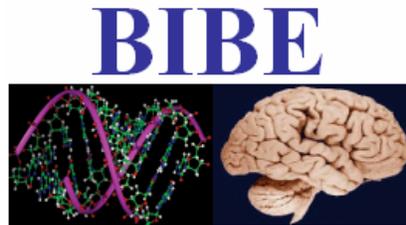


8th IEEE International Conference on
Bioinformatics and BioEngineering
BIBE 2008

8 – 10 October 2008
Athens, Greece



Organized by:



TABLE OF CONTENTS

The European Cancer Informatics Landscape: Challenges for the Biomedical Informatics Community	1
<i>M. Tsiknakis</i>	
Quo Vadis Cardiovascular Informatics?	8
<i>I.A. Kakadiaris, U. Kurkure, E.G. Mendizabal-Ruiz, M. Naghavi</i>	
On Ellipsoidal Tumours	14
<i>G. Dassios</i>	
An Effective Approach to Electromagnetoencephalography	18
<i>A.S. Fokas</i>	
A Branch-and-Bound Approach to Knowledge-based Protein Structure Assembly	22
<i>G. Zheng, G. Narasimhan</i>	
GPM: A Graph Pattern Matching Kernel with Diffusion for Chemical Compound Classification	27
<i>A. Smalter, J. Huan, G. Lushington</i>	
Structure Feature Selection for Chemical Compound Classification	33
<i>H. Fei, J. Huan</i>	
An Enhanced Markov Clustering Method for Detecting Protein Complexes	39
<i>C.N. Moschopoulos, G.A. Pavlopoulos, S.D. Likothanassis, S. Kossida</i>	
Physical Understanding via Reduction of Complex Multiscale Models: Glycolysis in <i>Saccharomyces Cerevisiae</i>	45
<i>P.D. Kourdis, D.A. Goussis, R. Steuer</i>	
Validating Models of Bacterial Chemotaxis by Simulating the Random Motility Coefficient	51
<i>Z. Wang, M. Kim, G. Rosen</i>	
Clinical Trial Simulation in Grid Environments	56
<i>D. Zyriazis</i>	
Fast Parallel Bio-Molecular Logic Computing Algorithms of Discrete Logarithm	62
<i>M. Ho, Y. Shih</i>	
A Web Based Tool for Integration of Molecular Pathway Models	68
<i>E. Sciacca, V.A.S. Ayyadurai, C.F. Dewey Jr.</i>	
Faster Greedy Algorithms for Multiple Degenerate Primer Selection	74
<i>S. Balla, S. Rajasekaran, I.I. Mandoiu</i>	
Clock-constrained Tree Proposal Operators in Bayesian Phylogenetic Inference	78
<i>S. Hohna, M. Defoin-Platel, A.J. Drummond</i>	
Genetic Algorithm Based Feature Selection for Mass Spectrometry Data	85
<i>Y. Li, Y. Liu, L. Bai</i>	
Automatic Quality Assessment for Fluorescence Microscopy Images	91
<i>P. Paul, D. Kalamatianos, H. Duesmann, H. Huber</i>	
A New Method for Processing the Forward Solver Data in Fluorescence Molecular Imaging	97
<i>D. Gorpas, K. Politopoulos, D. Yova</i>	
Modeling of Regional Dynamic CO₂ Reactivity in Respiratory Related Brain Areas Using BOLD fMRI	104
<i>G.D. Mitsis, A.K. Harvey, S. Dirckx, S.D. Mayhew, R. Rogers, I. Tracey, R.G. Wise, K.T.S. Pattinson</i>	

Identification of Significant Metabolic Markers from MRSI Data for Brain Cancer Classification	109
<i>M.G. Kounelakis, M.E. Kervakis, M.E. Blazadonakis, G.J. Postma, L.M.C. Buydens, A. Heerschap, X. Kotsiakis</i>	
A Study of the Parameters Affecting Minimum Detectable Activity Concentration Level of Clinical LSO PET Scanners	115
<i>N.A. Karakatsanis, K.S. Nikita</i>	
VIP: Visualization of Integrated Proteomics Data	121
<i>E.G. Giannopoulou, G. Lepouras, E.S. Manolakos</i>	
Proteomic Based Identification of Cancer Biomarkers: The LOCCANDIA Integrated Platform	129
<i>M. Kalaitzakis, V. Kritsotakis, P. Grangeat, C. Paulus, L. Gerfault, M. Perez, C. Reina, G. Potamias, M. Tsiknakis, D. Kafetzopoulos, P. Binz</i>	
Evaluation of Two-Dimensional Gel Electrophoresis Maps by Local Tangent Space Alignment: an Application to Neuroproteomics	136
<i>S. Mazzara, A. Conti, S. Olivieri, S. Iannaccone, M. Alessio, S. Cerutti, L. Pattini</i>	
Inserts in Prokaryote Genomes	141
<i>P.D. Cristea, R.A. Tuduca, J. Cornelis</i>	
A Binary Format for Genetic Data Designed for Large Whole Genome Studies that Enable Both Marker and Strand Based Analyses	147
<i>A. Antoniadis, L. Loizou, A. Aristodimou, C.S. Pattichis</i>	
Model-based Prediction of Cis-acting RNA Elements Regulating Tissue-specific Alternative Splicing	151
<i>X. Wang, K. Wang, G. Wang, J.R. Sanford, Y. Liu</i>	
A New Gene Expression Signature Related to Breast Cancer Estrogen Receptor Status	157
<i>E. Christodoulou, M. Ioannou, M. Kafousi, E. Sanidas, G. Papagiannakis, V. Danilatou, G. Tsiliki, T. Margaritis, H. Kondylakis, D. Manakanatas, L. Kounakis, A. Kanterakis, S. Vassilaros, M. Tsiknakis, A. Analyti, G. Potamias, D. Tsifisis, E. Stathopoulos, D. Kafetzopoulos</i>	
A Novel Information Theoretic Method for Detecting Gene-Gene And Gene-Environment Interactions in Complex Diseases	164
<i>P. Chanda, A. Zhang, M. Ramanathan</i>	
Gene – Nutrition Interactions in the Onset of Obesity as Cardiovascular Disease Risk Factor based on a Computational Intelligence Method	170
<i>I.K. Valavanis, S.G. Mougiakakou, S. Marinos, G. Karkalis, K.A. Grimaldi, R. Gill, K.S. Nikita</i>	
Floating Feature Selection for Multiloci Association of Quantitative Traits in Sib-pairs Analysis	176
<i>H. Brunel, A. Perera, A. Buil, M. Sabater-Lleal, J.C. Souto, J. Fontcuberta, M. Vallverdu, J.M. Soria, P. Caminal</i>	
Charge State Determination of Peptide Tandem Mass Spectra Using Support Vector Machine (SVM)	181
<i>A. Zou, J. Ding, J. Shi, F. Wu</i>	
Systematic Elicitation of Sequence Patterns Associated with Non-proline Cis Peptide Bonds	187
<i>K.P. Exarchos, T.P. Exarchos, C. Papaloukas, A.N. Troganis, D.I. Fotiadis</i>	
Signature Genes in Human Heart Failure Based on Gene Expression Analysis: Can We Identify a Unique Set?	193
<i>H. Wang, H. Zheng</i>	

Normalized EM Algorithm for Tumor Clustering using Gene Expression Data	199
<i>N.M. Phuong, N.X. Vinh</i>	
Time Series Gene Expression Data Clustering and Pattern Extraction in Arabidopsis Thaliana Phosphatase-encoding Genes	206
<i>P.S. Bidari, R. Manshaei, T. Lohrasebi, A. Feizi, M.A. Malboobi, J. Alirezaie</i>	
A Novel Evolutionary Algorithm for Bi-clustering of Gene Expression Data based on the Order Preserving Sub-Matrix (OPSM) Constraint	212
<i>H. Roh, S. Park</i>	
An Information Theoretic Framework for Genomic Data Analysis	226
<i>A. McKenna, G. Alterovitz</i>	
GOMA: Web Utility for Direct Finding of Enriched Gene Ontology Terms from Gene Expression Profile	229
<i>E. Mizutani, J. Sese</i>	
Performance Validation of Microarray Analysis Methods	235
<i>M. Zervakis, M.E. Blazadonakis, A. Banti, D. Kafetzopoulos, V. Danilidou, M. Tsiknakis</i>	
Differential Gene Expression Graphs: A Data Structure for Classification in DNA Microarrays	241
<i>A. Benso, S. Di Carlo, G. Politano, L. Sterpone</i>	
A Computational Approach to Microarray Universal Reference Sample	247
<i>G. Tsiliki, S. Kaforou, M. Kapsetaki, G. Potamias, D. Kafetzopoulos</i>	
Combining Singular Value Decomposition and t-test into Hybrid Approach for Significant Gene Extraction from Microarray Data	254
<i>M. Alshalalfa, R. Alhajj, J. Rokne</i>	
Combining Nomogram and Microarray Data for Predicting Prostate Cancer Recurrence	260
<i>Y. Sun, Y. Cai, S. Goodison</i>	
Classification of Multiple Cancer Types in a Hyper Reproducing Kernel Hilbert Space	267
<i>A. Blanco, M. Martin-Merino, J. De Las Rivas</i>	
GOmir: A Stand-alone Application for Human MicroRNA Target Analysis and Gene Ontology Clustering	272
<i>P. Zotos, G. Papachristoudis, M.G. Roubelakis, I. Michalopoulos, K.I. Pappa, N.P. Anagnou, S. Kossida</i>	
miRNA Target Prediction through Mining of miRNA Relationships	278
<i>Y. Zhang, J.S. De Bruin, F.J. Verbeek</i>	
Modeling Gene Regulation and Spatial Organization of Sequence Based Motifs	284
<i>J. Supper, C.A. Kampe, D. Wanke, K.W. Berendzen, K. Harter, R. Bonneau, A. Zell</i>	
Mature miRNA Identification Via the use of a Naive Bayes Classifier	291
<i>K. Gkirtzou, P. Tsakalides, P. Poirazi</i>	
Large-Scale Approximate Intervention Strategies for Probabilistic Boolean Networks as Models of Gene Regulation	296
<i>M. Tan, R. Alhajj, F. Polat</i>	
Motifs in Regulatory Networks and their Structural Robustness	302
<i>A. Elena, H. Ben-Amor, N. Glade, J. Demongeot</i>	
Extracting Decision Rules in Prediction of Protein Secondary Structure	308
<i>M.N. Nguyen, J.M. Zurada, J.C. Rajapakse</i>	

Distance-based Indexing of Residue Contacts for Protein Structure Retrieval and Alignment	314
<i>A. Sacan, I.H. Toroslu, H. Ferhatosmanoglu</i>	
Pruning Neural Networks for Protein Secondary Structure Prediction	321
<i>S. Babaei, S.A. Seyyedsalehi, A. Geranmayeh</i>	
Investigation into the Role of Sequence-driven-features for Prediction of Protein Structural Classes	327
<i>S.S. Nanuwa, H. Seker</i>	
Protein Similarity Networks and Genetic Algorithm Driven Feature Selection for Fold Recognition	333
<i>I.K. Valavanis, G.M. Spyrou, K.S. Nikita</i>	
A Local Structural Alignment Algorithm with Variable Length Alignment Fragment Pairs	339
<i>V. Kundeti, S. Rajasekaran</i>	
A Medical, Description Logic based, Ontology for Skin Lesion Images	346
<i>M. Maragoudakis, I. Maglogiannis, D. Lymberopoulos</i>	
A Framework for the Development of Biomedical Text Mining Software Tools	352
<i>A. Lourenco, R. Carreira, S. Carneiro, P. Maia, D. Glez-Pena, F. Fdez-Riverola, E.C. Ferreira, I. Rocha, M. Rocha</i>	
Message Communication Server for Medical Information Systems' Interoperability	358
<i>L. Kolovou, D. Lymberopoulos</i>	
A High Throughput Approach to Keep Alive a Web-based Database System for Multiple Search Among Published Bioinformatics Tools and Databases	364
<i>V. Atlamazoglou, T. Thireou, A. Alexandridou, G. Spyrou</i>	
Parallel Integration of Heterogeneous Genome-Wide Data Sources	368
<i>D. Greene, K. Bryan, P. Cunningham</i>	
Polyadenylation Site Prediction Using Interesting Emerging Patterns	375
<i>G. Tzanis, I. Kavakiotis, I. Vlahavas</i>	
CASIMIR: Coordination and Sustainability of International Mouse Informatics Resources	382
<i>J.M. Hancock, P.N. Schofield, C. Chandras, M. Zouberakis, V. Aidinis, D. Smedley, N. Rosenthal, K. Schughart</i>	
caBIG: Opportunities and Challenges to Creating a Federated Global Network of Interoperable Information Systems	388
<i>G.A. Komatsoulis</i>	
Database Interoperability through Web Services and Ontologies	394
<i>T. Sellis, D. Skoutas, K. Staikos</i>	
Towards Dynamic Database Infrastructures for Mouse Genetics	399
<i>M.A. Swertz, D. Smedley, K. Wolstencroft, R. Alberts, M. Zouberakis, V. Aidinis, K. Schughart, P.N. Schofield, R.C. Jansen</i>	
The Mouse Resource Browser (MRB)- A Near-complete Registry of Mouse Resources	406
<i>M. Zouberakis, C. Chandras, J.M. Hancock, P.N. Schofield, V. Aidinis</i>	
Using Bio-ontologies as Data Annotation, Integration & Analytical Tools at the Mouse Genome Informatics Resource	411
<i>A.V. Anagnostopoulos, J.A. Blake, C.J. Bult, M. Ringwald, J.E. Richardson, J.A. Kadin, J.T. Eppig</i>	
Digital Preservation – Financial Sustainability of Biological Data and Material Resources	418
<i>C. Chandras, T. Weaver, M. Zouberakis, J.M. Hancock, P.N. Schofield, V. Aidinis</i>	
A Novel Method for Protein 3D-Structure Similarity Measure Based on N-Gram Modeling	424
<i>J. Razmara, S.B. Deris</i>	

Sequence Clustering with the Self-Organizing Hidden Markov Model Map	430
<i>C. Ferles, A. Stafylopatis</i>	
Design and Implementation of the Smith-Waterman Algorithm on the CUDA-Compatible GPU	437
<i>Y. Munekawa, F. Ino, K. Hagihara</i>	
High Performance FPGA-based Core for BLAST Sequence Alignment with the Two-Hit Method	443
<i>S. Kasap, K. Benkrid, Y. Liu</i>	
Optimizing Performance, Cost, and Sensitivity in Pairwise Sequence Search on a Cluster of PlayStations	450
<i>A.M. Aji, W. Feng</i>	
An Improved Non-Comparative Classification Method for Human microRNA Gene Prediction	456
<i>R. Batuwita, V. Palade</i>	
Adaptive Aggregation Method for the Chemical Master Equation	462
<i>J. Zhang, L.T. Watson, Y. Cao</i>	
Parameter Identification for a DNA Replication Model	468
<i>K. Koutroumpas, Z. Lygerou, J. Lygeros</i>	
A Framework for the Integrated Analysis of Metabolic and Regulatory Networks	474
<i>R. Mendes, A. Lourenco, S. Carneiro, M. Rocha, I. Rocha, E.C. Ferreira</i>	
Stability and Oscillation of Genetic Regulatory Networks with Time Delays	480
<i>F. Wu</i>	
Structure Learning for Biomolecular Pathways Containing Cycles	486
<i>S. Itani, K. Sachs, G.P. Nolan, M.A. Dahleh</i>	
Building In-silico Pathway SBML Models from Heterogeneous Sources	492
<i>I. Kanaris, K. Moutselos, A. Chatziioannou, I. Maglogiannis, F.N. Kolisis</i>	
A Hybrid Computational Model for Phagocyte Transmigration	498
<i>J. Xue, J. Gao, L. Tang</i>	
Modeling Pro-death Signaling Pathways in Cancer Hepatocytes using Multi-combinatorial Treatments of Inhibitors and Stimuli	504
<i>L.G. Alexopoulos, D.A. Lauffenburger, P.K. Sorger</i>	
Evaluating Evolutionary Multiobjective Algorithms for the in Silico Optimization of Mutant Strains	509
<i>P. Maia, I. Rocha, E.C. Ferreira, M. Rocha</i>	
Systems Analysis of Bone Mechanotransduction at Cellular Level	515
<i>K.C. Mynampati, P.L.V. Sin</i>	
The Benefit of Cooperation: Identifying Growth-efficient Interacting Strains of Escherichia Coli using Metabolic Flux Balance Models	521
<i>E. Tzamali, M. Reczko</i>	
An Information Theoretic Divergence for Microarray Data Clustering	527
<i>N.X. Vinh, N.M. Phuong</i>	
Using ANOVA to Analyse Thalidomide's Molecular Mechanisms in Human PBMC Microarrays	534
<i>R.T. Paiva, B.C. Dias, M. Ribeiro-Alves, U.G. Lopes, F.F. Nobre</i>	
Signaling Biomarker Pattern Discovery Using Reverse Phase Protein Microarray	540
<i>Y.B. Kim, J. Gao, J.V. Pastor, K. Rosenblatt</i>	

cDNA Microarray Analysis of a Glucocorticoid Treated Acute Lymphoblastic Leukemia Cell Line	546
<i>E.G. Sifakis, G.I. Lambrou, A. Prentza, D. Koutsouris, F. Tzortzatou-Stathopoulou</i>	
Development of a Universal, Flexible and Freely Available Database Management System for Gene-centered Data Collection, Curation and Display of DNA Variation	552
<i>S. Zaimidou, S. Van Baal, T.D. Smith, K. Mitropoulos, M. Ljubic, D. Radojkovic, R.G. Cotton, G.P. Patrinos</i>	
Use of Gene Ontology Semantic Information in Protein Interaction Data Visualization	558
<i>R. Massanet, P. Caminal, A. Perera</i>	
Benefits of Using Paired Controls for Analyzing Gene Expression of Prostate Cancer	563
<i>S. Haney, M. Kam, L. Hrebien</i>	
A Computer Simulation Model of Gene Replacement in Vector Populations	566
<i>M. Guevara, E.E. Vallejo</i>	
Complementary Grouping of Amino Acids based on Base-Pairing	572
<i>M. Park, B.G. Kim</i>	
Phylogenetic Reconstruction with Disk-Covering and Bayesian Approaches	577
<i>Y. Guo, F. Ye, J. Tang</i>	
Identification of Active Biological Networks and Common Expression Conditions	583
<i>M. Seki, J. Sese</i>	
Novel Weighted Amino Acid Composition for Prediction of Protein Structural Classes within the Context of Multi-sensor Data Fusion Approach	589
<i>H. Seker</i>	
Fast Parallel Bio-Molecular Logic Computing Algorithms: Protein Folding	595
<i>Y. Shih, M. Ho</i>	
Detection of Transcription Factor Binding Sites using Rényi Entropy	601
<i>J. Maynou, M. Vallverdu, F. Claria, A. Perera, P. Caminal</i>	
BioSumm: A Novel Summarizer Oriented to Biological Information	606
<i>E. Baralis, A. Fiori, L. Montrucchio</i>	
Maximum Likelihood Reconstruction for Fluorescence Optical Projection Tomography	612
<i>A. Darrell, H. Meyer, U. Birk, K. Marias, M. Brady, J. Ripoll</i>	
Classification of Laser Induced Fluorescence Spectra from Normal and Malignant Tissues using Learning Vector Quantization Neural Network in Bladder Cancer Diagnosis	618
<i>G. Karemore, K.K. Mascarenhas, K.S. Choudhary, A. Patil, V.K. Unnikrishnan, V. Prabhu, A. Chowla, M. Nielsen, C. Santhosh</i>	
Assessment of Muscle Fatigue using a Probabilistic Framework for an EMG-based Robot Control Scenario	624
<i>P.K. Artemiadis, K.J. Kyriakopoulos</i>	
Assessment of Diabetic Foot Ulcers with Diffuse Near Infrared Methodology	630
<i>E.S. Papazoglou, M.S. Weingarten, L. Zubkov, M. Neidrauer, K. Pourrezaei</i>	
Transosseous Application of Low-Intensity Ultrasound at the Tendon-Bone Interface Affects the Healing Rate and Up-regulates Simultaneously the Expression of Collagen Type I and tRNAGly	635
<i>L.K. Papatheodorou, K. Grafanaki, S. Giannouli, D.I. Fotiadis, C. Stathopoulos, K.N. Malizos</i>	
A Proposal of a Fall Detection Algorithm for a MultiDevice Personal Intelligent Platform	640
<i>M.A. Estudillo-Valderrama, L.M. Roa, J. Reina-Tosina, D. Naranjo-Hernandez</i>	
Glycaemic Stability of the Diabetic Patient and Therapeutic Adjustments	644
<i>F. Benmakrouha, M.V. Foursov, C. Hespel, J. Hespel</i>	

Translating Multiscale Models into Clinical Trials: Simulating Breast Cancer Tumor Dynamics within the Framework of the “Trial of Principle” Clinical Trial and the ACGT Project	649
<i>E.A. Kolokotroni, G.S. Stamatakos, D.D. Dionysiou, E.C. Georgiadi, C. Desmedt, N.M. Graf</i>	
Multilevel Cancer Modeling in the Clinical Environment: Simulating the Behavior of Wilms Tumor in the Context of the SIOP 2001/GPOH Clinical Trial and the ACGT Project	657
<i>E.C. Georgiadi, G.S. Stamatakos, N.M. Graf, E.A. Kolokotroni, D.D. Dionysiou, A. Hoppe, N.K. Uzunoglu</i>	
Robust Parameter Identification for Biological Circuit Calibration	665
<i>G. Nicosia, E. Sciacca</i>	
Towards an Inclusive Computational Model of Visual Cortex	671
<i>M. Gheiratmand, H. Soltanian-Zadeh, H. Khaloozadeh</i>	
Modeling and Simulation of Electrical Impedance Tomography (EIT) on Ventilated Patients with ARDS Lungs	676
<i>M. Denai, M. Mahfouf, G.H. Mills</i>	
Changes in Bone Components of Newborn Rats after Maternal Treatment with Cytarabine	682
<i>Z. Drzazga, K. Michalik, M. Kaszuba, H. Trzeciak</i>	
Laser Induced Autofluorescence of Bones and Teeth in Newborn Rats After Maternal Administration of Indinavir	687
<i>Z. Drzazga, A. Blasza, M. Kaszuba, B. Nowinska, K. Michalik</i>	
The Influence of Different Bone Remodeling Equations on a 2-D Vertebra Model in the Final Bone Density Distribution	693
<i>C.G. Vossou, G.S. Savva, C.G. Provatidis</i>	
The Influence of Infection Control Policies: A Systematic Study of the Dynamics of an Individual-based Epidemic Model with Isolation	699
<i>A. Reppas, A.C. Tsoumanis, C.I. Siettos</i>	
Dead-time Compensation in Intravenous Anesthesia Control	706
<i>J.A. Mendez, S. Torres, J.A. Reboso, H. Reboso</i>	
Comparative Study of Empirical Mode Decomposition Applied in Experimental Biosignals	711
<i>A. Karagiannis, P. Constantinou</i>	
On the Use of Ultrasonic Communications in Biosensor Networks	717
<i>A. Ifantis, A. Kalis</i>	
Passive Focused Monitoring and Non-invasive Irradiation of Head Tissue Phantoms at Microwave Frequencies	723
<i>K.T. Karathanasis, I.A. Gouzouasis, I.S. Karanasiou, G. Stratakos, N.K. Uzunoglu</i>	
Efficient Implementation of Biomedical Hardware Using Open Source Descriptions and Behavioral Synthesis	729
<i>G. Economakos</i>	
A Formal Language Approach for Multi-Sensor Wearable Health-Monitoring Systems	735
<i>A. Pantelopoulos, N. Bourbakis</i>	
A Study to Demonstrate the Use of an Air Bage Device to Prevent Fall-related Injuries	742
<i>T. Tamura, T. Yoshimura, M. Sekine</i>	
Flexible Data Integration and Ontology-Based Data Access to Medical Records	745
<i>L. Zamboulis, A. Poulouvassilis, G. Roussos</i>	

Novel Metrics Of Functional Network Structure and their Application to the Detection and Characterisation of Alzheimer’s Disease	751
<i>A. Anastasiou, E. Ifeachor</i>	
HRV Complexity as a Diagnostic Tool for Late Onset Sepsis in Sick Premature Infants	759
<i>Y. Wang, G. Carrault, A. Beuchee, L. Senhadji, H. Shu</i>	
Structuring the e-SCP-ECG+ Protocol for Multi Vitall-sign Handling	765
<i>G.J. Mandellos, M.N. Koukias, D.K. Lymberopoulos</i>	
Point-Of-Care Monitoring and Diagnostics for Autoimmune Diseases	771
<i>F.G. Kalatzis, T.P. Exarchos, N. Giannakeas, S. Markoula, E. Hatzi, P. Rizos, I. Georgiou, D.I. Fotiadis</i>	
Monitoring of Patients Suffering from Special Phobias Exploiting Context and Profile Information	777
<i>T.C. Panagiotakopoulos, D.K. Lymberopoulos, G.M. Manwlessos</i>	
Assessment of the Risk of Coronary Heart Event Based on Data Mining	783
<i>M. Karaolis, J.A. Moutiris, C.S. Pattichis</i>	
Feature Selection and Classification for Assessment of Chronic Stroke Impairment	788
<i>J. Jung, J.L. Glasgow, S.H. Scott</i>	
Medical Disease Prediction Using Artificial Neural Networks	793
<i>D.H. Mantzaris, G.C. Anastassopoulos, D.K. Lymberopoulos</i>	
Pathological Voice Discrimination using Cepstral Analysis, Vector Quantization and Hidden Markov Models	799
<i>S.C. Costa, B.G.A. Neto, J.M. Fecine</i>	
Classification of Event-Related Potentials Associated with Response Errors in Actors	804
<i>P.A. Asvestas, E. Ventouras, I. Karanasiou, G.K. Matsopoulos</i>	
Intelligent Patient Profiling for Diagnosis, Staging and Treatment Selection in Colon Cancer	810
<i>Y. Goletsis, T.P. Exarchos, N. Giannakeas, D.I. Fotiadis</i>	
Using Agents for Feature Extraction: Content Based Image Retrieval for Medical Applications	816
<i>A.D. Theodosi, G.A. Tsihrintzis</i>	
On the Use of Block Matching for the Estimation of Arterial Wall Motion	821
<i>S. Golemati, J. Stoitsis, K.S. Nikita</i>	
Mass Detectability in Dedicated Breast CT: A Simulation Study with the Application of Volume Noise Removal	826
<i>J.Q. Xia, J.Y. Lo</i>	
Susceptibility of Texture Measures to Noise: An Application to Lung Tumor CT Images	832
<i>O.S. Al-Kadi, D. Watson</i>	
Using Spiral Intensity Profile to Quantify Head and Neck Cancer	836
<i>K.Y. Kong, Y. Sharma, S.H. Raza, Z. Chen, S. Muller, M.D. Wang</i>	
Segmentation of Sublingual Veins from Near Infrared Sublingual Images	842
<i>Z. Yan, K. Wang, N. Li</i>	
Joining Retinal Vessel Segments	847
<i>B. Al-Diri, A. Hunter, D. Steel, M. Habib</i>	
Segmentation of Nuclei in Cancer Tissue Images: Contrasting Active Contours with Morphology-Based Approach	853
<i>S. Di Cataldo, E. Ficarra, A. Acquaviva, E. Macii</i>	

Local-based Fuzzy Clustering for Segmentation of MR Brain Images	859
<i>J. Wang, L. Dou, N. Che, D. Liu, B. Zhang, J. Kong</i>	
Automatic DNA Microarray Gridding based on Support Vector Machines	864
<i>D. Bariamis, D. Maroulis, D.K. Iakovidis</i>	
Improving Renal Cell Carcinoma Classification by Automatic Region of Interest Selection	869
<i>Q. Chaudry, S.H. Raza, Y. Sharma, A.N. Young, M.D. Wang</i>	
Matrix Factorization Techniques for Analysis of Imaging Mass Spectrometry Data	875
<i>P.W. Siy, R.A. Moffitt, R.M. Parry, Y. Chen, Y. Liu, M.C. Sullards, A.H. Merrill Jr., M.D. Wang</i>	
A Machine Learning Based System for Multichannel Fluorescence Analysis in Pancreatic Tissue Bioimages	881
<i>J. Herold, S. Abouna, L. Zhou, S. Pelengaris, D.B.A. Epstein, M. Khan, T.W. Nattkemper</i>	
A Multiple Expert-Based Melanoma Recognition System for Dermoscopic Images of Pigmented Skin Lesions	887
<i>M. Rahman, P. Bhattacharya, B.C. Desai</i>	
Lungs SPECT Image Processing for Volume and Perfusion Index Estimation	893
<i>M. Lyra, M. Gavrielli, V. Lyra, G. Kokona, K. Skouroliakou</i>	
Ultrasound Imaging Media Layer Texture Analysis of the Carotid Artery	898
<i>C.P. Loizou, M. Pantziaris, A. Nicolaidis, A. Spanias, M.S. Pattichis, C.S. Pattichis</i>	
The Study of Hepatic NF-κB Transcription Dynamics via Fluorescent Image Analysis	904
<i>A. McArdle, K. McMenemy, S. Ferguson</i>	
Medical Image Authentication and Self-Correction through an Adaptive Reversible Watermarking Technique	910
<i>V. Fotopoulos, M.L. Stavrinou, A.N. Skodras</i>	
Determination of the Mechanoelastic Properties of Parasites via Analysis of their Microscopic Images	915
<i>D. Arabadjis, P. Rousopoulos, C. Papaodysseus, M. Panagopoulos, P. Loumou, G. Theodoropoulos</i>	
Automatic Frame Reduction of Wireless Capsule Endoscopy Video	921
<i>S. Tsevas, D.K. Iakovidis, D. Maroulis, E. Pavlakis</i>	
A Methodology for Detecting Blood-based Abnormalities in Wireless Capsule Endoscopy Videos	927
<i>A. Karagyris, N. Bourbakis</i>	
Medical Needle Steering for Lung Biopsy: Experimental Results in Tissue Phantoms Using a Robotic Needle Driver	933
<i>J. Ding, D. Stoianovici, D. Petrisor, P. Mozer, R. Avila, L. Ibanez, W. Turner, D. Yankelwitz, E. Wilson, F. Banovac, K. Cleary</i>	
A Simple Sequential Pose Recognition Model for Sleep Apnea	938
<i>C. Wang, A. Hunter</i>	
Preliminary Performance Evaluation of a High Resolution Small Animal PET Scanner with Monolithic Crystals and Depth-of-interaction Encoding	944
<i>M. Balcerzyk, G. Kontaxakis, M. Delgado, L. Garcia, J.M. Benlloch, M.A. Pozo</i>	
Assessment of Iterative Image Reconstruction Techniques for Small-animal PET Imaging Applications	948
<i>E. Karali, S. Pavlopoulos, D. Koutsouris</i>	
A Sparse Variational Bayesian Approach for fMRI Data Analysis	954
<i>V.P. Oikonomou, E.E. Tripoliti, D.I. Fotiadis</i>	

In-vivo Brain Anatomical Connectivity Using Diffusion Magnetic Resonance Imaging and Fuzzy Connectedness	960
<i>S.N. Sotiropoulos, C.R. Tench, L. Bai</i>	
Towards Quantification of Interstitial Pneumonia Patterns in Lung Multidetector CT	968
<i>P. Korfiatis, A. Karahaliou, A. Kazantzi, C. Kalogeropoulou, L. Costaridou</i>	
Local Hemodynamics and Intimal Hyperplasia at the Venous Side of Porcine Carotid Artery – Jugular Vein Shunt	973
<i>T.A. Manos, D.P. Sokolis, A.T. Giagini, C.H. Davos, J.D. Kakisis, N. Stergiopulos, P.E. Karayannacos, S. Tsangaris</i>	
2D Oculomotor Plant Mathematical Model for Eye Movement Simulation	981
<i>O.V. Komogortsev, U.K.S. Jayarathna</i>	
MRI-Guided Robot-Assisted Lumpectomy for Surgical Management of Early Breast Cancer: Preliminary Investigation and Use Case Analysis	989
<i>Y. Yu, K. Yan, T. Podder, W.S. Ng, K. Brill, L. Liao</i>	
A Generic Grid Interface and Execution Framework for Biomedical Applications	995
<i>K.I. Vegoudakis, V. Koutkias, A. Malousi, I. Chouvarda, N. Maglaveras</i>	
An Evaluation of Magnetically Induced Current Density in Human's Body, Based on Measurements Conducted in a High Voltage Center of 150/20kV	1001
<i>A.A.P. Paraskevopoulos, P.D. Bourkas, C.G. Karagiannopoulos</i>	
Modelling Glycaemia of Diabetics: An Application	1007
<i>F. Benmakrouha, C. Hespel, M.V. Foursov</i>	
Automatic Intra-Operative Localization of STN using the Beta Band Frequencies of Microelectrode Recordings	1010
<i>K.P. Michimizos, G.L. Tagaris, D.E. Sakas, K.S. Nikita</i>	
Slow and Fast EEG Sleep Spindle Component Extraction Using Independent Component Analysis	1016
<i>E.M. Ventouras, P.Y. Ktonas, H. Tsekou, T. Paparrigopoulos, I. Kalatzis, C.R. Soldatos</i>	
Comparison of Fractal Dimension Estimation Algorithms for Epileptic Seizure Onset Detection	1022
<i>G.E. Polychronaki, P. Ktonas, S. Gatzonis, P.A. Asvestas, E. Spanou, A. Siatouni, H. Tsekou, D. Sakas, K.S. Nikita</i>	
Towards Emotion Aware Computing: a study of Arousal Modulation with Multichannel Event-Related Potentials, Delta Oscillatory Activity and Skin Conductivity Responses	1028
<i>C.A. Frantzidis, C.D. Lithari, A.B. Vivas, C.L. Papadelis, C. Pappas, P.D. Bamidis</i>	
A Neural Network Model of Peri-Hand Space Representation and its Plastic Properties Related to Tool Use	1034
<i>E. Magosso, M. Zavaglia, A. Serino, G. Di Pellegrino, M. Ursino</i>	
Fitting Local Field Potentials Generating Model of the Basal Ganglia to Actual Recorded Signals	1040
<i>G.L. Tsirogiannis, G.A. Tagaris, D. Sakas, K.S. Nikita</i>	
Parallel Robot for Ankle Rehabilitation-Evaluation and its Design Specifications	1046
<i>C.E. Syrseloudis, I.Z. Emiris</i>	
Continuous Recording of the Oscillometric Mean Arterial Pressure by the Differential Servo System with Two Photoplethysmographic Sensors	1052
<i>R. Raamat, K. Jagomagi, J. Talts</i>	
Oxygen Consumption by Vascular Wall in Skeletal Muscle Arterioles Under Physiological Conditions	1056
<i>M. Shibata, T. Yamakoshi, K. Yamakoshi</i>	

Development of Urine Glucose Level Monitor for Home Healthcare Using Near Infrared Spectroscopy	1060
<i>S. Tanaka, M. Ogawa, T. Gu, K. Yamakoshi</i>	
Fractal Analysis of Medical Images in the Irregular Regions of Interest	1063
<i>E. Oczeretko, M. Borowska, A. Kitlas, A. Borusiewicz, M. Sobolewska-Siemieniuk</i>	
Characterization of Chromatin Texture by Contour Complexity for Cancer Cell Classification.....	1069
<i>T. Kiyuna, A. Saito, E. Kerr, W. Bickmore</i>	
Effects of Digital Dewaxing Methods on K-means-clusterized IR Images Collected on Formalin-fixed Paraffin-Embedded Samples of Skin Carcinoma	1075
<i>D. Sebiskveradze, C. Gobinet, E. Ly, M. Manfait, P. Jeannesson, M. Herbin, O. Piot, V. Vrabie</i>	
Size-adapted Segmentation of Individual Mammographic Microcalcifications	1081
<i>N.S. Arikidis, A. Karahaliou, S. Skiadopoulou, P. Korfiatis, E. Likaki, G. Panayiotakis, L. Costaridou</i>	
Retrieval and Ranking of Biomedical Images using Boosted Haar Features.....	1086
<i>C.K. Reddy, F.A. Bhuyan</i>	
Multimodality Image Registration using Ordinary Procrustes Analysis and Entropy of Bivariate Normal Kernel Density	1092
<i>W. Cho, S. Kim, M. Lee, S. Kim, S. Park, C. Jeong</i>	
Wavelet Entropy Differentiations of Event Related Potentials in Dyslexia	1098
<i>G.A. Giannakakis, N.T. Tsiaparas, M.S. Xenikou, C. Papageorgiou, K.S. Nikita</i>	
Stability Analysis of Epileptic EEG Signals.....	1104
<i>G. Hocepied, A. Kacha, F. Grenez, A. Nonclerq</i>	
Control of Medical Robotics and Neurobotic Prosthetics by Non-invasive Brain-robot Interfaces Via EEG and RFID Technology.....	1109
<i>A. Eleni</i>	
Graph Theory Based Algorithm for Magnetic Resonance Brain Images Segmentation	1113
<i>J. Wang, D. Liu, L. Dou, B. Zhang, J. Kong, Y. Lu</i>	
Monte Carlo Modeling of Corneal and rRetinal Optical Coherence Tomography Imaging.....	1118
<i>A. Gerakis, M.Y. Kirillin, E.A. Sergeeva, M. Makropoulou, A.A. Serafetinides</i>	
Investigating Mesh Parameters to Achieve Clinically Applicable Finit Element Analysis of Vertebrae	1124
<i>C.G. Vossou, C.G. Provatidis</i>	
Image Analysis and CADx System for Mucosal Lesions	1130
<i>A. Chodorowski, C.R. Choudhury, T. Gustavsson</i>	
Gait Analysis and Automatic Gait Event Identification Using Accelerometers	1134
<i>G.I. Zdragkas, J.N. Avaritsiotis</i>	
Versatile Approximation of the Lung Field Boudaries in Chest Radiographs in the Presence of Bacterial Pulmonary Infections	1140
<i>D.K. Iakovidis</i>	
Assessment of Osteoarthritis Severity by Wavelet Analysis of the Hip Joint Space Radial Distance Signature	1146
<i>I. Boniatas, E. Panagiotopoulos, D. Lymberopoulos, G. Panayiotakis</i>	
Chromosome Region Recognition Based on Local Band Patterns	1152
<i>T. Abe, C. Hamada, T. Kinoshita</i>	
A Robust Pose Matching Algorithm for Covered Body Analysis for Sleep Apnea	1158
<i>C. Wang, A. Hunter</i>	

Ontology-Inferred Phylogeny Reconstruction for Analyzing the Evolutionary Relationships between Species: Ontological Inference Versus Cladistics1165
A. Shaban-Nejad, V. Haarslev

Author Index