

General Information

Table of Contents

General Information

1. About the Conference	2
2. Conference Committees.....	3
3. Plenary Talks	6

Program

1. Codes and Descriptions	7
2. Program at a Glance	8
3. Program in Details	11
4. Abstracts of Plenary Talks	38

Maps

1. City Map	46
2. Conference Venue	?
3. Hotel Map	?
4. Meeting Room Location	?

1. About the Conference

The First International Conference on Image and Graphics is organized by the China Society of Image and Graphics in Tianjin, China, from August 16 to August 18, 2000. The theme of ICIG`2000 is "Image and Graphic Technology toward 21st Century and Beyond." The goal of the conference is to provide a forum for researchers in Image and Graphics to describe recent advances, to exchange up-to-date technical knowledge and experiences, and to debate their views on future research and developments.

ICIG`2000 has invited 8 international experts for giving plenary talk. It has attracted about 220 submissions from more than a dozen countries on four continents.

In the conference proceedings, which have both printed form and CD-ROM form, 7 invited papers for plenary talks and 149 accepted papers are included. This collection of papers as well as ICIG '2000 will contribute to the continued progress of image and graphics technology in the new century!

2. Conference Committee

Honor Chair:

Academician G.H. XU (Ministry of Science and Technology, China)

Advisors (alphabetical list):

Academician D.B. Kuang (Shanghai Institute of Technical Physics, China)

Academician D.R. Li (Wuhan Technical University of Surveying and Mapping, China)

Academician G.G. Mu (Nankai University, China)

Academician G.N. Ni (Institute of Computer Science, China)

Academician Q.Y. Shi (Peking University, China)

Academician Y.S. Wu (Tsinghua University, China)

Prof. H.Q. Xu (China Textile University, China)

Academician F.Q. Yang (Peking University, China)

Academician X. Zhang (Shanghai Jiaotong University, China)

Prof. Y.M. Zhang (Tianjin University, China)

General Co-Chairs (alphabetical list):

Prof. W. Gao (Institute of Computing Technology, China)

Prof. T.S. Huang (University of Illinois at Urbana-Champaign, USA)

Prof. Y.H. Pan (Zhejiang University, China)

Prof. I.T. Young (Delft University of Technology, Netherlands)

Program Co-chairs (alphabetical list):

Prof. J. Biemond (Delft University of Technology, Netherlands)

Prof. K. Ikeuchi (University of Tokyo, Japan)

Prof. D. Zhang (Hong Kong Polytechnic University, China)

Prof. Y.J. Zhang (Tsinghua University, China)

Dr. Y.Q. Zhang (Microsoft Research, China)

Program Committee (alphabetical list):

Prof. G. Cantraine (Liège University, Belgium)
Prof. Z.L. Cao (Tianjin Institute of Science and Technology, China)
Prof. K. Chehdi (Rennes-I University, France)
Prof. H. Dehlinger (Kassel University, Germany)
Prof. T.W. Finin (University of Maryland, USA)
Prof. E.L. Hall (University of Cincinnati, USA)
Prof. Y.B. He (Fudan University, China)
Prof. H. Ip (City University of Hong Kong, China)
Prof. A.K. Jain (Michigan State University, USA)
Prof. Y.D. Jia (Beijing Institute of Technology, China)
Prof. A. E. Kaufman (State University of New York at Stony Brook, USA)
Prof. J. Kittler (University of Surrey, UK)
Dr. D. Koo (Philips Laboratory, USA)
Prof. C. Leung (Victoria University, Australia)
Prof. C. Li (China Institute of Aeronautic, China)
Prof. H. Li (Institute of Computing Technology, China)
Prof. X.L. Li (China Science and Technology University, China)
Prof. H. Maitre (National Institute of Telecommunication, France)
Dr. N. Merzlyakov (Institute for Information Transmission Problems, Russian)
Dr. F. Noo (Liège University, Belgium)
Dr. N. Ozaki (Toshiba Corporation, Japan)
Prof. S.C. Pei (National Taiwan University, China)
Dr. G. Pingali (Bell laboratories, USA)
Prof. T.C. Pong (Hong Kong University of Science and Technology, China)
Prof. D.X. Qi (North China University of Technology, China)
Prof. M. Revenu (Caen University, France)
Dr. R. Schettini (Institute of Multimedia Technology, Italy)
Prof. J.Y. Shi (Zhejiang University, China)
Prof. A. Smeulders (University of Amsterdam, Netherlands)
Prof. G. Sommer (Kiel University, Germany)
Prof. G.Y. Suen (Concordia University, Canada)
Prof. T.N. Tan (Institute of Automation, China)
Prof. H.T. Tsui (Chinese University of Hong Kong, China)

Prof. L. J. Vliet (Delft University of Technology, Netherlands)
Prof. G.A.W. West (Curtin University of Technology, Australia)
Prof. Z.X. Xu (Shanghai University, China)
Dr. B.L. Yeo (Intel Corporation, USA)
Prof. Y.H. Zhou (Shanghai Jiaotong University, China)

Organizing Co-Chairs (alphabetical list):

Director W.L. Dai (Tianjin Society of Image and Graphics, China)
General secretary Z.A. Luo (China Society of Image and Graphics, China)
Prof. F.H. Qi (Shanghai Jiaotong University, China)
Dr. H. Shum (Microsoft Research, China)

3. Plenary Talks (alphabetical list):

Prof. J. Biemond (Delft University of Technology, Netherlands):
Video Content Analysis: From Visual Features to Video Semantics

Prof. H. Dehlinger (Kassel University, Germany):
Lines as Elements of Generative Art

Prof. T.S. Huang (University of Illinois at Urbana-Champaign, USA):
IA3: Intelligent Affective Animated Agents

Prof. K. Ikeuchi (University of Tokyo, Japan):
Modeling from Reality: Photometric Aspect

Prof. G.G. Mu (Nankai University, Tianjin, 300071, CHINA)
Digital White-Light Information Processing for Color Photography with Tricolor Grating

Prof. T.I. Young (Delft University of Technology, Netherlands):
Microarrays from Biotechnology: The Imaging Challenge

Prof. D. Zhang (Hong Kong Polytechnic University, China):
Biometrics Technologies and Applications

Prof. Y.Q. Zhang (Microsoft Research, China):
Digital Video over Internet

Program

1. Code and Descriptions

L (Lecture): 15 minutes are allocated to each lecture, with 12 minutes for presentation and 3 minutes for questions and answers.
PC projector and overhead projector are available.

P (Poster): the area allocated to each poster is a rectangle with width 90cm (4.3 in) and height 120 cm (5.7 in).
Pushpin and adhesive bands for fixation are available.

IP: Image Processing (capture, coding, transmission, storage, enhancement, restoration, reconstruction, etc.) and applications

IA: Image Analysis (segmentation, representation, description, measurement, texture, motion, etc.) and applications

IU: Image Understanding (matching, scene interpretation, 3-D modeling, etc.) and applications

PR: Pattern Recognition (character, speech, image, video, etc.) and applications

CV: Computer Vision (active, real-time, stereo, etc.) and applications

CG: Computer Graphics (graphic models and generation, animation and visualization, etc.) and applications

VR: Virtual Reality (augmented reality, media immersion) and applications

MP: Multimedia Processing (information fusion, digital video, delivery of visual information) and applications

MD: Multimedia Database (management, query model, indexing, retrieval, mining, etc.) and applications

2. Program at a Glance

Wednesday, August 16, 2000

Opening: 09:00 - 10:00 (Main Hall)

Plenary Talk (PT1): 10:00 - 11:30 (Main Hall)

- Digital White-Light Information Processing for Color Photography with Tricolor Grating (pp.29~35)
G.G. Mu (Nankai University, China)
- IA3: Intelligent Affective Animated Agents (pp.14~21)
T.S. Huang (University of Illinois at Urbana-Champaign, USA)

Photograph Together: 11:30 - 12:00 (Front Gate)

Conference Reception: 12:00 - 14:00

Lecture Session (L1): 14:15 - 15:30
IP-L1 (He Xi Hall)
IU-L (Bei Chen Hall)
CG-L1 (Jing Hai Hall)
VR-L (Da Gang Hall)

Cafe Break: 15:30 - 15:45 (in front of He Xi Hall)

Lecture Session (L2): 15:45 - 16:45
IA-L1 (He Xi Hall)
PR-L (Bei Chen Hall)
CV-L1 (Jing Hai Hall)
MP-L1 (Da Gang Hall)

Poster Session (P1): 16:45 - 18:00
(in front of He Xi Hall)
IA-P, CV-P, CG-P, MD-P

Dinner: 18:30 - 20:00

Thursday, August 17, 2000

Plenary Talk (PT2): 08:30 - 10:30 (Main Hall)

- Microarrays from Biotechnology (pp.36~41)
I.T. Young (Delft University of Technology, Netherlands)
- Modeling from Reality (pp.22~28)
K. Ikeuchi (University of Tokyo, Japan)
- Biometrics Technologies and Applications (pp.42~49)
D. Zhang (Hong Kong Polytechnic University, China)

Cafe Break: 10:30 - 10:45 (Main Hall)

Poster Session (P2): 10:45 - 12:00
(in front of He Xi Hall)
IP-P, PR-P, MP-P

Lunch: 12:00 - 14:00

Lecture Session (L3): 14:15 - 15:45
IP-L2 (He Xi Hall)
IA-L2 (Bei Chen Hall)
CV-L2 (Jing Hai Hall)
MD-L (Da Gang Hall)

Cafe Break: 15:45 - 16:00 (Main Hall)

Lecture Session (L4): 16:00 - 17:30
IP-L3 (He Xi Hall)
IA-L3 (Bei Chen Hall)
CG-L2 (Jing Hai Hall)
MP-L2 (Da Gang Hall)

Conference Banquet: 18:00 - 21:00

3. Program in Details

Friday, August 18, 2000

Plenary Talk (PT3): 08:30 - 10:30 (Main Hall)

- Video Content Analysis: From Visual Features to Video Semantics (pp.1~9)
J. Biemond (Delft University of Technology, Netherlands)
- Lines as Elements of Generative Art (pp.10~13)
H. Dehlinger (Kassel University, Germany)
- Digital Video over Internet
Y.Q. Zhang (Microsoft Research, China)

Closing: 10:30 - 11:00 (Main Hall)

● **IP-L1:** August 16, 2000

Time: 14:15 - 15:30

Place: He Xi Hall

Chair: Tan Zheng (Xi'an Jiao Tong University)

IP-L1.1 (pp.159~162)

Stereo Sequence Coding Based on Segmentation
An Ping, Zhang Zhaoyang

IP-L1.2 (pp.100~104)

Fuzzy Clustering Algorithms Based on Resolution and Their Application in Image Compression
Kong Xiangwei, Li Guoping

IP-L1.3 (pp.54~57)

JBIG2 Symbol Dictionary Design Based on Minimum Spanning Tree
Yan Ye, Pamela Cosman

IP-L1.4 (pp.58~61)

Scalable Image Coding Method Based on Zerotrees of Wavelet Coefficients
Wu Shuanhu, Tan Zheng, Xing Yanchao

IP-L1.5 (pp.185~189)

A Fixed Vector Hierarchical Fractal Coding Approach
Yin Jian, Liu Jiming, Liu Xingcheng

● **IP-L2:** August 17, 2000

Time: 14:15 - 15:30

Place: He Xi Hall

Chair: Li-Dong Cai (Jinan University)

IP-L2.1 (pp.190~193)

Tomography Imaging via Triangulating and Neural Computing
He Mingyi, Xia Jiantao

IP-L2.2 (pp.105~108)

Self-adapted Template Window Fixing Based on Spatial Statistics
Hongchao Ma, Deren Li, Shuying Jin, Xiaodong Zhang

IP-L2.3 (pp.143~146)

Colour Image Restoration Using Inverse Diffusion
Li-Dong Cai

IP-L2.4 (pp.96~99)

Image Denoising Schemes Based on Discrete Wavelet Transform
Lin Kezheng, Li Dianpu, Huan Keqiang

IP-L2.5 (pp.139~142)

A Blind System to Identify Degradations Affecting an Image
Kacem Chehdi, Marie-Paule Carton-Vandecandelaere, Benoit Vozel, Nathalie Berric

IP-L2.6 (pp.171~176)

Image Acquisition and Transmission in the NDT of Conveyer Belt with Wire Ropes
Gao Yulin, Liu Baoyong, Shen Fengguang, Li Xiang

● **IP-L3:** August 17, 2000

Time: 16:00 - 17:30

Place: He Xi Hall

Chair: Zhang Chuntian (Tianjin University)

● **IP-P:** August 17, 2000

Time: 10:45 - 12:00

Place: in front of He Xi Hall

Chair: Li Hua (Institute of Computing Technology)

IP-P.8 (pp.127~130)

Blur Recognition on the Neural Network based on Multi-valued Neurons
Igor Aizenberg, Naum Aizenberg, Taras Bregin, Constantine Butakov, Elya Farberov, Nickolai Merzlyakov, Olga Milyukova

IP-L3.1 (pp.74~78)

Perceptually Uniform Color Models for Tasks in Computer Vision
Chengyi Sun, Yan Sun, Xiaohong Guo

IP-P.1 (pp.50~53)

Color Spaces Conversion of Image between the Input and Output Devices by Means of Artificial Neural Networks
Hongfei Yu, Hua Zeng, Ruili Wang, Weiping Yang, Fengxiang Bai, Y.J. Zhang

IP-P.9 (pp.109~114)

Digital Watermark Image Embedding Based on Discrete Cosine Transformation
Ding Wei, Yan Wei-Qi, Qi Dong-Xu

IP-L3.2 (pp.119~122)

An Integrated System for Digital Processing and Identification of Watermark Images
V.N. Karnaukhov, E. Wenger, A. Haidinger, N.S. Merzlyakov, Y.J. Zhang

IP-P.2 (pp.123~126)

ITTBC Using Adaptive Multiresolution on the Subband Domain Pool
Hong Bin Kim, Chung Hwa Kim

IP-P.10 (pp.115~118)

Study of the KL Transformation for Natural Scenes
Junsheng Shi, Wei Tang, Fengxiang Bai, Y.J. Zhang

IP-L3.3 (pp.181~184)

Hiding Digital Watermark Based on Wavelet Decomposition
Li Hua, Zhu Guangxi, Zhu Yaoting

IP-P.3 (pp.62~65)

Classified Attribute Cluster Network Applied on Fractal Block Coding
Chunmei Wang, Yusong Yan, Qiansheng Cheng

IP-P.11 (pp.131~134)

Notes on Images Restoration using Inverse Diffusion
Li-Dong Cai

IP-L3.4 (pp.79~82)

An Adaptive Video Watermarking
Su Yuting, Zhang Chuntian

IP-P.4 (pp.66~69)

Wavelet-based Watermarking Technique with Two-dimensional Digital Watermark
Xia-mu Niu, Wen-jun Xiang, Sheng-he Sun

IP-P.12 (pp.147~150)

Multifunctional Digital Model of Image Blurring & Restoration Systems
Andrey V. Karnaukhov, Nickolai S. Merzlyakov, Olga P. Milukova

IP-L3.5 (pp.135~138)

Mesh Processing with Second Order Neighbors
Yigang Wang, Bernd Froehlich, Martin Goebel

IP-P.5 (pp.70~73)

An Image Denoising Method Using Wavelet Transformation Technique
Yan Jingwen

IP-P.13 (pp.151~154)

Embed Visually Recognizable Watermarks into Image
Qiusheng Wang, Shenghe Sun

IP-L3.6 (pp.87~91)

Image Reconstruction by Neural Network Based on Insufficient Projection
Zhan Shu, Liu Zhengkai, Qian Yuancheng

IP-P.6 (pp.83~86)

An Image Compression Scheme Based on Structural Similarity of Wavelet Transform
Wang Ping, Wang Yong, Mou Xuanqing

IP-P.14 (pp.155~158)

Efficient BTC Image Coding Algorithms with Median Filtering
Lu Zheming, Zhao Chunhui, Sun Shenghe

IP-P.15 (pp.163~166)

An Adaptive Optimal Polygon Contours Encoding Scheme Based on Rate Distortion and Quadratic Motion Compensation
Zhang Ying, Zhang Zhaoyang

IP-P.7 (pp.92~95)

Image Enhancement Based on Two-dimensional Histogram
Sui Xinguang, Li Bicheng, Tong Li, Ping Xijian

IP-P.16 (pp.167~170)

Reducing the NMR Image's Ringing Artifacts by Wavelet Transform
Jiang Mingyan

IP-P.17 (pp.177~180)

Research on Spatial Resolution and Temporal Resolution of
CCD Image for SPT

Xiao Songshan, Fan Shifu, Li Yanfang

IP-P.18 (pp.194~197)

Design of Signal-adapted Wavelet Filter Bank using
Evolutionary Programming

Susu Yao, Ce Zhu

IP-P.19 (pp.198~201)

The Application of Digital Image Merging in the Color
Aero-photography with Black-and-white Film and Tricolor
Grating

*Fang Hui, Zhang Baoying, Fang Zhiliang, Liu Fulai,
Mu Guoguang*

IP-P.20 (pp.241~246)

PIPS: A Cluster-based Parallel Remote Sensing Image
Processing System

Guoqing Li, Dingsheng Liu

● **IA-L1:** August 16, 2000

Time: 15:45 - 16:45

Place: He Xi Hall

Chair: Ian T. Young (Delft University, Netherlands)

IA-L1.1 (pp.232~236)

Recursive Gabor Filtering

Ian T. Young, Lucas J. van Vliet, Michael van Ginkel

IA-L1.2 (pp.210~214)

Texture Classification Using "Genetic Tuned" Masks

Hong Zheng

IA-L1.3 (pp.269~272)

Application of Image Processing in Analysing HPDC
Thermal Images

L.X. Kong, S. Nahavandi, B. Baliga, A.Z. Kouzani

IA-L1.4 (pp.299~303)

An Omnidirectional Structuring Elements Adaptive
Morphological Filter Based on LMS Criterion

Zhao Chunhui, Li Yibing, Xing Qingbin

● **IA-L2:** August 17, 2000

Time: 14:15 - 15:45

Place: Bei Chen Hall

Chair: K. Chehdi (University of Rennes)

IA-L2.1 (pp.304~307)

Multi-resolution Image Segmentation via the Min-lifting
Scheme and Watersheds

Liu Baofang, Ping Xijian, Zhang Tao, Shao Meizhen

IA-L2.2 (pp.251~254)

A Scalar Scheme for Multi-bands Images Segmentation
through Multi-thresholding

C.D. Kermad, K. Chehdi

IA-L2.3 (pp.293~298)

Multi-level Thresholding: Fuzzy Maximum Entropy
Criterion Using ICM

Luo Xiping, Tian Jie

IA-L2.4 (pp.215~218)

A New Method for General Quadratic Curve Detection

JuFu Feng, QingYun Shi

IA-L2.5 (pp.228~231)

Time-adaptive Snakes for Tongue Segmentation

Bo Pang, Kuanquan Wang, David Zhang

IA-L2.6 (pp.277~280)

Extraction of Video Object Plane Using Modified Hausdorff
Object Tracker

Shi Li, Zhang Zhaoyang

● **IA-L3:** August 17, 2000

Time: 16:00 - 17:30

Place: Bei Chen Hall

Chair: Tan Tieniu (Institute of Automation)

● **IA-P:** August 16, 2000

Time: 16:45 - 18:00

Place: in front of He Xing Hall

Chair: Jia Yunde (Beijing Institute of Technology)

IA-P.9 (pp.308~311)

Automatic Identification and Quantitative Analysis of Rock Fractures with Acoustic Image Logging

Yang Xuhai, Zhang Xiaochun

IA-P.10 (pp.312~315)

The Analytic Expression of the Optimum Criteria in the Edge Filter Design

Zhou Yuan, Li Quanlin

IA-P.11 (pp.320~323)

Image Characterization for Segmentation

Fredrik Bergholm, W. X. Wang

IA-P.12 (pp.324~329)

Color-coded Projection Grating Method for Shape Measurement Using a Single Image

Liu Weiyi, Wang Zhaoqi, Mu Guoguang, Fang Zhiliang

IA-L3.1 (pp.237~240)

Automated Inspection of Injection Quality for Lottery Production

Liao Shizhong, Gao Peihuan

IA-L3.2 (pp.281~284)

Measurement of Ball Positions in Building a Billiard Robot

Qi Bingchen, Yoshikuni Okawa

IA-L3.3 (pp.316~319)

A Real-time System for Monitoring Human Motion

Sun Hongzan, Tan Tieniu

IA-L3.4 (pp.202~205)

Automatic Analysis of G Band of Cultivated Wheat Chromosome

Xiong Haitao, Hu Kuanghu, Sun Yan, Su Wanfang, Li Shuyu

IA-L3.5 (pp.206~209)

Biometrics Based Tongue Diagnosis of TCM

Kuanquan Wang, David Zhang, Bo Pang, Yanlai Li, Xiangqian Wu

IA-L3.6 (pp.285~288)

Combining Multiplexing with Algebraic Precision for Calculation of Form-factor between Close Patches

Shan Guoqiang, Sun Jizhou

IA-P.1 (pp.219~223)

Color Image Segmentation Based on Union Probability Density Function of Hue, Light and Saturation

ShengRong Gong, Zhang Xiong, Jun Han

IA-P.2 (pp.224~227)

SAR Imagery: Its Application to Oceanography

Jingsong Yang, Weigen Huang, Changbao Zhou

IA-P.3 (pp.289~292)

Application and Study on Medflow Hazard Surveying in Taihang Mountains Using Landsat-5TM Image

Qiao Yanxiao, Li Miwen

IA-P.4 (pp.247~250)

Application of Image Processing and Quantitative Analysis of Nuclei to the Study of Breast Cancer

Yang Jianru, Guan Zengwei

IA-P.5 (pp.255~260)

A Hybrid Method for Filling 3-sided Holes

Li Guiqing, Li Xianmin, Li Hua

IA-P.6 (pp.261~264)

Automatic Moving Objects Segmentation for Head-shoulder Video Sequence

Tao Luo, Zhang Xu Ding

IA-P.7 (pp.265~268)

A Segmentation Algorithm for Aggregates and Froth Images

Luya Wang, Weixing Wang

IA-P.8 (pp.273~276)

Application of a Scaled Conjugate Gradient Algorithm for Feed Forward Artificial Neural Networks

S. Nahavandi, A. Z. Kouzani, L.X. Kong

● **IU-L:** August 16, 2000

Time: 14:15 - 15:30

Place: Bei Chen Hall

Chair: Wang Runsheng (National University of Defense Technology)

● **PR-L:** August 16, 2000

Time: 15:45 - 16:45

Place: Bei Chen Hall

Chair: David Zhang (Hong Kong Polytechnic University)

● **PR-P:** August 17, 2000

Time: 10:45 - 12:00

Place: in front of He Xi Hall

Chair: Li Hua (Institute of Computing Technology)

IU-L.1 (pp.334~337)

Vision Based Hand Gesture Interactive System
Wei Du, Hua Li

IU-L.2 (pp.338~341)

Pixel-based Correspondence for Facial Images
A.Z. Kouzani, S. Nahavandi, L.X. Kong, F.H. She

IU-L.3 (pp.342~346)

An Algorithm for Inexact Graph Matching Based on Genetic Method
Fan Yun, Wang Runsheng

IU-L.4 (pp.347~351)

A Distributed GIS and RS Information Comprehensive Analysis and Process System
Zhao Min, Ling Fugen, Lin Xingang, Du Jing

IU-L.5 (pp.330~333) Shifted to Poster Session P1

Brain Structure Classification in MRI Images
Jing-Hao Xue, Su Ruan, Bruno Moretti,
Marinette Revenu, Daniel Bloyet

PR-L.1 (pp.360~364)

An Industrial Material Auto-recognition Method Based on 3D Clustering
Ren Bin, Wu Guozhong, Wang Nian, Wang Bingquan

PR-L.2 (pp.380~383)

A Faults-recognized Method based on Neural Network
Han Daofan, Li Decang, Liu Cai, Liang Haiyong

PR-L.3 (pp.384~388)

Motion-and-color Based Hand Segmentation and Hand Gesture Recognition
Haibing Ren, Guangyou Xu, Yuanxin Zhu, Xueyin Lin, Linmi Tao

PR-L.4 (pp.373~375)

An Effective Coordinate System to Solve Tilting Problem for Iris Recognition
Adams W.K. Kong, David Zhang

PR-P.1 (pp.356~359)

Shape Classification for 3D-surface Recognition Using Probabilistic Neural Network
Min Hu, Xi-Jian Ping, Yi-Hong Ding, Qing-Ju Wang

PR-P.2 (pp.352~355)

A Novel Recognition Technique for Chinese Sign Language
Wu Jiangqin, Gao Wen, Wu Xiangqian

PR-P.3 (pp.376~379)

Ships Detection in SAR Image Based on Wavelet Transformation
Li Luo, Hongjun He, Qiang Luo, Fanglin Deng

PR-P.4 (pp.369~372)

Brain Tissue Classification Based On a Pixel Model and Markov Random Field Models
Su Ruan, Jalal Fadili, Jinghao Xue, Daniel Bloyet

PR-P.5 (pp.365~368)

A Method of Quasi-circular Object Recognition with Fuzzy Neural Network
Kong Xiangwei, Liu Huajian, Wang Jing

● **CV-L1:** August 16, 2000
Time: 15:45 - 16:45
Place: He Bei Hall
Chair: Sun Jizhou (Tianjin University)

● **CV-L2:** August 17, 2000
Time: 14:15 - 15:45
Place: Jing Hai Hall
Chair: Ping Xijian (University of Information Engineering)

● **CV-P:** August 16, 2000
Time: 16:45 - 18:00
Place: in front of He Xi Hall
Chair: Jia Yunde (Beijing Institute of Technology)

CV-L1.1 (pp.403~406)
Road Following and Obstacle Detection for Automated Highway Application
Zhou Xin, Huang Xiyue, Wang Xianju, Chai Yi, Huang Hanmin

CV-L1.2 (pp.421~425)
FRPM: Fully Reversible Progressive Meshes
Zhigeng Pan, Zhiliang Tao, Jiaoying Shi

CV-L1.3 (pp.430~433)
A Photograph-based Adaptive Modeling Method for Architectures
Yin Liu, Jizhou Sun

CV-L1.4 (pp.442~445)
Study on Automatic Diameter Measurement of Cashmere Based on Machine Vision
Yang Weizhong, Yang Zhun, Huang Lihua

CV-L2.1 (pp.389~392)
Surface Curvature Estimation from Range Images Based on Adaptive Surface Fitting and Robust M-estimation
ZhangTao, Ping Xijian, Shao Meizhen

CV-L2.2 (pp.451~454)
Dense Depth Map Recovery Using Trinocular Stereo Fish-eye Lenses
Lu Hongjing, Jia Yunde, Liu Wangchun, Xu An

CV-L2.3 (pp.393~397)
3D Shape Recovery from a Sequence of Stereo Images
Xia Limin, Gu Shiwen, Xinquan Shen

CV-L2.4 (pp.426~429)
Optical Flow under a Moving Light Source
Shan Fu, Tony P. Pridmore

CV-L2.5 (pp.438~441)
Disparity Measurement Based on Wavelet Phase
Zhou Jun, Yi Xu, Zhou Yuanhua

CV-L2.6 (pp.455~458)
One Novel Approach toward Polyhedra Reconstruction on Spheres
Liu Ruizhen, Tan Tieniu

CV-P.1 (pp.407~410)
Optimization Method of Model-based Stereo Vision
Yingming Hao, Feng Zhu

CV-P.2 (pp.411~416)
A Solution Method Based on Single-vision for Geometrical Model of Hybrid Modeling System
Wu Weiyu, Xie Chenglin

CV-P.3 (pp.417~420)
A Sub-pixel-level Stereo Algorithm with Right-angle Trinocular
B. Jia, Y.J. Zhang, X.G. Lin, N. Ohnishi

CV-P.4 (pp.434~437)
Method for Chromatic Calibration of Color Camera Based on Neural Networks
Weiping Yang, Yujin Zhang, Bing Peng, Ningfang Liao, Jiankun Yu

CV-P.5 (pp.446~450)
Enhancement of Endoscopic Image Based on the Illumination-reflectance Model
Chen Dongqing, Xie Hongbo, Yu Daoyin

CV-P.6 (pp.398~402)
Computer Vision System for an Autonomous Mobile Robot
Xiaoqun Liao, Jin Cao, Ming Cao, Tayib Samu, Ernest Hall

One paper drawn from IU-L.5

● **CG-L1:** August 16, 2000

Time: 14:15 - 15:30

Place: Jing Hai Hall

Chair: Qian-sheng Cheng (Peking University)

● **CG-L2:** August 17, 2000

Time: 16:00 - 17:30

Place: Jing Hai Hall

Chair: S. Zuffi (CNR, Italy)

● **CG-P:** August 16, 2000

Time: 16:45 - 18:00

Place: in front of He Xi Hall

Chair: Jia Yunde (Beijing Institute of Technology)

CG-L1.1 (pp.496~499)

In-vitro Blood Flow Visualization Using 3-D Reconstruction of Color Doppler Images

Masataka Imura, Tomohiro Kuroda, Osamu Oshiro, Kunihiro Chihara, Joakim Brandberg, Per Ask

CG-L1.2 (pp.482~485)

Time-critical Rendering with Incorporation of LoD and Visibility Culling

Mingmin Zhang, Pheng-Ann Heng, Kun Zhou, Zhigeng Pan

CG-L1.3 (pp.504~507)

Combined Visualization of Anatomical Structure and Ventricles for Cardiac Diagnosis

Helen Hong, Myoung-Hee Kim

CG-L1.4 (pp.472~476)

Shear Warped Volume Visualization Based on the Vector Quantization

Dong Guo, Qiansheng Cheng, Xichen Sun

CG-L1.5 (pp.463~466)

The Method of Generating Graph Models and Designing 3D Moulds

Wang Wei, Du Heng

CG-L2.1 (pp.530~535)

Real-time and Dynamic Rendering of 3D Terrain

Xu Qing, Chang Ge

CG-L2.2 (pp.500~503)

An Intelligent System for the Selection of Conspicuousness Color Sets

P. Campadelli, R. Schettini, S. Zuffi

CG-L2.3 (pp.459~462)

Knowledge Extraction and Refinement from Multi-feature Images through (Re-) Clustering

Mingrui Zhang, Lawrence O. Hall, Dmitry B. Goldgof

CG-L2.4 (pp.536~539)

Multi-resolution Surface Extraction and Rendering Scheme to Volume Data in Wavelet Domain

Haige Shen, Weidong Wang, Lita Wang, Youan Ke

CG-L2.5 (pp.520~523)

A Multiresolution Mesh Data Structure for Dynamic Control of Levels of Detail of 3-D Mesh Objects

Zha Hongbin, Yoshinobu Makimoto, Tsutomu Hasegawa

CG-L2.6 (pp.524~529)

The discrete Ray-casting Algorithm

Xue Qiang, Shi Jiaojing

CG-P.1 (pp.540~543)

The Design of Parameterized Picture-part Based on AutoCAD R14

Guo Qiquan

CG-P.2 (pp.477~481)

Volume Visualization based On the Hybrid Tree

Dong Guo, Qian-sheng Cheng

CG-P.3 (pp.467~471)

Design of Art Pattern Based on Fractal and Its Application Study

Wang Xiaoming, Li Yuhui, Lin La

CG-P.4 (pp.486~489)

A New Scheme for (k, k)-visual Cryptography by XOR Operation

Wang Daoshun, Qi Dongxu

CG-P.5 (pp.490~495)

Study on a Class of Modifiable C^2 -continuous Quadratic Parametric Curves and Surfaces

Yi Gan, Congqian Qi, Hongyi Wu

CG-P.6 (pp.508~511)

An Implementation to Lighting Design System

Qing Xu, Jizhou Sun

CG-P.7 (pp.512~516)

Research Construction of 3D Model Based on CT Images

Shuying Yang, Changyun Yu, Zheqing You

CG-P.8 (pp.517~519)

Fast Algorithm for Ray-tracing Based On a Judging and Query Table

Li Min, Sun Jiyin, Cai Wei

CG-P.9 (pp.544~547)

Sketching a Gray Scale Pattern Based on Non-ridge Points
Lowering Operation
Liu Juni, Wang Runsheng

CG-P.10 (pp.548~552)

View-dependent Multi-resolution Model
Tao Yang, Jizhou Sun

● **VR-L:** August 16, 2000

Time: 14:15 - 15:30

Place: Da Gang Hall

Chair: Zhigeng Pan (Zhejiang University)

VR-L.1 (pp.681~684)

Virtual Cooperative Experiment on Internet
Zhang Hua, Wang Fayu, Yu Changyun

VR-L.2 (pp.677~680)

MUDVE -- A Multi-user Distributed Virtual Environment
*Mengzhou Yang, Xiaohong Jiang, Zhigeng Pan,
Jiaoying Shi*

VR-L.3 (pp.673~674)

Reproduction of Motion for Immersive Mixed Environments
*Yoshitsugu Manabe, Koichi Sato, Kazumasa Yamazawa,
Naokazu Yokoya, Kunihiro Chihara*

VR-L.4 (pp.685~688)

Behavior Visual Simulation of Moving Vehicles on
Undulate Terrain
*Qi Min, Hao Chongyang, Tong Mingan, Gao Xiaobin,
Zhang Xianyong*

VR-L.5 (pp.689~692)

Virtual City Modeling for Visualization
Chang Ge, Qian Zengbo, Xu Qing

● **MP-L1:** August 16, 2000

Time: 15:45 - 16:45

Place: Da Gang Hall

Chair: Xu Guangyou (Tsinghua University)

MP-L1.1 (pp.634~636)

Development of a Screening Test for Environmental
Control, Based on Automatic Trajectory Generation in
Digitized Video Films
Fredrik Bergholm, Maria Tarkpea, Wei-Xing Wang

MP-L1.2 (pp.574~577)

A New Face Detection Model
H.Y. Yu, Y. Wang, P. Wang, X.Q. Mou, Y.L. Cai

MP-L1.3 (pp.553~556)

Face Detection Based on Template Matching and Neural
Network Verification
Liang Luhong, Ai Haizhou, Xu Guangyou

MP-L1.4 (pp.585~588)

Face Detection Based on Skin Color and Template Matching
Lv Fengjun, Ai Haizhou, Liang Luhong, Xu Guangyou

● **MP-L2:** August 17, 2000

Time: 16:00 - 17:30

Place: Da Gang Hall

Chair: Zheng Nanning (Xi'an Jiao Tong University)

● **MP-P:** August 17, 2000

Time: 10:45 - 12:00

Place: in front of He Xi Hall

Chair: Li Hua (Institute of Computing Technology)

● **MD-L:** August 17, 2000

Time: 14:15 - 15:45

Place: Da Gang Hall

Chair: N.S. Merzlyakov (Russian Academy of Sciences, Russia)

MP-L2.1 (pp.621~625)

The Border Panorama

Ruan ZongCai, Yu HongChuan, Wu FuChao, Wei Sui

MP-P.1 (pp.626~629)

Hand Action Coding System for Hand Gesture Simulation

Horace H.S. Ip, Sam C.S. Chan, Maria S.W. Lam

MD-L.1 (pp.649~652)

Filtering Real-world Information from TV Programs

Xu Xu, Haomin Jin, Yoshitomo Yaginuma, Masao Sakauchi

MP-L2.2 (pp.561~567)

Image-based Object by Internet

Li Xinxiao, Sun Yongqing, Zheng Nanning

MP-P.2 (pp.594~597)

Genetic-based Image Mosaicing

Tao Feng, Changbo Hu, Songde Ma

MD-L.2 (pp.657~660)

Semantic-based Image Description Model and Its

Implementation for Image Retrieval

Y.Y. Gao, Y.J. Zhang, N.S. Merzlyakov

MP-L2.3 (pp.589~593)

An Interactive Image Processing Course for the Web

Amardip K. Ahluwalia, Pieter P. Jonker, Ian T. Young

MP-P.3 (pp.557~560)

Improvement on Synchronization Models for Hypermedia of TPetri Net

Jianjun Sun, Meizhen Shao, Xijian Ping

MD-L.3 (pp.661~664)

A Similarity Measure and Robust Retrieval for Partial Content-based Query

Tong Zhao, Horace H S IP, Feihu Qi

MP-L2.4 (pp.604~607)

Distributed Medical Teaching through Responsive

Workbench and Cyberstage

Xubo Yang, Gernot Goebbels

MP-P.4 (pp.568~573)

A Robust and Fast Algorithm for Global Motion Estimation

Yuwen He, Yuzhuo Zhong, Shiqiang Yang

MD-L.4 (pp.665~668)

Integration of Image Processing and Database Management Systems

N.S. Merzlyakov, V.N. Karnaukhov, L.I. Rubanov

MP-L2.5 (pp.598~603)

A New Method for Implementing Digital Image Warping Based on Mesh

Jinzhong Yang, Nenghai Yu, Zhengkai Liu

MP-P.5 (pp.578~581)

A New Mapping for Omnidirectional Image

Jin Tang, Liqiu Tan, Shiwen Gu, YaoPing Fei

MD-L.5 (pp.669~672)

Visualization Browsing for Video Database in a Flexible Way

Zhang Wenli, Cao Yunyun, Yaginuma Yoshitomo, Sakauchi Masao

MP-L2.6 (pp.630~633)

Optimizing Transmission Efficiency for Video

Retransmission in H.223

Xiaoan Lu, Yun He

MP-P.6 (pp.582~584)

The Application of Camera-dependent-video in 3D Scene Construction

H.Y. Guo, X.W. Shi, X.Liu

MD-L.6 (pp.641~644)

A Hierarchical Description Method for Video Content

Yuwen He, Yuzhuo Zhong, Shiqiang Yang, Jing Wu

MP-P.7 (pp.608~611)

Design of Optimized Videophone System over PSTN

Ran Yang, Liao Qinmin, Zhang Yujin

MP-P.8 (pp.612~615)

Image Information Acquisition and Transmission System in Earthquake Disaster Spot Based on Internet Frame

Zhang Yong, Xu Deshi, Yang Guijun, Mou Guangxun,

Li Zhixiong, Li Gang, Ma Shuqin, Yin Hong

MP-P.9 (pp.616~620)

Motion Segmentation of Foreground Containing Human

Face in Videoconferencing Sequences

Shi Kewei, Cai Anni, Sun Jingao

- **MD-P:** August 16, 2000
Time: 16:45 - 18:00
Place: in front of He Xi Hall
Chair: Jia Yunde (Beijing Institute of Technology)

4. Abstracts of Plenary Talks

Digital White-Light Information Processing for Color Photography with Tricolor Grating

G.G. Mu, Luo Gang, Fang Zhiliang, Lin Lie
(Nankai University, China)

Abstract: Digital techniques of white-light information processing for color photography with tricolor grating, the fusion of zero-order spectrum and integral atomic algorithm, are presented. The former remarkably improves the quality of decoding image by fusing the first-order spectra with the zero-order spectrum and the latter boosts the processing speed 60 times faster than the conventional technique using the discrete Fourier transform (DFT) only once and integral operation. The techniques make the digital white-light information processing practical in handling of photograph of huge size based on PC.

Keywords: white-light information processing, fusion, DFT, color photography

IA3: Intelligent Affective Animated Agents

T.S. Huang, I. Cohen, P.Hong, Y.Li
(University of Illinois at Urbana-Champaign, USA)

Abstract: Information systems should be human-centered. Human-computer interface needs to be improved to make computers not only user-friendly but also enjoyable to interact with. Computers should be proactive and take initiatives. A step toward this direction is the construction of Intelligent Affective Animated Agents (IA3). Three essential components of IA3 are: The agent needs to recognize human emotion. Based on its understanding of human speech and emotional state, the agent needs to reason and decide on how to respond. In this paper, we describe our preliminary research results in these three areas. We believe that although challenging research issues remain, for restricted domains effective IA3 could be constructed in the near future.

MD-P.1 (pp.637~640)

Content-based Image Chain Code Retrieval System
Shi Yue-Xiang, Lin Ya-Ping

MD-P.2 (pp.653~656)

Feature Extraction for the Recognition of Building Image
Haomin Jin, Masao Sakauchi

MD-P.3 (pp.645~648)

The QuickLook Image Search Engine
Silvia Zuffi, G. Ciocca, R. Schettini

Microarrays from Biotechnology: The imaging challenge

*L.R. van den Doel, M.J. Vellekoop, P.M. Sarro,
R. Moerman, J. Frank, G. van Dedem,
K.T. Hjelt, L.J. van Vliet, and I.T. Young*
(Delft University of Technology, Netherlands)

Abstract: Our goal is to develop intelligent molecular diagnostic systems (IMDS) that can analyze liquid samples that contain a variety of biochemical compounds. In order to analyze the liquid samples we use dedicated microarrays. At this stage, these are basically miniaturized micro titer plates. Typical dimensions of a well are $200 \times 200 \times 20 \mu\text{m}^3$. These dimensions may be varied and the shape of the wells can be modified with a result that the volume of a wells can be from 0.5 to 1.6 nl. For our experiments, we have used wells with the shape of a truncated pyramid. These wells are fabricated in silicon by a wet etching process. For testing purposes the wells are filled with a fluorescing dye (e.g. rhodamine) of various concentrations. To avoid evaporation, glycerol-water 1:1 v/v with a viscosity of 8.3 times the viscosity of water is used as solvent. To analyze the molecular detection capabilities of such a system, we have used an epi-illumination fluorescence microscope equipped with various objectives and a scientific CCD camera to collect the fluorescent light emitted from the solutions in the wells. We have, in particular, studied the effects of lens magnification and numerical aperture, *NA*, on the detection capabilities. From these experiments we have found that for this configuration the detection limit is on the order of nanomolar concentrations of fluorescing particles. This translates to 100,000 molecules per well. Further, we have used the digital analysis of images of the evaporation process to understand how fluorescing particles move during the evaporation process. Using digital images analysis of the interference fringes produced in this dynamic process, we have obtained an axial resolution of 70 water molecules.

Keywords: Microarrays, Fluorescence microscopy, Digital imaging and analysis, Evaporation physics

Modeling from Reality

K. Ikeuchi
(University of Tokyo, Japan)

Biometrics Technologies and Applications

D. Zhang
(Hong Kong Polytechnic University, China)

Abstract: In today's complex, geographically mobile, increasingly electronically wired information society, the problem of verifying an individuals identity continues to pose a great challenge. Conventional technology using Personal Identification Numbers (PIN) or passwords, often in conjunction with plastic cards, is neither convenient nor particularly secure. In the quest for a superior solution, biometrics verification techniques are fast emerging as the most reliable and practical method of individual identity verification. This paper will introduce some main concepts about biometrics (such as why, what, and how), and cover some related biometrics technologies, such as fingerprint, iris, palmprint, voice, signature, face and hand identification, will be briefly reviewed. Some biometrics applications like access control and biometrics smart card are also introduced in this paper. Finally, future works about biometrics are given.

Keywords: Biometrics, Pattern Recognition, Image Processing, Identification and Verification

**Video Content Analysis:
From Visual Features to Video Semantics**

Alan Hanjalic, Reginald L. Lagendijk, Jan Biemond
(Delft University of Technology, Netherlands)

Abstract – This paper addresses the problem of recognizing the elements of video semantics by investigating the presence and temporal behavior of low-level features in video sequences. Examples of these features are color, texture, shape, frequency components, audio and speech characteristics. The extracted elements of video semantics can then be used to organize the content of a video database in such a way that the overall large search space and consequently the total interaction (browsing, query) time between the user and the database is as much reduced as possible. We concentrate in this paper on the elements of video semantics that can be extracted by working only with visual low-level features of a video. For this purpose we outline and discuss the methodologies for analyzing the content of a movie and broadcast news programs, that were developed in the course of the EU-ACTS research project SMASH (Storage for Multimedia Application Systems in the Home).

Keywords: Video databases, Video retrieval, Video query, Video browsing

Lines as Elements of Generative Art

H. Dehlinger
(Kassel University, Germany)

Abstract: We here consider a generative approach to line drawings, machine oriented and depending on computers and algorithms. The resulting drawings are not drawings in a traditional sense as we know them from the heritage of hand drawings. They belong to a universe of generative art in its own right and they have properties, distinct from hand drawings. It is not intended, nor is it the aim of the generative procedures discussed here, to mimic hand drawings. The intention is, to experiment with and to investigate the potential of a generative tool for the production of art and to evaluate its quality. The drawings are realized with a pen plotter. The images display a specific calligraphic quality and the examples show a vast potential of exploration.

Keywords: Generative Art, Algorithmic Drawings, Line-Art

Digital Video over Internet

Y.Q. Zhang
(Microsoft Research, China)