

2008 Cairo International Biomedical Engineering Conference

(CIBEC)

**Cairo, Egypt
18 – 20 December 2008**



**IEEE Catalog Number: CFP0895E-PRT
ISBN: 978-1-4244-2694-2**

TABLE OF CONTENTS

A Multimodal Hand Vein, Hand Geometry, And Fingerprint Prototype Design for High Security Biometrics	1
<i>M. K. Shahin, A. M. Badawi, M. E. Rasmay</i>	
Retinal Identification	7
<i>N. A. Rahman, A. S. Mohamed, M. E. Rasmay</i>	
A Statistical Model Combining Shape and Spherical Harmonics for Face Reconstruction and Recognition	11
<i>H. Rara, S. Elhabian, T. Starr, A. Farag</i>	
Gene Regulatory Network Modeling Using Bayesian Networks and Cross Correlation	15
<i>F. Yavari, F. Towhidkhah, Sh. Gharibzadeh</i>	
Comparitive Analysis of Three Efficient Approaches for Retrieving Protein 3D Structures	19
<i>G. Mirceva, S. Kalajdziski, K. Trivofaliev, D. Davcev</i>	
Improving Accuracy of Non-Invasive Glucose Monitoring Through Non-Local Data Denoising	23
<i>S. R. Naqvi, N. Z. Azeemi, A. Hameed, R. Baddar, T. Rasool</i>	
VisChainer: Visualizing Genome Comparison	27
<i>A. Othman, A. Martin, D. Butterstein, M. I. Abouelhoda</i>	
Enhanced PIELG: A Protein Interaction Extraction System using a Link Grammar Parser from Biomedical Abstracts	31
<i>R. A. Abul Seoud, Y. M. Kadah</i>	
avaBLAST: A Fast Way Of Doing All Versus All BLAST	35
<i>I. Alam, S. A. Nadeem, J. M. Brooke</i>	
Fine Tuning The Enhanced Suffix Array	39
<i>M. I. Abouelhoda, A. Dawood</i>	
BioSNI: A Semantic Network Integration Approach for Biological Data	43
<i>T. A. Soliman</i>	
Constructing Suffix Array During Decompression	47
<i>M. Mahmoud, M. I. Abouelhoda, A. Kandil, A. Elbially</i>	
On-The-Fly Detection Of Changes In Mucosal Tissue Architecture During Endoscopy - A Flag As To Where and When To Take Biopsies	51
<i>Fernand S. Cohen, Ezgi Taslidere, Sreekant Murthy</i>	
Study of Nerve Fiber Tracking Methodologies using Diffusion Tensor Magnetic Resonance Imaging	55
<i>M. M. Tawfik, Y. M. Kadah</i>	
Reconstructive Ultrasound Elastography to Determine the Shear Modulus of Prostate Cancer Tissue	60
<i>W. Khaled, H. Ermert, S. Reiching, O. T. Bruhns</i>	
Hybrid Imaging Method for Early Breast Cancer Dtection	64
<i>A. M. Abbosh, S. Crozier</i>	
Computer-Aided Detection of Benign Tumors of the Female Breast	68
<i>M. D. El-Sanosi, A. K. Habbani, N. A. Mustafa, A. O. Hamza</i>	

The Design and Fabrication of a Full Field Quantitative Mammographic Phantom	72
<i>Alnazier O. M. Hamza</i>	
Color Segmentation for Skin Lesions Classification	76
<i>N. A. Masood, H. M. Mashali, Abdalla S. A. Mohamed</i>	
A Robust Edge Enhancement Approach for Low Vision Patients Using Scene Simplification.....	80
<i>W. Atabany, P. Degenaar</i>	
Microcalcifications Enhancement in Digital Mammograms using Fractal Modeling.....	84
<i>Wael A. Mohamed, Mohamed A. Alolfe, Yasser M. Kadah</i>	
Sensitivity of Template Matching for Pulmonary Nodule Detection: A Case Study.....	89
<i>S. Y. Elhabian, A. A. Farag, S. A. Elshazly, A. A. Farag</i>	
Restoration of a High Resolution Image from Multiple Blurred, Low Resolution and Noisy Images	93
<i>A. A. El-Sallam, F. Boussaid</i>	
Computer-Aided Diagnostic System Based on Wavelet Analysis for Microcalcification Detection in Digital Mammograms.....	99
<i>M. A. Alolfe, A. M. Youssef, Y. M. Kadah, A. S. Mohamed</i>	
Independent Component Analysis as an Effective Tool for Automated Diagnosis of Melanoma	104
<i>K. Tabatabaie, A. Esteki</i>	
Harmonic Mapping of Intracranial Aneurysm Surfaces.....	108
<i>A. Mohamed, C. Xu, L-D. Jou, M. E. Mawad</i>	
Detection of Face and Facial Features in digital Images and Video Frames	113
<i>M. Beigzadeh, M. Vafadoost</i>	
Objective Analysis Of Ultrasound Images By Use Of A Computational Observer.....	117
<i>Kamel K. Mohamed, Yasser M. Kadah</i>	
Performance Evaluation of Cardiac MRI Image Denoising Techniques	122
<i>M. A. AlAttar, A. G. Motaal, N. F. Osman, A. S. Fahmy</i>	
Cardiac MRI Steam Images Denoising Using Bayes Classifier.....	126
<i>A. G. Motaal, M. A. AlAttar, N. F. Osman, A. S. Fahmy</i>	
Towards a Complete Computer Dental Treatment System	130
<i>Ahmed El-Bialy</i>	
Modeling Intrastromal Photorefractive Keratectomy Procedures.....	138
<i>Ahmed M. Abdul Hameed, Nahed Ali Solouma, Yasser M. Kadah</i>	
Musculo-Skeletal Model of Arm for FES Research Studies	142
<i>A. Maleki, R. Shafaei, A. Fallah</i>	
GAIT Modeling for Assessment of Ankle-Foot Othosis.....	146
<i>N. Jamshidi, M. Rostami, S. Najarian, M. B. Menhaj, M. Saadatnia, A. Farzad</i>	
Optimal Trajectories of Snatch Weightlifting for Two Different Weight Classes by using Genetic Algorithm	150
<i>Sh. Lenjannejadian, M. Rostami</i>	
A Numerical Study to Assess a Proper Relationship Between Respiration Rhythm and Athletes' Activities.....	154
<i>H. Avari, F. Ghalichi, M. Ahmadlouydarab</i>	
Design and Implementation of a Swing Phase Control System for a Prosthetic Knee.....	159
<i>A. A. Torki, M. F. Taher, Abdalla Sayed Ahmed</i>	

An Intelligent Grasping System for Applications in Prosthetic Hands	163
<i>S. Ma, M. Moussa</i>	
The Effect of Implant Tilting on the Stresses Transmitted to the Implants in Cantilever Mandibular Prosthesis: A Three Dimensional Finite Element Analysis	168
<i>A. H. Elkhadem, S. A. Fawzy, A. M. Ibrahim, S. M. Elsayed</i>	
Application of Wavelets Based Multiresolution Analysis to Detect Relevant Points of Interest from Finger-Tip Photoplethysmography and Pressure Signal from the Radial Artery	172
<i>Prakhar Prakash, Meghna Sareen, Rohin Anand, Abhinav, Sneha Anand</i>	
Multimodal Detection of Deception using Fusion of Reaction Time and P300 Component	176
<i>A. Mohammadian, V. Abootalebi, M. H. Moradi, M. A. Khalilzadeh</i>	
An Evolutionary Artificial Immune System for Feature Selection and Parameters Optimization of Support Vector Machines for ERP Assessment in a P300-Based GKT	180
<i>S. Shojaie, M. H. Moradi</i>	
Classification of Old/New Effects During Memory Retrieval Using Committee Machine: An Event-Related Potential Study	185
<i>S. Rezaie, A. M. Nasrabadi, V. Abootalebi</i>	
Epileptic Seizure Detection Using AR Model On EEG Signals	189
<i>S. R. Mousavi, M. Niknazar, B. Vosoughi Vahdat</i>	
Automatic Detection and Prediction of Paroxysmal Atrial Fibrillation Based on Analyzing ECG Signal Feature Classification Methods	193
<i>B. Pourbabaee, C. Lucas</i>	
A New Method for Data Acquisition and Image Reconstruction in Parallel Magnetic Resonance Imaging	197
<i>H. M. Ahmed, R. E. Gabr, Y. M. Kadah, A. M. Youssef</i>	
Semi-Supervised Classification of Speaker's Psychological Stress	201
<i>S. Torabi, F. AlmasGanj, A. Mohammadian</i>	
A Novel Methodology for Fetal Heart Rate Extraction from the Abdominal Electrocardiogram	205
<i>M. Ayat, K. Assaleh, H. Al-Nashash</i>	
Fetal ECG Signal Enhancement Using Polynomial Classifiers And Wavelet Denoising	210
<i>M. Ahmada, M. Ayat, K. Assaleh, H. Al-Nashash</i>	
Emotion Detection Using Brain And Peripheral Signals	214
<i>Z. Khalili, M. H. Moradi</i>	
Simulation Study for Electrocardiography Contamination in Surface Electromyography	218
<i>N. Ghaeb</i>	
Classification of the Imagination of the Left and Right Hand Movements Using EEG	221
<i>M. A. Hassan, A. F. Ali, M. I. Eladawy</i>	
Digital Color Doppler Signal Processing	226
<i>R. H. Gabr</i>	
Extracting Reliable Handwriting Kinematic Features by using Neural Network for Diagnosing Schizophrenia Disease	231
<i>M. Borjkhani, M. Ahmadlou, F. Towhidkhan</i>	
VLSI Synthesis of Heterogeneous and SIRM Fuzzy System for Classification of Diabetic Epilepsy Risk Levels	235
<i>R. Harikumar, A. Shanmugam, Parthiban Rajan</i>	

Surface Electromyogram for Gait Analysis of Low Back Pain Subjects	241
<i>Wai Ming Poon, Heiko Rudolph, Dinesh Kant Kumar, Yong Hu</i>	
An Automatic Insulin Infusion System Based on H-Infinity Control Technique	245
<i>Sh. Yasini, A. Karimpour, M. B. Naghibi-Sistani, S. Ghareh</i>	
Blood Coagulation Meter: A Low Cost Viscoelasticity Based Approach	250
<i>B. Ghosh, B. Ramachandran, S. Anand, A. Salhan, L. D. Almeida</i>	
Wireless-Enabled Telemedicine System for Remote Monitoring	254
<i>R. Elgharably, E. Marzban, S. Belal, B. Ahmad, I. Abdeilatif, R. Atef, I. ElBabli</i>	
A High Resolution Interferometric Fiber-Optic Temperature Sensor "FOTS"	258
<i>Tarek D. Elsarnagawy</i>	
Operating Room of the Future Orthopedic Perspective	263
<i>Mohamed R. Mahfouz</i>	
Short Time Association Rule Mining Algorithm	272
<i>A. M. Ghanem, B. Tawfik, M. I. Owis</i>	
Reduced Search Space Based Association Rule Mining Algorithm	277
<i>A. M. Ghanem, B. Tawfik, M. I. Owis</i>	
Scientific Workflow Systems - Can One Size Fit All?	285
<i>V. Curcin, M. Ghanem</i>	
Cross Correlation Based Inter-Transaction Association Rule Mining Technique	294
<i>A. M. Ghanem, B. Tawfik, M. I. Owis</i>	
Foundations of Adaptive Data Stream Mining For Mobile and Embedded Applications	298
<i>Mohamed Medhat Gaber</i>	
Medical Equipment Quality Assurance for Healthcare Facilities	304
<i>N. Medhat, S. A. Samy, M. Abdel Wahed, A. S. A. Mohamed</i>	
Ultra Wide Band Radar Based Tamper-Resistant Clinical Asset Tracking System (ATS)	308
<i>A. Khan, N. Z. Azeemi, A. Hameed, I. Ali, T. Rasool</i>	
Appropriate Medical Technologies for Developing Countries: Applications to Cardiovascular Disorders	312
<i>H. H. Abaza, B. S. Tawfik</i>	
Medical Equipment Quality Assurance by Making Continuous Improvement to the System	317
<i>N. Medhat, S. A. Samy, M. Abdel Wahed, A. S. A. Mohamed</i>	
An Efficient Strategy For PACs	321
<i>A. M. Ghanem, B. Tawfik, M. I. Owis</i>	
Mining Adverse Drug Reactions with E-Science Workflows	326
<i>V. Curcin, M. Ghanem, M. Molokhia, Y. Guo, J. Darlington</i>	
Machine Learning Methodologies in Brain-Computer Interface Systems	331
<i>A. E. Selim, M. Abdel Wahed, Y. M. Kadah</i>	
Establishing an Accredited Medical Equipment Calibration Laboratory	336
<i>M. Abdel Wahed, S. A. Samy, M. Montaser</i>	
Benchmarking Clinical Engineering Services in Sudanese Hospitals: Survey and Assessment	341
<i>S. A. Abayaseed, M. A. Alamin, A. O. Hamza, B. Tawfik</i>	
Benchmarking Clinical Engineering Services in Sudanese Hospitals: GAP Bridging Solutions	345
<i>S. A. Abayaseed, M. A. Alamin, A. O. Hamza; B. Tawfik</i>	

Novel Computational Apoptosis-Neurogenesis Model for Multi-Abstraction Level Perception	349
<i>Ahmed M. Zaher, Fouad Aboul-Makarem, Yasser M. Kadah</i>	
Electrical Characterization of Single HELA Cell using 2D Simulation and Spectroscopy Measurement	354
<i>M. H. Wang, M. K. Chen, L. S. Jang</i>	
Controlling the Depth of Anesthesia by Using Extended DMC	358
<i>A. Bamdadian, F. Towhidkhah, B. Marami</i>	
"Theoretical Analysis For Temperature Elevation of Human Body Due to Millimeter Wave Exposure	362
<i>A. Kanezaki, S. Watanabe, A. Hirata, H. Shirai</i>	
Optimal Fuzzy Dosage Programming for Patients Suffering from Breast Cancer in Stage IIB	366
<i>Hamid Khaloozadeh, Fahimeh Miri</i>	
Neuro-Fuzzy System for Post-Dialysis Urea Rebound Prediction	371
<i>A. T. Azar, A. H. Kandil, K. M. Wahba, A. M. Elgarhy, W. A. Massoud</i>	
Development Of Anatomically Realistic Whole-Body Models Of Children And Their Use In Electromagnetic Dosimetry	376
<i>T. Nagaoka, S. Watanabe</i>	
From Grid Cells to Place Cells: A Radial Basis Function Network Model	380
<i>S. Saeidi, F. Towhidkhah</i>	
Modeling Kinematic Features of Human Handwriting using Model Predictive Control	384
<i>M. Borjkhani, F. Towhidkhah</i>	
Absorbable Biomaterials for Medical Devices: A Redesign of Endoscopic Rivets for Biological Tissue	389
<i>H. Aguib, T. C. Lueth</i>	
Compact Antenna for Microwave Imaging Systems	393
<i>A. M. Abbosh</i>	
Author Index	