

PCS 2003  
**Picture Coding Symposium**

23-25 April 2003

Program

**Tuesday, April 22, 2003**

18h30–21h00 **Registration and welcoming refreshments**

**Wednesday, April 23, 2003**

8h30-9h00 **Registration**

9h00-9h15 **Opening address**

9h15-10h15 Invited talk: Prof. Thomas Huang, University of Illinois at Urbana Champaign, USA, “*A Brief history of image and video coding: A personal view*”

10h15-1030 **Coffee break**

10h30-12h30 Oral session WO1: Video Coding  
**Session Chair: Prof. Mohammed GHANBARI, University of Essex, UK**

**1-Spatial temporal adaptive direct prediction for Bi-Directional prediction coding on H.264**

*(Hideaki Kimata, Masaki Kitahara, Yoshiyuki Yashima)*

**2-Hybrid unsymmetrical-cross multi-hexagon-grid search strategy for integer pel motion estimation in H.264**

*(Zhibo Chen, JianFeng Xu, Peng Zhou, Yun He)*

**3-A performance analysis of H.264 video coding standard**

*(Daniele Alfonso, Daniele Bagni, Danilo Pau, Antonio Chimienti)*

**4-Improving the coding efficiency of MPEG-4 FGS by using hybrid coding in the enhancement layer**

*(Matthias Narroschke)*

**5-Video coding using texture analysis and synthesis**

*(Patrick Ndjiki-Nya, Bela Makai, Aljoscha Smolic, Heiko Schwarz, Thomas Wiegand)*

**6-AVC video coders with spatial and temporal scalability**

*(Marek Domanski, Lukasz Blaszak, Slawomir Mackowiak)*

12h30-14h00 **Lunch**

14h00-15h40 Special oral session WO2: 2D+t wavelet based video coding  
**Session Chair: Prof. Michel BARLAUD, I3S, Sophia-Antipolis, FRANCE**

**1-Adaptation of filters and quantization in spatio-temporal wavelet coding with motion compensation**

*(Konstantin Hanke, Jens-Rainer Ohm, Thomas Ruster)*

**2-Scalable video compression with temporal lifting using 5/3 filters**

*(Christophe Tillier, Béatrice Pesquet-Popescu, Yinwei Zhan, Henk Heijmans)*

**3-Investigation of motion-compensated lifted wavelet transforms**

*(Markus Flierl, Bernd Girod)*

**4-Scalable context-based motion vector coding for video compression**

*(Valéry ValentinMarco Cagnazzo, Marc Antonini, Michel Barlaud)*

**5-Motion-compensated spatio-temporal context-based arithmetic coding for full scalable video compression**

*(Guillaume Boisson, Edouard François, Dominique Thoreau, Christine Guillemot)*

15h40-15h50 **Coffee break**

15h50-17h30 **Poster session WP1**  
**Session Chair: Henri SANSON, France Télécom R&D,**  
**Cesson-Sévigné, FRANCE**

WP1.1 Rate Control, error resilience and transmission

**1-An accurate bitrate control algorithm for MPEG-4 multiple auxiliary components**

*(Guoping Li, Yun He)*

**2-Smart video transmission with low delay for mobile video surveillance**

*(Yasuhiro Takishima, Yasuyuki Nakajima, Masahiro Wada, Yoshinori Hatori)*

**3-A study on motion compensated prediction in DCT domain with multiple mode selection**

*(Kazuhiya Yamagishi, Jiro Katto, Yasuhiko Yasuda)*

**4-MPEG video bitrate control using coder modelling**

*(Adam Luczak, Marek Domanski)*

**5-ECC video in bursty errors and packet loss**

*(Bing Du, Mohammed Ghanbari)*

**6-Multiple description video coding based on polyphase downsampling technique**

*(Nicola Franchi, Marco Fumagalli, Rosa Lancini, Stefano Tubaro)*

**7-Multimedia stream interaction : Arbitration of video latency effects caused by long-term bursts**

*(Mercy Mbise, John Woods)*

**8-Characterization of a class of error correcting frames and their application to image transmission**

*(Gagan Rath, Christine Guillemot)*

WP1.2 Vector quantization and entropy coding

**1-A new measure to improve the performance of the LVQ algorithms**

*(Zhou Shui-sheng, Zhou Li-Hua)*

**2-Microscopic volumetric image data compression using vector quantization and 3D pyramid**

*(W. Paul Cockshott, Yegang Tao, Gang Gao, Craig Daly)*

**3-Binary search and mean value predictive hybrid fast vector quantization**

*(Yung-Gi Wu, Kuo-Lun Fan)*

**4-A masking model for scalar non-fixed deadzone quantization in lossy JPEG2000 compression**

*(Thierry Eude, Christophe Charrier)*

**5-Design of symmetrical reversible variable-length codes from the Huffman code**

*(Wook-Hyun Jeong, Yo-Sung Ho)*

**6-A simple picture coding algorithm with fast run-length extension mode**

*(Jose Oliver, Manuel Pérez Malumbres)*

WP1.3 Motion Estimation

**1-Motion estimation in varying illumination using a total least squares distance measure**

*(Til Aach, Daniel Toth, Rudolf Mester)*

**2-Efficient coding with adaptive motion models**

*(Yuwen He, Shiqiang Yang, Ming-Ting Sun)*

**3-New concept for joint disparity estimation and segmentation for real-time video processing**

*(Nicole Atzpadin, Serap Askar, Peter Kauff, Oliver Schreer)*

**4-Sprite generation with high subjective quality using local motion estimation**

*(Sungchan Park, Gueesang Lee)*

**5-Adaptive 3D interpolation filter for motion and aliasing compensated prediction**

*(Thomas Wedi)*

**6-Estimation of non-planar rotation for video coding applications**

*(Mireya Garcia, Henri Nicolas)*

**7-An adaptive motion vector refinement technique for the reduced resolution layer of H.263 spatial scalability**

*(Randa Atta, Mohammed Ghanbari)*

**8-Efficient coding for arbitrarily shaped video object with variable block size motion compensation**

*(Erisa Ojimi, Koichi Fukuda, Akira Kawanaka)*

**9-Object composition for MPEG-4 video coding**

*(Jeong-Woo Lee, Yo-Sung Ho)*

**10-Coding of motion vectors produced by wavelet-domain motion estimation**

*(Joeri Barbarien, Yiannis Andreopoulos, Adrian Munteanu, Peter Schelkens, Jan Cornelis)*

WP1.4 Applications (I)

**1-Multi-view synthesis for an extendable teleconferencing system**

*(Eddie Cooke, Ingo Feldmann, Peter Kauff, Olivier Schreer)*

**2-Operational processing of coded data in the coded region**

*(Kazuo Ohzeki, Michinori Nakajima)*

**3-Adaptive video distribution model of QHD (Quadruple HD) with JPEG2000**

*(Kenji Tanaka, Yasunari Suzuki, Terumasa Aoki, Hiroshi Yasuda)*

**4-Indexing of digital audiovisual medical resources**

*(Marc Cuggia, Fleur Mougin, Pierre Le Beux)*

**5-A video coding method in spatial updatable scalability for video transcoding**

*(Mei Kodama, Masashi Murasaki)*

**6-Digital watermarking method using vectorised wavelet coefficients**

*(Jun Watanabe, Madoka Hasegawa, Shigeo Kato)*

**7-Transcoding by automatic ROI extraction from JPEG2000 bitstream**

*(Hiroshi Watanabe, Takeo Ogita)*

**8-MPEG cascade coding method with compensation of requantization error**

*(Ken Nakamura, Takeshi Yoshitome, Yoshiyuki Yashima)*

## Thursday, April 24, 2003

8h30-9h30 Invited talk: *Prof. Bernd GIROD, Stanford University, USA,*  
**“Wyner-Zi, coding of video”**

9h30-10h30 Oral session TO1: Error resilience and multiple description coding  
**Session Chair: Dr. Pierre SIOHAN, IRISA/INRIA, Rennes, FRANCE**

**1-Recovery of lost motion vectors for error concealment in video coding**

*(Soroush Ghanbari, Leszek Cieplinski, Miroslaw Z. Bober)*

**2-Error resilience for JPEG2000**

*(Peter Amon)*

**3-Robust motion vectors and texture transmission for the H263 video encoder family**

*(Chang-Ming Lee, Michel Kieffer, Pierre Duhamel)*

10h30-10h45 **Coffee break**

10h45-12h25 Special oral session TO2: Joint source-channel coding  
**Session Chair: Dr. K.P. Subbalakshmi, Stevens institute of technology, Hoboken, NJ, USA**

**1-Rate allocation for video sequences using performance models**

*(Maja Bystrom, Thomas Stockhammer)*

**2-Exploiting path diversity and forward error correction for robust transmission of images**

*(Siva Somasundaran, K.P. Subbalakshmi)*

**3-Multiple description video coding for UMTS**

*(Manuela Pereira, Marc Antonini, Michel Barlaud)*

**4-Delayed decision decoding of variable length coded Markov source over noisy channel with insertion and deletion**

*(Zhe Wang, Xiaolin Wu)*

**5-Low complexity iterative decoding of variable-length codes**

*(Catherine Lamy, Lisa Perros-Meilhac)*

12h30-14h00 **Lunch**

14h00-16h00 Oral Session TO3: Content based and model based coding  
**Session Chair: Prof. Fernando PEREIRA, IST, Lisboa, Portugal**

**1-Adaptive image compression of arbitrarily shaped objects using wavelet packets**

*(Dominik Engel, Andreas Uhl)*

**2-Efficient lossy contour coding using spatio-temporal consistency**

*(Marc Chaumont, Stéphane Pateux, Henri Nicolas)*

**3-Combining adaptive principal component analysis and a hybrid codec approach for face coding in video sequences**

*(Roger Piqué, Luis Torres)*

**4-Coding face at very low bit rate via visual face tracking**

*(Jilin Tu, Zhen Wen, Hai Tao, Thomas Huang)*

**5-Very low bitrate compression of video sequence for virtual navigation**

*(Raphaèle Balter, Franck Galpin, Luce Morin)*

**6-3D modeling of traffic scenes using multi-texture surfaces**

*(Karsten Müller, Aljoscha Smolic, Michael Droese, Patrick Voigt, Thomas Weigand)*

TP1.1 Applications (II)**1-Lower bit rate HDTV MPEG-2 coding by adaptive selection of picture structure***(Masaaki Kurozumi, Atsuro Ichigaya, Eisuke Nakasu, Yoshimichi Ohtsuka)***2-Gaze tracking and its application to video coding for sign language***(Laura Muir, Iain Richardson, Steven Leaper)***3-A SOPC oriented FPGA implementation of JPEG2000 entropy coder***(Aouadi, Hammami)***4-Democratic integration for segmentation in a 3D videoconference system***(Serap Askar, Nicole Atzpadin, Peter Kauff)***5-A new method for real time lossless image compression applied to artificial vision***(Juan Ignacio Larrauri, Evaristo Kahoraho)***6-Coding for ray space based on SPECK***(Yutaka Hayashi, Toshiaki Fujii, Masayuki Tanimoto)***7-A new method for perceptual quality assessment of compressed images with reduced reference***(Mathieu Carnec, Patrick Le Callet, Dominique Barba)*TP1.2 Classification, modeling, feature extraction and segmentation**1-A new method for classification and segmentation of the textured images***(Yao-wei Wang, Yan-fei Wang, Wen Gao, Yong Xue)***2-Segmentation and tracking for interactive sport scenes using region adjacency graphs, picture trees and prior information***(Ernesto L. Andrade, Ekram Khan, John C. Woods, Mohammed Ghanbari)***3-Direct edge detection in MPEG video***(Michael H. Lee)***4-Automatic multi-cue VOP extraction for MPEG-4***(Nariman Habili, King N. Ngan)***5-Macroblock classification for video encoder complexity management***(Yafan Zhao, Iain Richardson)***6-Selective sharpness enhancement of color images by simultaneous nonlinear reaction-diffusion***(Takahiro Saito, Jun Satsumabayashi, Takashi Komatsu)***7-Lossless and scalable 3D object coding method based on medical axis transformation***(Florent Dupont, Benjamin Gilles, Atilla Baskurt)***8-Navigation dependent nonlinear depth scaling***(Ingo Feldmann, Ulrich Gözl, Peter Kauff)***9-Colour object tracking without shadow***(Hadj Hamma Tadjine, Gerhard Joubert)*TP1.4 Transforms, multi-resolution representation and matching pursuit**1-Image compression using empirical mode decomposition***(Kourosh Khoshelham, Zhilin Li)***2-The optimum space-frequency segmentation for subband image coding***(Masashi Kameda, Kohhei Ohtake)***3-A video coding algorithm with multi-scalability***(Liu Hongmei, Liang Fan, Huang Jiwa, Yun Q. Shi)***4-Still image compression with four-overlapping local cosine bases***(Alexander Mali, Erika Müller)***5-N-point discrete cosine transforms that map integers into integers for lossless image/video coding***(G. Charith K. Abhayaratne)***6-Adaptive dilation analysis for wavelet coding with EMDC***(Fabio Lazzaroni, Riccardo Leonardi, Alberto Signoroni)*

**7-Integer transforms for variable block size transform coding**

*(Mathias Wien)*

**8-Performance and quality issues in matching pursuit residue coding**

*(Roland Norcen, Andreas Uhl)*

**9-Arithmetic coder based method for matching pursuit video coder**

*(Kasuro Sugimoto, Fulvio Moschetti)*

**10-Speeding up fractal image compression by genetic coding**

*(Faraoun Kamel Mohamed, Aoued Boukelif)*

**11-Fractal compression of images with projected IFS**

*(Eric Guerin, Eric Tosan, Atilla Baskurt)*

**12-Fast fractal image encoding**

*(Yung-Gi Wu, Yu-Ling Wen, Ming-Zhi Huang)*

**13-Error resilience by using extended range blocks in fractal image coding**

*(Daisuke Semiya, Toshiaki Fujii, Masayuki Tanimoto)*

## Friday, April 25, 2003

8h30-9h30      Invited talk: *Carlos MORAIS-PIRES, Commission of the European Communities, Brussels, BELGIUM*  
” Networked Video: a snapshot of IST R&D Programme activities “

9h30-10h30      Oral session FO1: Feature extraction for indexing and coding  
**Session Chair: Prof. Thomas Huang, University of Illinois at Urbana Champaign, USA**

**1-Skin colour detection based on the MPEG-7 dominant colour descriptor**  
(*Pedro Miguel Fonseca, Fernando Pereira*)

**2-Automatic annotation of sports events applying MPEG-7 descriptors**  
(*Michael Höynck, Thorsten Auweiler, Jens-Rainer Ohm*)

**3-Metadata-based coding tools for hybrid video codecs**  
(*Javier R. Hidalgo, Philippe Salembier*)

10h30-10h45      **Coffee break**

10h45-12h25      Oral session FO2: Lossless compression  
**Session Chair: Geoff Morrison, BT Exact, UK**

**1-A study on a lossless coding method using the bidirectional rotation compensation for a digital museum images**

(*Nobutaka Suzuki, Madoka Hasegawa, Shigeo Kato*)

**2-A novel lossless WHT and its application to image coding**

(*Tadayoshi Nakayama, Hidefumi Ohsawa, Naoto Kawamura*)

**3-A weighted least squares method for adaptive prediction in lossless image compression**

(*Hua Ye, Guang Deng, John C. Devlin*)

**4-Spatially adaptive integer lifting with no side information for lossless video coding**

(*G. Charith K. Abhayaratne*)

**5-A study on reversible wavelet transform coding using filters suited for the local property in an image**

(*Mitsuhiro Sato, Naohide Yamada, Madoka Hasegawa, Shigeo Kato*)

12h30-14h00      **Lunch**

14h00-16h20      Oral session FO3: Coding for still and image pictures  
**Session Chair: Edouard FRANCOIS, Thomson Multimédia, Cesson-Sévigné, FRANCE**

**1-In-band motion estimation and compression for spatially scalable predictive wavelet video coding**

(*Claudia Mayer, Simon Albert*)

**2-Evaluation of wavelet domain block motion compensation (WBMC)**

(*Rade Kutil*)

**3-Embedded image codec based on SLCCA and JPEG2000**

(*Junqiang Lan, Xinhua Zhuang*)

**4-Adaptive multi-resolution scheme for efficient image compression**

(*Marie Babel, Olivier Deforges, Joseph Ronsin*)

**5-Scalable video coding with virtual SPIHT**

(*Ekram Khan, Mohammed Ghanbari*)

**6-Application of binary context trees in video compression**

(*Marta Mrak, Detlev Marpe, Thomas Wiegand*)

**7-Basic investigation of multiband video coding**

(*Seishi Takamura, Yoshiyuki Yashima*)

16h20 16h30      **Closing**