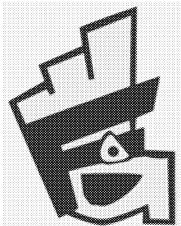


FGR 2006

**Proceedings of the 7th International Conference on
Automatic Face and Gesture Recognition**



FGR 2006

Table of Contents

Seventh IEEE International Conference on Automatic, Face and Gesture Recognition

Foreword	xiii
Conference Organization.....	xiv
Program Committee and Additional Reviewers.....	xv

Recognition Technologies

Graph Embedded Analysis for Head Pose Estimation.....	3
---	---

Yun Fu and Thomas S. Huang

Local Binary Patterns as an Image Preprocessing for Face Authentication.....	9
--	---

Guillaume Heusch, Yann Rodriguez, and Sébastien Marcel

Preliminary Face Recognition Grand Challenge Results	15
--	----

P. Jonathon Phillips, Patrick J. Flynn, and Todd Scruggs

Poster Session 1 - Face Recognition Approaches

Face Recognition from Unconstrained Images: Progress with Prototypes.....	25
---	----

Rob Jenkins, A. Mike Burton, and David White

Using Feature Combination and Statistical Resampling for Accurate Face Recognition	
--	--

Based on Frequency Domain Representation of Facial Asymmetry.....	31
---	----

Sinjini Mitra and Marios Savvides

Face Recognition from a Tabula Rasa Perspective	37
---	----

M. Castrillón-Santana, O. Déniz-Suárez, J. Lorenzo-Navarro, and M. Hernández-Tejera

Subspace-Based Age-Group Classification Using Facial Images under Various Lighting Conditions	43
--	----

Kazuya Ueki, Teruhide Hayashida, and Tetsunori Kobayashi

Face Recognition Using the Classified Appearance-Based Quotient Image	49
---	----

Masashi Nishiyama and Osamu Yamaguchi

Relighting of Facial Images	55
-----------------------------------	----

Peter Csakany and Adrian Hilton

Database Size Effects on Performance on a Smart Card Face Verification System	61
<i>Thirimachos Bourlai, Josef Kittler, and Kieron Messer</i>	
Face Alignment with Unified Subspace Optimization of Active Statistical Models	67
<i>Ming Zhao and Tat-Seng Chua</i>	
A Landmark Paper in Face Recognition	73
<i>G. M. Beumer, Q. Tao, A. M. Bazen, and R. N. J Veldhuis</i>	
Weighted Gabor Features in Unitary Space for Face Recognition	79
<i>Yong Gao, Yensheng Wang, Xinshan Zhu, Xuetao Feng, and Xiaoxu Zhou</i>	
Video-based Face Recognition Evaluation in the CHIL Project – Run 1	85
<i>Hazim Kemal Ekenal and Aristodemos Pnevmatikakis</i>	
Hierarchical Ensemble of Gabor Fisher Classifier for Face Recognition.....	91
<i>Yu Su, Shiguang Shan, Xilin Chen, and Wen Gao</i>	
Haar Features for FACS AU Recognition	97
<i>Jacob Whitehill and Christian W. Omlin</i>	
Robust Face Recognition by Multiscale Kernel Associative Memory Models Based on Hierarchical Spatial-Domain Gabor Transforms	102
<i>Bai-Ling Zhang and Clement Leung</i>	
Making 2D Face Recognition More Robust Using AAMs for Pose Compensation.....	108
<i>Peter Huisman, Ruud van Munster, Raymond Veldhuis, and Asker Bazen</i>	
Photometric Normalisation for Component-Based Face Verification	114
<i>James Short, Josef Kittler, and Kieron Messer</i>	
Optimised Landmark Model Matching for Face Recognition.....	120
<i>Rajinda Senaratne and Saman Halgamuge</i>	
Color Face Recognition by Hypercomplex Gabor Analysis	126
<i>Creed Jones and A. Lynn Abbott</i>	
Face Verification using External Features	132
<i>Àgata Lapedriza, David Masip, and Jordi Vitrià</i>	
Making Recognisable Faces	138
<i>David J. Chatting</i>	
Facial Features Extraction in Color Images Using Enhanced Active Shape Model.....	144
<i>Mohammad H. Mahoor and Mohamed Abdel-Mottaleb</i>	
Evaluating Error Functions for Robust Active Appearance Models.....	149
<i>Barry-John Theobald, Iain Mathews, and Simon Baker</i>	

AAM Derived Face Representations for Robust Facial Action Recognition	155
<i>Simon Lucey, Iain Matthews, Changbo Hu, Zara Ambadar, Fernando de la Torre, and Jeffrey Cohn</i>	
3D Recognition and Detection	
Face Recognition by Projection-Based 3D Normalization and Shading Subspace Orthogonalization.....	163
<i>Tatsuo Kozakaya and Osamu Yamaguchi</i>	
Robust Method for Real-time, Continuous, 3D Detection of Obstructed Faces in Indoors Environments	169
<i>S. Grange and C. Baur</i>	
Recognition Considerations	
Face Recognition with Image Sets Using Hierarchically Extracted Exemplars from Appearance Manifolds	177
<i>Wei Fan and Dit-Yan Yeung</i>	
Adding Holistic Dimensions to a Facial Composite System.....	183
<i>C. D. Froud, V. Bruce, A. McIntyre, and P. J. B. Hancock</i>	
Rejection of Non-meaningful Activities	189
<i>Liu Xiao-Hui and Chua Chin-Seng</i>	
Plenary	
Joint Spatial and Domain Motion Analysis.....	197
<i>Narendra Ahuja, and Alexia Briassouli</i>	
Face Expression and Movement	
Registration of Expressions Data using a 3D Morphable Model	205
<i>Curzio Basso, Pascal Paysan, and Thomas Vetter</i>	
A 3D Facial Expression Database for Facial Behavior Research.....	211
<i>Lijun Yin, Xiaozhou Wei, Yi Sun, Jun Wang, and Matheu J. Rosato</i>	
Using a Tensor Framework for the Analysis of Facial Dynamics.....	217
<i>Lisa Gralewski, Neill Campbell, and Ian Penton-Voak</i>	
Fully Automatic Facial Action Recognition in Spontaneous Behavior.....	223
<i>Marian Stewart Bartlett, Gwen Littlewort, Mark Frank, Claudia Lainscsek, Ian Fasel, and Javier Movellan</i>	
Gesture and Gait	
Robust Spotting of Key Gestures from Whole Body Motion Sequence.....	231
<i>Hee-Deok Yang, A-Yeon Park, and Seong-Whan Lee</i>	

Automatic Skin Segmentation for Gesture Recognition Combining Region and Support Vector Machine Active Learning.....	237
<i>Junwei Han, George M. Award, Alistair Sutherland, and Hai Wu</i>	
A Full-Body Gesture Database for Automatic Gesture Recognition.....	243
<i>Bon-Woo Hwang, Sungmin Kim, and Seong-Whan Lee</i>	
A Layered Deformable Model for Gait Analysis	249
<i>Haiping Lu, K N. Plataniotis, and A. N. Venetsanopoulos</i>	
Poster Session 2 - Gesture and Face Recognition	
Optimal Hand Gesture Vocabulary Design Using Psycho-Physiological and Technical Factors.....	257
<i>Helman I. Stern, Juan P. Wachs, and Yael Edan</i>	
The Isometric Self-Organizing Map for 3D Hand Pose Estimation.....	263
<i>Haiying Guan, Rogerio S. Feris, and Mathew Turk</i>	
Towards Recognizing Emotion with Affective Dimensions through Body Gestures	269
<i>P. Rivindra De Silva, Minetada Osano, Ashu Marasinghe, and Ajith P. Madurapperuma</i>	
Framework for a Portable Gesture Interface.....	275
<i>Sébastien Wagner, Bram Alefs, and Cristina Picus</i>	
One-Class Classification on Spontaneous Facial Expression Analysis	281
<i>Zhihong Zeng, Yun Fu, Glenn I. Roisman, Zhen Wen, Yuxiao Hu, and Thomas S. Huang</i>	
Head and Facial Action Tracking: Comparison of Two Robust Approaches.....	287
<i>Romain Herault, Franck Davoine, and Yves Grandvalet</i>	
Tracking Using Dynamic Programming for Appearance-Based Sign Language Recognition	293
<i>Philippe Dreuw, Thomas Deselaers, David Rybach, Daniel Keysers, and Hermann Ney</i>	
Human and Machine Recognition of Fourier-Bessel Filtered Face Images	299
<i>Yossi Zana, Robert M. Cesar, and Jesus P. Mena-Chalco</i>	
Learning to Identify Facial Expression During Detection Using Markov Decision Process.....	305
<i>Ramana Isukapalli, Ahmed Elgammal, and Russell Greiner</i>	
Fast Learning for Customizable Head Pose Recognition in Robotic Wheelchair Control.....	311
<i>Christian Bauckhage, Thomas Käster, Andrei M. Rotenstein, and John K. Tsotsos</i>	
Bayesian Classification of Task-Oriented Actions Based on Stochastic Context-Free Grammar.....	317
<i>Masanobu Yamamoto, Humikazu Mitomi, Fuyuki Fujiwara, and Taisuke Sato</i>	

Expanding Training Set for Chinese Sign Language Recognition	323
<i>Chunli Wang, Xilin Chen, and Wen Gao</i>	
Articulated Hand Tracking by PCA-ICA Approach	329
<i>Makoto Kato, Yen-Wei Chen, and Gang Xu</i>	
Robust Head Tracking Based on a Multi-State Particle Filter	335
<i>Yuan Li, Haizhou Ai, Chan Huang, and Shihong Lao</i>	
MORPH: A Longitudinal Image Database of Normal Adult Age-Progression.....	341
<i>Karl Ricanek and Tamirat Tesafaye</i>	
Facial Expression Classification Using Gabor and Log-Gabor Filters.....	346
<i>Nectarios Rose</i>	
Hand Posture Classification and Recognition Using the Modified Census Transform,	351
<i>Agnès Just, Yann Rodriguez, and Sébastien Marcel</i>	
Local versus Global Segmentation for Facial Expression Recognition.....	357
<i>Jacob Whitehill and Christian W. Omlin</i>	
Toward an Efficient and Accurate AAM Fitting on Appearance Varying Faces.....	363
<i>Hugo Mercier, Julien Peyras, and Patrice Dalle</i>	
Accurate Face Localisation for Faces under Active Near-IR Illumination	369
<i>Xuan Zou, Josef Kittler, and Kieron Messer</i>	
Gesture Spotting in Low-Quality Video with Feature Based on Curvature Scale Space	375
<i>Myung-Cheol Roh, Bill Christmas, Joseph Kittler, and Seong-Whan Lee</i>	
Sign Recognition using Depth Image Streams	381
<i>Kikuo Fujimura and Xia Liu</i>	
A Decision-Theoretic Video Conference System Based on Gesture Recognition.....	387
<i>Jose Antonio Montero and Luis Enrique Sucar</i>	
Cascaded Classification of Gender and Facial Expression Using Active Appearance Models.....	393
<i>Yunus Saatci and Christopher Town</i>	
Face Detection	
Learning Sparse Features in Granular Space for Multi-View Face Detection.....	401
<i>Chang Huang, Haizhou Ai, Yuan Li, and Shihong Lao</i>	
Robust Multi-View Multi-Camera Face Detection inside Smart Rooms Using Spatio-Temporal Dynamic Programming	407
<i>Zhenqiu Zhang, Gerasimos Potamianos, Ming Liu, and Thomas Huang</i>	
Component-Based Robust Face Detection Using AdaBoos and Decision Tree.....	413
<i>Kiyoto Ichikawa, Takeshi Mita, and Osamu Hori</i>	

Plenary	
Reliable and Fast Tracking of Faces under Varying Pose.....	421
<i>Tao Yang, Stan Z. Li, Quan Pan, Jing Li, and Chunhui Zhao</i>	
Face Feature Analysis	
Facial Feature Detection and Tracking with Adaptive Template Selection	429
<i>D. Cristinacce and T. F. Cootes</i>	
Multi-template ASM Method for Feature Points Detection of Facial Image with Diverse Expressions	435
<i>Ying Li, J. H. Lai, and Pong C. Yuen</i>	
Regression and Classification Approaches to Eye Localization in Face Images.....	441
<i>Mark Everingham and Andrew Zisserman</i>	
Recognition Approaches	
A New Look at Filtering Techniques for Illumination Invariance in Automatic Face Recognition	449
<i>Ognjen Arandjelovic and Roberto Cipolla</i>	
A Near-infrared Image Based Face Recognition System	455
<i>Stan Z. Li, Lun Zhang, ShengCai Liao, XiangXin Zhu, RuFeng Chu, Meng Ao, and Ran He</i>	
Incremental Kernel SVD for Face Recognition with Image Sets	461
<i>Tat-Jun Chin, Konrad Schindler, and David Suter</i>	
Face Classification Based on Shannon Wavelet Kernel and Modified Fisher Criterion	467
<i>Wen-Sheng Chen, Pong Chi Yuen, Jian Huang, and Jianhuang Lai</i>	
Poster Session 3 - Whole Body, Gait and Face Recognition	
Automatic Gait Recognition Using Dynamic Variance Features.....	475
<i>Yanmei Chai, Jinchang Ren, Rongchun Zhao, and Jingping Jia</i>	
Dance Posture Recognition Using Wide-Baseline Orthogonal Stereo Cameras	481
<i>Feng Guo and Gang Qian</i>	
Towards Automatic Body Language Annotation	487
<i>Paul Chippendale</i>	
A Multiview Face Identification Model with No Geometric Constraints.....	493
<i>Jerry Jun Yokono and Tomaso Poggio</i>	
Estimation of Anthropomeasures from a Single Calibrated Camera.....	499
<i>Chiraz BenAbdelkader and Larry Davis</i>	

A Realtime Shrug Detector.....	505
<i>Huazhong Ning, Tony X. Han, Yuxiao Hu, Zhenqiu Zhang, Yun Fu, and Thomas S. Huang</i>	
A General Framework For Tracking People	511
<i>Chunsheng Hua, Haiyuan Wu, Qian Chen, and Toshikazu Wada</i>	
Gait Recognition using Multiple Projections	517
<i>Murat Ekinci</i>	
Human Action Recognition using Multi-view Image Sequences Features	523
<i>Mohiuddin Ahmad and Seong-Whan Lee</i>	
3D Gait Recognition Using Multiple Cameras	529
<i>Guoying Zhao, Guoyi Liu, Hua Li, and Matti Pietikäinen</i>	
Automatic Impression Transformation of Faces in 3D Shape - A Perceptual Comparison with Processing on 2D Images	535
<i>Yuhya Okada, Masataka Ohzu, Teruko Sakurai, Mitsuharu Inaba, and Shigeru Akamatsu</i>	
Comparison of Silhouette Shape Descriptors for Example-Based Human Pose Recovery	541
<i>Ronald Poppe and Mannes Poel</i>	
Minimum Variance Estimation of 3D Face Shape from Multi-view.....	547
<i>Zhenqiu Zhang, Yuxiao Hu, Tianli Yu, and Thomas Huang</i>	
Gait Tracking Recognition using Person-Dependent Dynamic Shape Model.....	553
<i>Chan-Su Lee and Ahmed Elgammal</i>	
Robust Distance Measures for Face-Recognition Supporting Revocable Biometric Tokens	560
<i>T. Boult</i>	
Kernel Particle Filter for Real-Time 3D Body Tracking in Monocular Color Images.....	567
<i>Joachim Schmidt, Jannik Fritsch, and Bogdan Kwolek</i>	
Accurate Head Pose Tracking in Low Resolution Video.....	573
<i>Jilin Tu, Thomas Huang, and Hai Tao</i>	
Gait Recognition by Two-Stage Principal Component Analysis	579
<i>Sandhitsu R. Das, Robert C. Wilson, Maciej T. Lazarewicz, and Leif H. Finkel</i>	
Automatic Feature Extraction for Multiview 3D Face Recognition	585
<i>Xiaoguang Lu and Anil K. Jain</i>	
A Vision Based Interface for Local Collaborative Music Synthesis	591
<i>João Carreira and Paulo Peixoto</i>	

Morphable Face Reconstruction with Multiple Images	597
<i>Ming Zhao, Tat-Seng Chua, and Terence Sim</i>	
Multi-Scale Primal Feature Based Facial Expression Modeling and Identification.....	603
<i>Lijun Yin and Xiaozhou Wei</i>	
Self Correcting Tracking for Articulated Objects.....	609
<i>M. Baris Caglar and Niels da Vitoria Lobo</i>	
Plenary	
Face Recognition Based on a 3D Morphable Model.....	617
<i>Volker Blanz</i>	
3D and Multiview	
Multi-View Face Recognition by Nonlinear Dimensionality Reduction And Generalized Linear Models	625
<i>Bissor Raytchev, Ikushi Yoda, and Kasuhiko Sakaue</i>	
Local Linear Regression (LLR) for Pose Invariant Face Recognition	631
<i>Xiujuan Chai, Shiguang Shan, Xilin Chen, and Wen Gao</i>	
Combining PCA and LFA for Surface Reconstruction from a Sparse Set of Control Points	637
<i>Reinhard Knothe, Sami Romdhani, and Thomas Vetter</i>	
Plenary	
Automatic Gesture Recognition Research for Human-Robot Interaction	645
<i>Seong-Whan Lee</i>	