelet Domain Adaptive Filtering Based on the Euclidean Direction Search Method