**Advance Program and Call for Participation**

# IAPR MVA 2000

## IAPR WORKSHOP ON MACHINE VISION APPLICATIONS

**November 28 – 30, 2000**

**The University of Tokyo, Japan**

*Topics*

**Machine Vision and its Applications**

Architectures / Algorithms / Applications
Factory Automation / Intelligent Transport Systems / Multimedia
Medical / Human Computer Interaction / Security

*Workshop Co-chairs*
Mikio TAKAGI (Science University of Tokyo)
Katsushi IKEUCHI (The University of Tokyo)

*Program Chair*
Johji TAJIMA (NEC)

*Sponsored by*
IAPR MVA Organizing Committee
The University of Tokyo

*In cooperation with*
Information Processing Society of Japan
Institute of Electrical Engineers of Japan
Institute of Electronics, Information and Communication Engineers
Institute of Image Electronics Engineers of Japan
Institute of Image Information and Television Engineers
Japanese Society of Artificial Intelligence
Japanese Society for Non-destructive Inspection
Japan Society for Precision Engineering
Society of Instrument and Control Engineers
Robotics Society of Japan

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# Advance Program

## MVA 2000 IAPR Workshop on Machine Vision Applications

November 28-30, 2000
The University of Tokyo
Tokyo, Japan

### Tuesday, November 28, 2000

**Registration** (8:30 — 9:00)

**Opening Session** (9:00 — 9:20)
Announcement of MVA Award

**Session 1: FA and Security** (9:20 — 11:20)

1-1 **Reconstruction of Fiber Orientation Distribution by Observing Interference Fringe Patterns and Elliptical Marks**
M. Kawamura and S. Morita, Japan

1-2 **Detection and Classification of Sewer Pipe Junctions Using Reflective Photometric Stereo**
T. P. Pridmore, S. Broadhurst and N. Taylor, UK

1-3 **Partial Automation of Database Acquisition in the FAVRET Face Tracking and Recognition System Using a Bootstrap Approach**
S. Clippingdale and T. Ito, Japan

1-4 **Automatic Intruder Detection and Tracking System with Pan-Tilt-Zoom Camera**
T. Haga, H. Fujiwara and K. Sumi, Japan

1-5 **Road Traffic Surveillance with Multiple Views**
T. Hasegawa and H. Zen, Japan

1-6 **A Method for Monitoring Activities of Multiple Objects by Using Stochastic Model**
N. Enomoto and T. Kanade, Japan

**Break** (11:20 — 11:40)

**Session 2: Multimedia** (11:40 — 13:00)

2-1 **Flexible Auto-Calibration and Its Application to Augmented Reality**
Y. Seo, A. Heyden and K-S. Hong, Korea

2-2 **Enhanced Augmented Reality with Shadows in Naturally Illuminated Environments**
T-O. Kim, K-S. Hong, I. Sato and K. Ikeuchi, Korea

2-3 **On the Precision of Textures**
F. Nielsen and N. de Mauroy, Japan

2-4 **Finding Minimal Photo Hull for Image-Based Rendering by Carving Space with Progressively Stricter Consistent Criterion**
C-M. Tsai and C-S. Chen, Taiwan

**Lunch** (13:00 — 14:00)

**Session 3: Poster Session 1** (14:00 — 15:30)

3-1 **Comparison of Color Space Models Based on Human Color Classification and Image Segmentation**
K. Takahashi, M. Matsuura, T. Sugiyama and K. Abe, Japan

3-2 **Automatic Inspection of Solder Joints on Printed Circuit Board Using Wavelet Transform and SVMs.**
T. S. Yun, K. J. Sim, S. W. Hwang, and H. J. Kim, Korea

3-3 **A Recognition Method for Skewed Four-State Bar Codes by Uing Raster-Scanned Binary Images and Connected Components**
Y. Shima, K. Marukawa, H. Shinjoo, K. Nakashima, M. Koga and T. Kagehiro, Japan

3-4 **Granulometry Using Mathematical Morphology and Motion**
F. Dornaika and H. Zhang, Canada

3-5 **Using Poor Quality Images of Pads Instead of Fiducial Marks In Vision Assisted Assembly of PCB's**
K. Khalili, Iran

3-6 **Removing the Intensity Variations Caused by Textures on Textile Surfaces Using Wavelet Shrinkage**
H. Fujiwara and Z. Zhang, Japan

3-7 **Automated TV-set Raster Tuning System**
R. Kh. Sadykhov, A. V. Klimovich, O. G. Malenko and L. P. Podenok, Belarus

3-8 **Development of Visual Inspection System Based on Vector Analysis Technique**
M. Sakuma, K. Kubo, S. Kanemoto, T. Butsuen, Y. Saito and K. Horii, Japan

3-9 **Airport Monitoring System : Robust Airplane Extraction against Variable Environmental Conditions**
T. Aoki, O. Nakayama, M. Shiohara and S. Sasaki, Japan

3-10 **License Plate Recognition Using Associative Matching Based on Clique-Finding**
M. Shi, W. Ohyama, T. Wakabayashi and F. Kimura, Japan

3-11 **A Free-Form Snake-Based Algorithm for Lane Detection**
Z. Lu and E. K. Teoh, Singapore

3-12 **Real Time Vision Based Road Lane Detection and Tracking**
R. Aufrere, R. Chapuis and F. Chausse, France

3-13 **Vision Based Global Navigation System for Autonomous Urban Transport Vehicles in Outdoor Partially Known Environments**
M. A. Sotelo, L. Magdalena, F. J. Rodrigues and L. M. Bergasa, Spain

3-14 **Real-Time Camera Parameter Estimation from Images for a Wearable Vision System**
T. Okuma, T. Kurata and K. Sakaue, Japan

3-15 **Surface Evolution Based on Wave Propagation and Its Application to Topology-Adaptive 3-D Modeling**
K. Hara, H. Zha and T. Hasegawa, Japan

3-16 **Realistic Virtual Face and Body Synthesis**
J. Yan and H. Zhang, China

3-17 **Bayesian Shot Detection Using Structural Weighting**
S. H. Han and I. S. Kweon, Korea

3-18 **Facial Caricaturing System Controlled by the KANSEI of Gallery Through the Feedback from Eye-Camera**
M. Tominaga, T. Asao, K. Murakami and H. Koshimizu, Japan

3-19 **Visualization System Displaying Retrieved Images in a 2-D Semantic Space**
Y. Musha and A. Hiroike, Japan

3-20 **Extracting Story Units from Video Using Contextual Information**
H-B. Kang, Korea

3-21 **On the Detection of Feature Points of 3D Facial Image and Its Application to 3D Facial Caricature**
T. Fujiwara, M. Tominaga, K. Kato, K. Murakami and H. Koshimizu, Japan

3-22 **Optimized Camera Viewpoint Determination System for Soccer Game Broadcasting**
K. Matsumoto, S. Sudo, H. Saito and S. Ozawa, Japan

3-23 **Static Test of MPEG-4 Visual Decoders**
W-S. Kim, I-S. Park, S-H. Park, B-U. Lee and R-H. Park, Korea

3-24 **Qualitative Decomposition of Range Images into Convex Parts / Objects**
X. Jiang, Switzerland

3-25 **A New Face Recognition System with Robustness against Illumination Changes**
R. Ishiyama, S. Sakamoto and J. Tajima, Japan

3-26 **A Face Recognition Algorithm Robust Against Illumination Variations Using 3-Dimensional Face Shape**
H. Imaoka and S. Sakamoto, Japan

3-27 **Detecting Perceptual Color Changes from Sequential Images for Scene Surveillance**
M. Rautiainen, T. Ojila and H. Kauniskangas, Finland

3-28 **A Face Recognition Terminal with Effective Illumination for Access Control Systems**
T. Sato, H. Sukegawa, K. Yokoi and A. Okazaki, Japan

3-29 **Partial Face Extraction and Recognition Using Radial Basis Function Networks**
H. Nan, K. Sato and Y. Takahashi, Japan

3-30 **Real-Time Facial Feature Detection for Person Identification System**
S. U. Lee, Y. S. Cho, S. C. Kee and S. R. Kim, Korea

3-31 **Iris Identification System Using Tree-Structured Wavelet Algorithm**
T. R. Mengko, A. Ardianti and A. Setyorini, Indonesia

3-32 **An Active Search of Local Individualities for an Off-line Signature Verification**
S. Ando and M. Nakajima, Japan

3-33 **A Character Pattern Extraction Method Applicable to Various Types of Images**
H. Goto and H. Aso, Japan

3-34 **Computational Analysis for Conservation of Works of Art**
V. Kokla, A. Psarrou, A. Alexopoulou and V. Konstantinou, UK

3-35 **An Environment to Test Progressive Refinement of Indexing for Content-Based Image Retrieval**
M. G. Albanesi, M. Ferretti and A. Giancane, Italy

**Session 4: Invited Talk 1** (15:30 — 16:30)
**Evolution of Real-Time Image Processing in Practical Applications**
Dr. Masakazu Ejiri
(Hitachi)

**Session 5: Color Image Analysis** (16:30 — 17:50)

5-1 **Visual Inspection of Parquet Slabs by Combining Color and Texture**
J. Kyllonen and M. Pietikainen, Finland

5-2 **Shape Based Segmentation and Color Distribution Analysis with Application to Bread Recognition**
D. Pishva, K. Hirakawa, A. Kawai and T. Shiino, Japan

5-3 **Extraction of Character String Areas from Color Scenery Image Using Psychological Potential Field**
M. Anegawa, A. Nakamura and S. Miyahara, Japan

5-4 **3D Shape Reconstruction Using Three Light Sources in Image Scanner**
H. Ukida and K. Konishi, Japan

## Wednesday, November 29, 2000

**Session 6: Human Computer Interaction** (9:00—10:40)

6-1 **Virtual Subspace Method for Robust Face Recognition Independent of Lighting Conditions**
T. Shakunaga and N. Yamamoto, Japan

6-2 **Feature Ordering by Cross Validation for Face Detection**
T. Kurita, K. Hotta and T. Mishima, Japan

6-3 **Visual Screen: Transforming an Ordinary Screen into a Touch Screen**
Z. Zhang and Y. Shan, USA

6-4 **A Multi-Modal Interface for Recognizing Gestures Expressed by Cyclically Repeated Motion of the Hand**
M. Nishimura, A. Nishikawa, K. Koara and F. Miyazaki, Japan

6-5 **Proposal of an Adaptive Vision-Based Operational Intention Inference System in Human/Robot Coexistence**
M. A. Thi Ho, Y. Yamada, T. Sakai, T. Morizono and Y. Umentani, Japan

**Break** (10:40 — 11:00)

**Session 7: Feature Extraction** (11:00 — 12:40)

7-1 **Line Matching through Global Optimization Constrained by Projective Invariants**
A. Branca, E. Stella and A. Distante, Italy

7-2 **Robust Picture Matching Based on Selective Correlation Coefficient**
Y. Sato, S. Kaneko and S. Igarashi, Japan

7-3 **Applicable Method to Specular Surface for Recovering the Sign of the Local Gaussian Curvature**
S. Fukui, Y. Iwahori, R. J. Woodham, K. Funahashi and A. Iwata, Japan

7-4 **New A/D Conversion Technique for Smart Image Sensor**
T. Hamamoto, Y. Ino and K. Aizawa, Japan

7-5 **A Video-Rate Stereo System by Integration of Two Algorithms with/without Occlusion Handling**
Y. Sugaya and Y. Ohta, Japan

**Lunch** (12:40 — 13:40)

**Session 8: Poster Session 2** (13:40 — 15:10)

8-1 **Curve Matching with Probabilistic Relaxation**
Y. Shan and Z Zhang, USA

8-2 **Line Segment Detection by High Performance Digital Template Hough Transform DTHT**
S. Li, M. Tominaga, K. Kato, K. Murakami, H. Koshimizu and J. Hayashi, Japan

8-3 **Yet Another Appearance-Based Method for Pose Estimation Based on a Linear Model**
T. Okatani and K. Deguchi, Japan

8-4 **Object Recognition Using Orientation Code Matching**
F. Ullah, S. Kaneko and S. Igarashi, Japan

8-5 **Edge-Based Segmentation of Textured Images Using Optimally Selected Gabor Filters**
B. R. Okombi-Diba, J. Miyamichi and K. Shoji, Japan

8-6 **Evolutionary Feature Selection for Texture Classification Using Multiwavelets**
B. Y. Liao, J. W. Wang, F. H. Wang, J. S. Pan and C. S. Shieh, Taiwan

8-7 **Structural Stability Analysis for Texture Recognition**
Y. Miyamoto, M. N. Shirazi and K. Uehara, Japan

8-8 **Distortion-Free Navigation of Omni-Directional Images Using Constructive Neural Networks**
F. Ekpar, M. Yoneda and H. Hase, Japan

8-9 **Multi-Spectral Panoramic Sensor**
O. Romain, T. Ea, C. Gastaud and P. Garda, France

8-10 **A New Computational Image Sensor with Programmable Spatially Variant Multiresolution Readout Capability**
Y. Ohtsuka and K. Aizawa, Japan

8-11 **A Multi-Resolution Image Understanding System Based on Multi-agent Architecture for High-Resolution Images**
K. Yanai and K. Deguchi, Japan

8-12 **Evaluation of Two Real Time Low Level Image Processing Architecture**
S. Persa, C. Nicolescu and P. Jonker, The Netherlands

8-13 **A Fully Automatic Segmentation Method for Virtual Bronchoscopy**
K. Ku, D. Kim and J. H. Kim, Korea

8-14 **Active Contours for Bolus Tracking in X-Ray Images Sequences**
E. Dellandrea, P. Makris, M. Boiron and N. Vincent, France

8-15 **Cell Tracking Using Random Sampling**
L. Liang and B. G. Hu, China

8-16 **A Fully Automatic Alignment of Electron Tomography Images without Fiducial Markers**
S. Brandt and J. Heikkonen, Finland

8-17 **Automatic Segmentation of Features in Medical CT Imagery**
A. L. Reno and D. M. Booth, UK

8-18 **Retinal Image Segmentation by Watersheds**
C. Perra, M. Petrou and D. D. Giusto, Italy

8-19 **Self-Organization of Viewpoint Dependent Face Representation by the Self-Supervised Learning and Viewpoint Independent Face Recognition by the Mixture of Classifiers**
T. Kurita, H. Shimai, T. Mishima and T. Takahashi, Japan

8-20 **3D Model-Based Detection of People in Monocular Video Sequences Taken in Trainstations**
S. Huwer and H. Niemann, Germany

8-21 **Local Zernike Moments Vector for Content-Based Queries in Image Data Base**
E. Bigorgne, C. Achard and J. Devars, France

8-22 **Face Recognition Using Independent Component Analysis of Gabor Responses**
K-C. Chung, S. C. Kee and S. R. Kim, Korea

8-23 **A Library System for Small-Scale Library**
M. Yasuda, K. Iwata, K. Yamamoto, K. Kato, K. Tanahashi and K. Murata, Japan

8-24 **Towards a Definition of a Vision System for Blinds**
Edwige, E. Pissaloux and H. Bouayed, France

8-25 **Detection and Estimation of Omni-Directional Pointing Gestures Using Multiple Cameras**
H. Watanabe, H. Hongo, M. Yasumoto and K. Yamamoto, Japan

8-26 **Gesture Control for Use in Automobiles**
S. Akyol, U. Canzler, K. Bengler, and W. Hahn, Germany

8-27 **Cooperative Distributed Tracking for Effective Face Registration**
T. Kato, Y. Mukaigawa and T. Shakunaga, Japan

8-28 **Performance Analysis of Gabor Responses in Face Recognition**
M. Rajapakse and Y. Guo, Singapore

8-29 **On Eye Gaze Determination via Iris Contour**
J-G. Wang and E. Sung, Singapore

8-30 **Image Retrieval through Abstract Shape Indication**
A. Brucale, F. Cesari, M. d'Amico, M. Ferri, P. Frosini, L. Gualandri, M. Guerra, A. Lovato and I. Pace, Italy

8-31 **Re-generation of Facial Image Eye-Contacting with Partner on the TV Conference Environment**
T. Yamaguchi, M. Tominaga, K. Murakami and H. Koshimizu, Japan

8-32 **Human Face Image Creation for Virtual Space Teleconferencing Using Camera Input Images**
H. Sato, N. Terashima and H. Tominaga, Japan

8-33 **A Visual Support System for Visually Impaired Persons Using Acoustic Interface**
Y. Kawai and F. Tomita, Japan

8-34 **A Field Mapping System to Distinguish Clover Stocks from Grass Thicket Using a Texture Analysis Method**
H. Tamura, O. Atoda and K. Sakai, Japan

8-35 **A Detection Method of Cracks and Structural Objects of the Road Surface Image**
N. Tanaka and M. Mouri, Japan

8-36 **Chinese Character Classification Based on Rough Set and SVM Algorithm**
J-S. Fan and T-J. Fang, China

**Session 9: Invited Talk 2** (15:10 — 16:10)
**Computer Vision Techniques for Content-Based Image Retrieval from Large Medical Databases**
Prof. Avi Kak
(Purdue University)

**Session 10: Medical Applications** (16:10—17:30)

10-1 **Automatic Transfer of Pre-Operation fMRI Markers into Intra-Operation MR-Images for Updating Functional Neuronavigation**
M. Wolf, T. Vogel, P. Weierich, Ch. Nimsky and H. Niemann, Germany

10-2 **Camera Motion Estimation from Real Endoscope Images Using Virtualized Endoscope System**
J. Sugiyama, H. Syouji, K. Mori, Y. Suenaga, J. Toriwaki and J. Hasegawa, Japan

10-3 **Automated Left Ventricle Boundary Delineation from Constrast Ventriculogram**
L. Sui, F. H. Sheehan and R. M. Haralick, USA

10-4 **Computer-Aided Diagnostic System Based on Liver CT image**
J-S. Hong, T. Kaneko, R. Sekiguchi and K-H. Park, Korea

## Thursday, November 30, 2000

**Session 11: Range and 3D Analysis** (9:00—10:40)

11-1 **Dense Disparity Map Estimation Respecting Image Discontinuities: A PDE and Scale-Space Based Approach**
L. Alvarez, R. Deriche, J. Sanchez and J. Weickert, France

11-2 **Reconstruction of Architectural Scenes from Uncalibrated Photos and Maps**
I. Infantino, R. Cipolla and A. Chella, Italy

11-3 **Shape from Pattern Light Projection: Object Having a Diffusive and Specular Surface**
S. Tsukamoto and H. Miike, Japan

11-4 **Fast ICP Algorithm Using a One-Dimensional Search**
W-S. Kim and R-H. Park, Korea

11-5 **Finding Line Segments in Range Images**
C. Guerra and V. Pascucci, Italy

**Break** (10:40 — 11:00)

**Session 12: Motion and Image Sequence Analysis** (11:00 — 12:40)

12-1 **Self-Calibration from Optical Flow and Its Reliability Evaluation**
K. Kanatani, Japan

12-2 **A 3-D Motion Recovery Technique for Group Sports Employing Uncalibrated Video Cameras**
J. K. Tan, S. Ishikawa and K. Hayashi, Japan

12-3 **Recovering Camera Motion from Image Sequence Based on Registration of Silhouette Cones: Shape from Silhouette Using a Mobile Camera with a Gyro Sensor**
T. Okatani and K. Deguchi, Japan

12-4 **Motion Segmentation and Tracking by Embedding Global Model Within a Contextual Relaxation Scheme**
Y. Chen and T. S. Huang, USA

12-5 **Shape and Motion Estimation from Geometric Primitives in Video Streams**
P-L. Bazin, J-M. Vezien and A. Gagalowicz, France

**Lunch** (12:40 — 13:40)

**Session 13: Poster Session 3** (13:40 — 15:10)

13-1 **Recovering Shape of Unfolded Books Surface from a Scanner Image Using Eigenspace Method**
H. Ukida, K. Konishi, T. Wada and T. Matsuyama, Japan

13-2 **A Decomposition Approach to Geometric Fitting**
X. Jiang, Switzerland

13-3 **A Novel Phased-Based Stereo Matching Algorithm for Disparity Estimation**
C. Wen, X. Ping and T. Zhang, China

13-4 **Projective Differential Stereo Vision with Robust Segmentation by M-Estimation**
A. Miyamoto, T. Kondo, S. Kaneko and S. Igarashi, Japan

13-5 **Object Recognition Based on Depth Aspect Image Matching**
T. Takeguchi, S. Kaneko, T. Kondo and S. Igarashi, Japan

13-6 **Fast Lighting/Rendering Solution for Matching a 2D Image to a Database of 3D Models : ""Light-Sphere""**
A. P. Blicher and S. Roy, USA

13-7 **Fitting 3D Models To 2D Imagery: A Physics Based Approach**
M. Berger, V. Kwavtchenko-Berejnoi and S. Scherer, Austria

13-8 **Registration of Range Images Considering Depth Measurement Error**
K-S. Yoon, B-U. Lee, R-H. Park, W-S. Kim and Korea

13-9 **Area-Based Estimation of Stereo Disparity Using Hierarchical Windows**
A. Osa, H. Yamashita and H. Miike, Japan

13-10 **Nonlinear Diffusion of Normals for Stable Detection of Ridges and Ravines on Range Images and Polygonal Models**
Y. Ohtake and A. Belyaev, Japan

13-11 **A Fast Snake-Based Method to Track Football Player**
S. Lefevre, C. Fluck, B. Maillard and N. Vincent, France

13-12 **Determining Temporally Evaluated Optical Flow**
R. Okada, Y. Taniguchi and K. Onoguchi, Japan

13-13 **Model-Based 3D Motion Analysis via Robust Estimation**
J. Rocha and A. Mir, Spain

13-14 **A Template Locating Criterion for Electronic Image Stabilizer Application**
H. R. Pourreza, M. Rahmati and F. Behazin, Iran

13-15 **Human Tracking Based on Hierarchical Attention Control**
J. Satake and T. Shakunaga, Japan

13-16 **Feature-Based Real-Time Human Face Tracking Using Lie Algebras**
A. Inoue, T. Drummond and R. Cipolla, Japan

13-17 **A Hand Tracking System Using Condensation Algorithm and Active Shape Models**
L. Liang, China

13-18 **A Unique Recovery of 3D Shape and Size from Motion**
A. Amano, T. Migita and N. Asada, Japan

13-19 **Comparison of Motion Estimation Algorithms**
H. Wang, W. Song and R. Jarvis, Singapore

13-20 **A Block-Based Motion Estimator Capable of Handling Occlusions**
M. J. W. Mertens, G. de Haan, The Netherlands

13-21 **Tracking Many Pedestrians in the Crowd**
K. Uchida, J. Miura and Y. Shirai, Japan

13-22 **Combating Occlusion and Scene Changes for Camera Position Determination**
P. Quick, D. Capson, Canada

13-23 **Mosaic Representations of Video Shots Based on Slice Image Analysis**
F. Shaolei, L. Hangqing and L. Dalong, China

13-24 **A Method for Estimating Multiple Motion Parameters and Planar Surface Parameters without Feature Point Correspondence**
A. Minagawa, Y. Horie, N. Tagawa and T. Tanaka, Japan

13-25 **Estimation of Surface Location of a Textured Plane Using Spectral Moments**
T. Tsuji and Y. Yoshida, Japan

13-26 **Face Sequence Matching with Certainty Factor Evaluation**
H. Mo and S. Satoh, Japan

13-27 **Foreground Detection with Non-stationary Background**
Y. Ren, C-S. Chua and Y-K. Ho, Singapore

13-28 **Optimal Grid Pattern for Automated Matching**

**Using Cross Ratio**
C. Matsunaga and K. Kanatani, Japan

13-29 **A Linear Metric Reconstruction by Complex Eigen-Decomposition**
Y. Seo and K-S. Hong, Korea

13-30 **Versatile Cooperative Multiple-Object Tracking by Active Vision Agents**
N. Ukita and T. Matsuyama, Japan

13-31 **Application of Hybrid Fractal Image Compression Method for Aerial Photographs**
L. Yulianti and T. R. Mengko, Indonesia

13-32 **3D Reconstruction Based on Epipolar Geometry**
M. Kimura and H. Saito, Japan

13-33 **Optimization of Image Processing by Genetic and Evolutionary Computation: How to Realize Still Better Performance**
H. Shimodaira, Japan

13-34 **3D City Modeling with Laser Range Data and 2D Maps**
P. Wang, T. Doihara, K. Oda and W. Lu, Japan

13-35 **From Digital Map to 3D Map: Creating 3D Map by Motion Stereo Utilizing 2D Map**
M. Uehara and H. Zen, Japan

13-36 **Map Generation from Aerial Imagery Using Data Compression**
T. Watanabe, K. Sugawara, H. Sugihara and K. Sukegawa, Japan

**Session 14: Invited Talk 3** (15:10 — 16:10)
**Machine Vision for Medicine of 21st Century**
Prof. Nicholas Ayache
(INRIA)

**Session 15: Parameter Estimation** (16:10—17:30)

15-1 **Radial Distortion Snakes**
S. B. Kang, USA

15-2 **Grasping Objects of Various Shapes by Calibration-Free Vision-Guided Robots**
V. Graefe and M-C. Nguyen, Germany

15-3 **Feature-Based Lens Distortion Correction for Image Mosaicing**
N. Chiba, M. Minoh and H. Kano, Japan

15-4 **From Surface Roughness to Surface Displacements**
H. Mayer, Austria