2008 International Conference on Biomedical Engineering and Informatics

(BMEI 2008)

Sanya, Hainan, China
27-30 May 2008

Pages 1-603

IEEE

IEEE Catalog Number: CFP0893D-PRT
ISBN: 978-1-4244-3241-7

TABLE OF CONTENTS

Preface
Organizing Committee
Program Committee
Reviewers

COMPUTATIONAL GENOMICS AND PROTEOMICS

A Fast Agglomerate Algorithm for Mining Functional Modules in Protein Interaction Networks 1
Min Li, Jianxin Wang, Jian'er Chen

A Fast Exact Pattern Matching Algorithm for Biological Sequences 6
Yong Huang, Lingdi Ping, Xuezeng Pan, Guoyong Cai

A Greedy Two-stage Gibbs Sampling Method for Motif Discovery in Biological Sequences 11
Li-fang Liu, Li-cheng Jiao, Hong-wei Huo

A Multiple Regression Approach for Building Genetic Networks 16
Shu-Qin Zhang, Wai-Ki Ching, Nam-Kiu Tsing, Ho-Yin Leung, Diane D. Guo

A Novel Analysis Model for DNA Sequences 22
Xianyang Jiang, Stephen S.-T. Yau

A New Approach Combined Fuzzy Clustering and Bayesian Networks for Modeling Gene Regulatory Networks 27
Fei Wang, De Pan, Jianhua Ding

A New Approach for Tree Alignment Based on Local Re-Optimization 32
Feng Yue, Jijun Tang

A New DNA Fragment Assembly Method Based on Long Fragment Filtration 37
Guang-Ri Quan, Yong-Dong Xu, Ya-Dong Wang, Zhi-Ming Xu

A Note on the Fast BRAIN Learning Algorithm 45
Shuo Xu, Lan Tao, Xin An, Lin Li

An Efficient Method for Sampling and Computing Molecular Surface 50
Junping Xiang, Maolin Hu

An Improved Longest Common Subsequence Algorithm for Reducing Memory Complexity in Global Alignment of DNA Sequences 55
Elham Parvinnia, Mohammad Taheri, Kourush Ziarati

An Improved Method Based on Maximal Clique for Predicting Interactions in Protein Interaction Networks 60
Jianxin Wang, Zhao Cai, Min Li

An Ion Transformation Approach for De Novo Peptide Sequencing via Tandem Mass Spectra 65
Changyong Yu, Guoren Wang, Yi Zhao, Wendan Zhai

A Practical Exact Algorithm for the Individual Haplotyping Problem MEC 70
Minzhu Xie, Jianxin Wang, Jianer Chen

Analysis and Prediction of Global and Subfamily-specific Functional Sites in Bioaminergic Receptors.....75
Dan Xue, Long Liang, Jingyuan Yin

Application of Improved K-mean Clustering in Predicting Protein-Protein interactions.....81
Pingping Sun, Yanan Ma, Yazhuo Wei, Zhiqiang Ma, Linying Lu, Ying Cui, Ping Huang

Characterization of a Supercluster of SnoRNA Genes from Rice Genome 85
Jun Xie, Fang Fang, HaiRong Hu, Feng Xu, Qi Wu

Classifying G Protein-Coupled Receptors with Multiple Physicochemical Properties.....91
Jingyi Yang, Jitender Deogun

Classification of 3d Protein based on Structure Information Feature 96
Chenyang Cui, Zhen Liu

Computational Prediction of UV-responsible MicroRNA Genes in Vitis vinifera Genome.....100
Zhen-lin Wei, Chun-zhen Jiao, Zhi-huan Tian, Ling Dong

Combining Physico-chemical Properties with PSSM for Protein Secondary Structure Prediction Using BP Neural Network.....105
Huiyun Yang, Ouyan Shi, Xin Tian

Conditional LZ Complexity of DNA Sequences Analysis and its Application in Phylogenetic Tree Reconstruction 109
Jingjun Liu, Dachao Li

Correlation of Amino Acid Physicochemical Properties with Protein Secondary Structure Conformation 115
Gouchol Pok, Cheng Hao Jin, Keun Ho Ryu

Development of Electromagnetic Therapy System with Individually Patterned Protocol for Urine Incontinence Patients 120
Si-Cheol Noh, Hae-Ki Min, Woo-Jin Yu, Moon-Kyu Park, Jang-Woo Kwon, Hong-Ki Min, Heung-Ho Choi

Effect of Polysaccharides on the Functional Properties of Peanut Protein.....125
Zhining Cai, Mouming Zhao, Xiaoquan Yang

Exploring Protein Regulations with Regulatory Networks for Cancer Classification.....131
Hong Qiang Wang, Hai Long Zhu, Timothy T.C. Yip, William C.S. Cho, Roger K.C. Ngan, Stephen C.K. Law

Feature Extraction from Protein Sequences and Classification of Enzyme Function 136
Bum Ju Lee, Keun Ho Ryu

Prediction of Alternative 5'/3' Splice Sites in the Human Genome.....141
Wuritu Yang, Qian-zhong Li

High Content Cellular Analysis for Functional Screening of Novel Cell Cycle Related Genes 146
Desok Kim, Yong-su Chae, Soo Jung Kim

Hierarchically Organized Layout for Visualization of Biochemical Pathway.....151
Jyh-Jong Tsay, Bo-Liang Wu, Yu-Sen Jeng

Predicting Protein-Protein Interactions with Pseudo Amino Acid Composition 156
Yu-Dong Cai, Guo-Ping Zhou

Prediction of Membrane Protein Types by an Ensemble Classifier Based on Pseudo Amino Acid Composition and Approximate Entropy 162
Pei-Ying Zhao, Yong-Sheng Ding

Revealing Significant Biological Knowledge via Gene Ontologies and Pathways.....167
Michalis E. Blazadonakis, Michalis Zervakis

Senescence-Associated ß-Galactosidase as a Senescence Biomarker Showed in Rat Hippocampus.....171
Y.Q. Geng, J.T. Guan, B.H. Wang, X.H. Xu, Y.C. Fu

Survival Analysis Modeling of Phylogenetic and Coalescent Trees.....176
Zhanshan (Sam) Ma, Axel W. Krings

Using Phylogenetic Relationships to Improve the Inference of Transcriptional Regulatory Networks.....184
Xiuwei Zhang, Maryam Zaheri, Bernard M.E. Moret

Using Random Perturbation Method to Improve Efficacy Prediction of siRNA Sequences.....192
Willard Frutiger, Jeremy Collins, Wei Hu

ARTIFICIAL INTELLIGENCE, MACHINE LEARNING AND DATA MINING IN BIOMEDICAL INFORMATICS

A Data Mining Approach for Coronary Heart Disease Prediction using HRV Features and Carotid Arterial Wall Thickness.....198
Heon Gyu Lee, Ki Yong Noh, Keun Ho Ryu

A Fuzzy Approach for Analyzing Outliers in Gene Expression Data.....205
Noha A. Yousri, Mohamed S. Kamel, Mohamed A. Ismail

A Hybrid Approach to Selecting Susceptible Single Nucleotide Polymorphisms for Complex Disease Analysis.....212
Pengyi Yang, Zili Zhang

A Retrospective Comparative Study of Three Data Modelling Techniques in Anticoagulation Therapy.....217
Simon McDonald, Costas Xydeas, and Plamen Angelov

Adaptive Gene Expression Programming Algorithm Based on Cloud Model.....224
Yue Jiang, Chang-jie Tang, Hai-chun Zheng, Chuan Li, Yu Chen, Jiang Wu, Dong-lei Wang

Arithmetic Operation in Membrane System.....229
Ping Guo, Jing Chen

Artificial Intelligence and Data Mining Techniques in Medicine – Success Stories.....233
Fariba Shadabi, Dharmendra Sharma

Classification Algorithm Based on Weighted SVMs and Locally Tuning kNN.....238
Wang Shu-Bin, Ling Ping, You Xiang-Yang, Xu Ming, Rong Xiang-Sheng

Clustering of High-Dimensional Gene Expression Data with Feature Filtering Methods and Diffusion Maps.....243
Rui Xu, Steven Damelin, Boaz Nadler, Donald C. Wunsch II

Combining Voxel-based Morphometry with Artifical Neural Network Theory in the Application Research of Diagnosing Alzheimer's Disease.....248
Chengzhong Huang, Bin Yan, Hua Jiang, Dahui Wang

Data Quality in Traditional Chinese Medicine.....253
Yi Feng, Zhaohui Wu, Huajun Chen, Tong Yu, Yuxin Mao, Xiaohong Jiang

Discovering Multi-dimensional Major Medicines from Traditional Chinese Medicine Prescriptions.....258
Chuan Li, Changjie Tang, Chunqiu Zeng, Jiang Wu, Yu Chen, Jiangtao Qiu, Li Dai, Jun Zhu, Yongguang Jiang

Disease Prediction Power and Stability of Differential Expressed Genes 263
Chen Yao, Min Zhang, Jinfeng Zou, Xue Gong, Lin Zhang, ChenGuang Wang, Zheng Guo

Ensemble Classification for Cancer Data 267
Yang Liu, Jin Zhou, Yuehui Chen

Evaluation of ANN Classifiers During Supervised Training with ROC Analysis and Cross Validation 272
Miguel Antonio Sovierzoski, Fernanda Isabel Marques Argoud, Fernando Mendes de Azevedo

Feature Selection using Multi-Layer Perceptron in HIV-1 Protease Cleavage Data 277
Gilhan Kim, Yeonjoo Kim, Hyeoncheol Kim

Gene Expression Studies with DGL Global Optimization for the Molecular Classification of Colon Cancer 282
Dongguang Li

Gene Selection using the GMM-IG Framework based Integrative Analysis 290
Mingyi Wang, Jake Y. Chen

Knowledge Discovery from Tumor Respiratory Motion Data 295
Huanmei Wu, Qingya Zhao, Li Zhao

Microarray Image Converted Database - Genetic Algorithm Application in Bioinformatics 300
C.Y. Jiao, D.G. Li

Missing Attribute Value Prediction Based on Artificial Neural Network and Rough Set Theory 304
N.A. Setiawan, P.A. Venkatachalam. A.F.M. Hani

Multi-Agent Classifiers Fusion Strategy for Biomedical Named Entity Recognition 309
Haochang Wang,Tiejun Zhao, Jianmiao Liu

Octree Based Representation and Volume Rendering of Three-Dimensional Medical Data Sets 314
Weiwei Song, Shungang Hua, Zongying Ou, Hu An, Kaifeng Song

A Hybrid Approach for Developing an Ontology of Genetic Susceptibility to Common Disease (OGSCD) 319
Yu Lin, Norihiro Sakamoto

Optimal Genes Selection with a New Multi-objective Evolutional Algorithm Hybriding NSGA-II with EDA 325
Luo Fei, Liu Juan

Performance Evaluation of an ANN FF Classifier of Raw EEG Data using ROC Analysis 330
Miguel Antonio Sovierzoski, Fernando Mendes de Azevedo, Fernanda Isabel Marques Argoud

Predicting Blood-Brain Barrier Penetration by Stochastic Discrimination 335
Dechang Chen, Jianwen Fang, Jiawei Yu

Perception-aware Depth Cueing for Illustrative Vascular Visualization 339
Alan Chu, Wing-Yin Chan, Jixiang Guo, Wai-Man Pang, Pheng-Ann Heng

Performance Evaluation and Fusion of Methods for Early Detection of Alzheimer Disease 345
Brahim Hamadicharef, Cuntai Guan, Emmanuel Ifeachor, Nigel Hudson, Sunil Wimalaratna

Quantitative Prediction of MHC-II Peptide Binding Affinity Using Global Description of Peptide Sequences 350
Wen Zhang, Juan Liu, Yanqing Niu, Lian Wang, Zhi Zhang

Semantic Web-Oriented Intelligent Information Retrieval System 355
Wenjie Li, Xiaohuan Zhang, Xiaofei Wei

Sternum Image Retrieval Based on High-level Semantic Information and Low-level Features.....360
Qin Chen, Xiaoying Tai

Study on Scale Development of Boolean Medicine Data based on the GA and Improved k-NN Algorithm.....365
Zhen-hua Wang, Zhong-sheng Hou, Ying Gao, Qiang Liu

The Automatic Inference of Arden Medical Logic Modules.....370
Qunyi Zhou, Wenxin Wang

The Support Vector Machine Classification System for Patient Document Information Importance Analysis.....373
Chih-Hung Wu, Yun Ken, Tao Huang

OPERATIONS RESEARCH AND MANAGEMENT IN MEDICINE AND HEALTH CARE

Chinese Human Genetic Resources Sharing Service Infrastructure.....378
Ma Liguang, Cao Yanrong, He Jianbang

Chitosan Complexes Eliminate Chloroform and Carbon Tetrachloride in Drinking Water.....384
Yuan Yihua, Jia Demin, Chen Xin, Pang Yulian

Effect of Ventilation on Indoor Airborne Microbial Pollution Control.....388
Guoqing Cao

A Particle Swarm Optimization Algorithm Based on Optimal Result Set for Haplotyping a Single Individual.....393
Jingli Wu, Jianxin Wang, Jian'er Chen

Optimization of Production of PLA Microbubble Ultrasound Contrast Agents for Hydroxycamptothecin Delivery.....398
Jie Pan, Zhenqing Hou, Peijuan Zhu, Yange Wang, Qian Wang, Qiqing Zhang

INVITED SESSION: GENE NETWORKS AND PATHWAY ANALYSIS

A Theoretical Systems Biology Analysis Suggests Gene-Environment Interaction Effects are Common at the Most Basic Levels of Biological Organization.....405
Joseph L. McClay, Edwin J.C.G. van den Oord

Data-driven Networking Reveals 5-Genes Signature for Early Detection of Lung Cancer.....411
Vladimir Kuznetsov, Sterling Thomas, Danail Bonchev

Detection of Changes in Transitive Associations by Shortest-path Analysis of Protein Interaction Networks Integrated with Gene Expression Profiles.....416
Hong Qin, Li Yang

Genome Regions Involved in Multiple Regulatory Pathways Identified Using GSEL, A Genome-Wide Database of Regulatory Sequence Elements of Geobacter sulfurreducens.....422
Julia Krushkal, Marko Puljic, Bin Yan, Jose F. Barbe, Radhakrishnan Mahadevan, Bradley Postier, Regina A. O'Neil, Gemma Reguera, Ching Leang, Laurie N. DiDonato, Cinthia Núñez, Barbara A. Methé, Ronald M. Adkins, Derek R. Lovley

Path-a-Way: A Strategy for Network Analysis of Microarray Data.....430
Dhivya Arasappan, Aurelien Mazurie, J. Alves, Danail Bonchev, Gregory A. Buck

Schizophrenia Genes: Characteristics of Function and Protein Interaction Networks 435
Jingchun Sun, Leng Han, Zhongming Zhao

INVITED SESSION: OLIGONUCLEOTIDE SNP ARRAY GENOTYPE CALLING: DESIGN AND METHODS

A Method to Correct Systematic Bias in Affymetrix SNP Arrays 440
Lin Wan, Wenjiang J. Fu, Minghua Deng, Minping Qian

Analysis of High-throughput DNA Methylation Bead Arrays Utilizing Bayesian Genotyping Algorithms 445
Yuanyuan Xiao, Mark R. Segal, E. Andres Houseman, Joe Wiemels, John Wiencke, Shichun Zheng, Margaret Wrensch, Brock Christensen, Carmen Marsit, Karl Kelsey, Heather Nelson, Margaret Karagas, Ru-Fang Yeh

On Design of Oligonucleotide SNP Arrays and Methods for Genotype Calling 451
Wenjiang J. Fu, Ming Li, Lin Wan, Minghua Deng, Minping Qian

On Single-Array Genotype Calling Algorithms 457
Anna Tikhomirov, Anuar Konkashbaev, Dan L. Nicolae

INVITED SESSION: STATISTICAL METHODS IN BIOMARKER IDENTIFICATION

A Latent Model Approach to Study Postural Instability for Parkinson's Disease 461
Peng Huang, Ming-Hui Chen, Debajyoti Sinha

Biomarker Identification for Early Tumor Detection Aided by Bioinformatics Gene Expression Analysis 467
Wanling Yang, Peng Huang, Minghui Zhao, Yu Lung Lau

BIOMEDICAL MODELING

A Computerized Diagnostic Model Based on Naive Bayesian Classifier in Traditional Chinese Medicine 472
Huiyan Wang

A New Speech Coding for Improving the Quality of Cochlear Implant 476
Wei-bing Chen, Ling-hong Zhou, Zhong-ju Xiao, Guang-jie Chen, Lin-jing Wang

A Proposal on Anticancer Therapy Based on Reversal of Entropy Flow through Magnetic Field 481
Changjiang Ding, Liaofu Luo

Anti-Bacterial Property of Cold Sprayed ZnO-Al Coating 486
Noppakun Sanpo, Saraswati, Tan Meng Lu, Philip Cheang

Biological Thermal Effects Analysis of High Power Laser for BPH 490
Zhenyu Wang, Linghong Zhou, Chaomin Chen, Anyang Wei, Qian Ni, Lin Zhu

Blood Hemolysis of Implantable Artificial Lung 495
Gi-Beum Kim, Mun-Yong Lee, Seol-Hee Jeon, Md. Mizanur Rahman, Min-Ho Kim, Seong-Jong Kim, In-Shick Kim, Jin-Shang Kim, Hyung-Sub Kang, Chul-Un Hong

Boundary Identification and Triangulation of STL Model 498
Wenyu Fu, Aike Qiao, Pengbin Fu

Dual-Phase-Lag Model of Skin Bioheat Transfer 503
Feng Xu, Tianjian Lu, Keith A. Seffen

Effects of Supraphysiological Thermal Injury in Human Embryonic Kidney Cells 510
Ching-Te Huang, Cheng-Han Tsai, Chun-Ping Jen

Identifying Causal Effects from Data for the Clinical Ventilation Process Modelling 515
Bin Han, Guoliang Li, Tzeyun Leong, Yanchun Zhang, Lihu Li, Wei Liu, Lei Zhu, Weidong Xu

Implementation of Reinforcement and Reduction of Traditional Acupuncture and Moxibustion 520
Huang Zhen, Li Dongyu, Li Chengwei

Modeling the Plasticity in Motor Cortex 524
Dong-Mei Hao, Ming-Ai Li, Ying Li

Multifield Analysis Using Multiple Code Coupling of a MEMS Based Micropump with Biocompatible Membrane Materials for Biomedical Applications 529
Asim Nisar, Nitin Afzulpurkar, Banchong Mahaisavariya, Adisorn Tuantranont

Multivariate Survival Analysis (II): An Overview of Multi-State Models in Biomedicine and Engineering Reliability 534
Zhanshan (Sam) Ma, Axel W. Krings, Robert E. Hiromoto

Numerical Analysis in the Water Flowing Influence on the Temperature Distribution with a Water-Cooled Microwave Ablation Antenna 540
Qun Nan, Yulin Lu, Youjun Liu, Yi Zeng

Simulation Studies on the Dynamics of Insulin-glucose in Diabetic Mellitus Patients 544
Laleh Kardar, Ali Fallah

Single Droplet Evaporation Model in Laser Treatment of PWS in Conjunction with Cryogen Spray Cooling 549
Zhi-fu Zhou, Hui Xin, Bin Chen, Guo-xiang Wang

The Differences of Mechanical Properties of Femur Using Two Material Assignment Methods Based on CT Data 555
Yu Shang, Jing Bai, Liang Peng

The Major Threatening Factors on Approaching Extinction Population of Wild Chinese Alligator 559
Zhanji Gui, Chunbo Xing

Computational Fluid Dynamics Modeling of Intracranial Aneurysms 564
Jialiang Chen, Shengzhang Wang, Wei Yao, Guanghong Ding

Fuzzy Logic based Identification of Operator Functional States Using Multiple Physiological and Performance Measures 568
Jian-Hua Zhang, Xing-Yu Wang, M. Mahfouf, D.A. Linkens

CLINICAL ENGINEERING AND SURGICAL PLANNING

A Open Source Based General Framework for Virtual Surgery Simulation 573
Chunbo Bao, Boliang Wang

A Tool for Finding Possible Explanation for Adverse Drug Reactions Through Drug and Drug Target Interactions 578
Shih-Fang Lin, Ke-Ting Xiao, Yu-Ting Huang, Von-Wun Soo

Determining Photosynthesis Rate Constants in Lake Harapan Penang 583
Teh Su Yean, Koh Hock Lye, Ahmad Izani Md Ismail, Mashhor Mansor

Estimation of Posterior Fossa Volume in Pediatric Patients with Chiari Malformations by the Cavalieri Principle 589
Chunquan Cai, Qingjiang Zhang, Changhong Shen, Weidong Yang, Ouyan Shi

Permeability and Anticataract Effects of a Topical Ocular Drug Delivery System of Disulfiram 594
Siling Wang, Tongying Jang, Zhanyou Wang

Reenginering Clinical Research Teams: An Organizational Modeling Approach 599
Elias Cesar Araujo De Carvalho, Jatin Shah, Anand Shah, Aleksandro Montanha, Ricardo Pietrobon

HEALTHCARE INFORMATION SYSTEMS

An Integration Approach of Healthcare Information System 604
Zhao Chenhui, Duan Huilong, Lu Xudong

A Clustered Real-Time Remote Monitoring System for Out-of-Hospital Cardiac Patients 608
Zhimin Xu, Zuxiang Fang

Building Clinical Data Warehouse for Traditional Chinese Medicine Knowledge Discovery 613
Xuezhong Zhou, Baoyan Liu, Yinghui Wang, Runsun Zhang, Ping Li, Shibo Chen, Yufeng Guo, Zhuye Gao, Hua Zhang

Development of a Human Biorepository Information System at the University of Kentucky Markey Cancer Center 619
Sujin Kim

Dynamic Analysis of Skin Temperature Distribution Exerted by Elastic Pants 624
Ping Xiao, Wen-bin Zhang

I2M^{e}DS: Intelligent Integrated Medical Data System 629
Jason Uher, Dillon Sadofsky, Jong-Hoon Youn, Hesham Ali, Hamid Sharif, Jitender Deogun, Steven H. Hinrichs

Phase Detection Based on the Lock-in Amplifier SR844 and Experiments of Brain Neuron Cells in MIT System 636
Wenwen Liang, Mingxin Qin, Mingke Jiao, Hao Yang, Ke Li, Teng Jiao, Liyuan Bai, Wenyong Wang

Protection of Patient's Privacy and Data Security in E-Health Services 641
Yi Hong, Timothy B. Patrick, Rick Gillis

Semantic-based Web Service Matchmaking Algorithm in Biomedicine 646
Wenjie Li, Wenjing Guo

Artificial Heart Rejects High Tech? Lessons Learned from Non-pulsatile VAD with Straight Impeller Vanes 651
Kun-xi Qian, Ying Ji

BIOMEDICINE IN INDUSTRY AND SOCIETY

Blood Electrolyte Homeostasis of Rat after High-intensive Swimming Training 654
Seol-Hee Jeon, Mun-Young Lee, Shang-Jin Kim, Md. Mizanur Rahmana, Gi-Beum Kim, Jin-Shang Kim, Hyung-Sub Kang

Evaluation of the Human Eye Glare after Strong Exposure 658
Kai Xiong, Zhen Xiang, Jianhong Ge

Structural Elucidation of Three Anthraquinones from a Marine-Derived Mangrove Endophytic Fungus (Isolate 1850).....662
Feng Zhu, Guangying Chen, Xin Chen, Yihua Yuan, Meizhen Huang, Wenzhou Xiang, Huili Sun

Use of Heart Rate Variability Analysis for Quantitatively Assessing Operator's Mental Workload.....666
Jian-Hua Zhang, Xing-Yu Wang, M. Mahfouf, D.A. Linkens

User-Friendly Interface for the Smartphone-based Self Management of Pulmonary Rehabilitation.....671
Oleg Medvedev, Alison Marshall, Alexey Antonov

BIOLOGICAL SYSTEM DYNAMICS AND SIMULATIONS

An Efficient Algorithm for Detecting Closed Frequent Subgraphs in Biological Networks.....675
Jia-yang Peng, Lu-ming Yang, Jian-xin Wang, Zheng Liu, Ming Li

Chaos Detection in the Firing Activities of Retinal Ganglion Cells in Response to Natural Stimuli.....680
Chao-Feng Cai, Ying-Ying Zhang, Xue Liu, Pei-Ji Liang, Pu-Ming Zhang

DEDiscover: A Computation and Simulation Tool for HIV Viral Fitness Research.....685
Hulin Wu, Ongyu Miao, Gregory R. Warnes, Canglin Wu, Alain LeBlanc, Carrie Dykes, Lisa M. Demeter

Genome-Scale Simulation Analysis: The Impact of Gene Deletion on the Metabolic Flux of E.coli and Its Flux-backbone.....693
Xu Zixiang, Xie Jianming, Yang Xinan, Sun Xiao

Mathematical Analysis of Models for Tumour Angiogenesis.....698
Akisato Kubo

North Corridor Economic Region: Bio Ecosystem Analysis.....704
Koh Hock Lye, Teh Su Yean, Zubir Din, Ahmad Izani Md Ismail

Parameter Estimation of Kinetic Rates in Stochastic Reaction Networks by the EM Method.....711
András Horváth, Daniele Manini

Software Based Vision System for Automated Cell Injection.....716
Zhang Yi, Tan KokKiong, Huang Sunan

Simulation of Primary Afferent Synapses in Unmyelinated Nerve Fiber.....721
JunRan Zhang, JiaNan Wang, YiHui Liu, SanJue Hu

Tissue Cell Boundaries Detection based on Curvelet-based Snake Model in Electrorotation Bio-chip Control System.....726
Qihua Yang, Qiang Wang

BIOMEDICAL MATERIALS AND TISSUE ENGINEERING

A Novel Algorithm of Color Tongue Image Segmentation Based on HSI.....731
Jian-qiang Du, Yan-sheng Lu, Ming-feng Zhu, Kang Zhang, Cheng-hua Ding

Insulin Producing Cells Derived from Human Marrow Stromal Cells.....736
Min Zhao, Stephanie A. Amiel, Mohamed Rela, Nigel Heaton, Guo Cai Huang

Morphological Changes of Mesenchymal Stem Cells by Cyclic Stretch 741
Samane Ghazanfari, Mohammad Tafazzoli-Shadpour, Mohammad Ali Shokrgozar, Naser Amirizadeh, Esmael Jafargholi Rangraz

Novel Biomaterial Study I: N, N-Dilong Chain Alkyl Chitosan (NCS) for Self-Assembled Nanovesicle and NCS/PLLA Blend for Tissue Engineering Scaffold 746
Mingchun Li, Meihua Xin, Sheng Su, Wei Gao

Novel Biomaterial Study II: O, O-Dilong Chain Acyl Chitosan (OCS) for Self-Assembled Nanovesicle and OCS/PLLA Blend for Tissue Engineering Scaffold 749
Meihua Xin, Mingchun Li, Yaozu Liao, Jun Deng, Zhiyong Qiao

Osteoinductive Observation for BMP-2 Gene Modification of Mesenchymal Stem Cells Combined with Plasma-sprayed Hydroxyapatite Coating 753
Jiang Wu, Ying-qiang Guo, Guang-fu Yin, Huai-qing Chen, Yunqing Kang

Preparation and Microstructural Characterization of Al2O3/ZrO2 Nanocomposites to Use in the Femoral Head of Hip Replacement 758
Gang Zhou, Soo Wohn Lee, Yubao Li

BIOMEDICAL IMAGING, IMAGE PROCESSING, AND VISUALIZATION (I)

3-D Representation and Volumetric Measurement of Human Heart from a Cylindrical B-Spline Surface Model 763
Ting-ting Jiang, Shengyong Chen, Yiqiang Xu

A Color-coded Virtual Bronchoscopy with Enhanced Efficiency 768
Sang Joon Park, Jin Mo Goo, Sang Ho Lee, Jong Hyo Kim

A Fast 3D Volume Reconstruction for Confocal Micro-rotation Cell Imaging 773
Yong Yu, Alain Trouvé, Bernard Chalmond

A Fast Accuracy Crystal Identification Method Based on Fuzzy C-Means (FCM) Clustering Algorithm for MicroPET 777
Xiaowen Kang, Xishan Sun, Shi Wang, Yaqiang Liu, Yan Xia, Rong Zhou, Zhaoxia Wu, Yongjie Jin

A Fast Approach to Tomographic Reconstruction from a Single Radiograph 781
Chao Huang

A Fast Boundary Tracing Scheme Using Image Patch Classification 785
Weijia Shen, Ashraf A. Kassim, Wang Shih-Chang

A Heuristic Algorithm for Individual Haplotyping with Minimum Error Correction 790
Abdullah Al Mueen, Md. Shamsuzzoha Bayzid, Md. Maksudul Alam, Md. Saidur Rahman

A Knowledge-based Segmentation Method Integrating both Region and Boundary Information of Medical Images 795
Jianwei Dong, Shi Zhang, Lihuang She

A Method for Widening the Range of Force Measurement and Gap Adjustment in the Total Knee Replacement 800
Jian Wu, Ming Zhao, Datian Ye, Guangzhi Wang

A More Robust Method for Multi-modality Medical Image Registration 804
Wang Kai, Tang Jing-tian, Xiao Jia-ying, Tang Yan, Xiao-kai Zhang

A New Approach for Bacillus Colonies Recognition: Application of Intuitionistic Fuzzy Sets Theory 809
Hoda Davarzani

A New Approach for Touching Cells Segmentation 814
Shirin Nasr-Isfahani, Atefeh Mirsafian, Ali Masoudi-Nejad

A New Combining Approach to Localizing the EEG Activity in the Brain: WMN and LORETA Solution.....819
Rafik Khemakkhem, Wassim Zouch, Abdelmailk Taleb-Ahmed, Ahmed Ben Hamida

A New Type of Image-Based Key 823
Bruce Kirchoff, David Remington, Lixin Fu, Fereidoon Sadri

A Novel Method for Extraction of Spleen by Using Thin-plate Splines (TPS) Deformation and Edge Detection from Abdominal CT Images.....828
Xuejun Zhang, Hiroshi Fujita, Tuanfa Qin, Jinchuang Zhao, Yurong Qin, Chao Gao, Liling Long, Zuojun Zhang

A Novel Offline Demosaicing Method for Wireless Endoscope 833
Yongqiang Cheng, Keming Xie

A Relevance Feedback Method in Medical Image Retrieval Based on Bayesian Theory.....838
Quan Zhang, Xiao-ying Tai

A Robust Feature-Based Method for Mosaic of the Curved Human Color Retinal Images 843
Jupeng Li, Houjin Chen, Chang Yao, Xinyuan Zhang

A Semi-automatic Extraction Algorithm of Lung Lobar Fissures from HRCT Images Using Ridgelet.....848
Guodong Zhang, Xin Zhang, Hong Zhao, Peiyu Yan

A Novel Approach for Contrast Enhancement in Biomedical Images Based on Histogram Equalization.....853
Ali Ziaei, Hojatollah Yeganeh, Karim Faez, Saman Sargolzaei

Active Blood Detection in a High Resolution Capsule Endoscopy using Color Spectrum Transformation 857
Yun Sub Jung, Young Ho Kim, Dong Ha Lee, Jong Hyo Kim

Active Contour Model based on Dynamic Extern Force and Gradient Vector Flow.....861
Hongguang Fu, Rongqiu Wu, Weimin Wang, Junhua Yang

OTHER TOPICS IN BIOMEDICAL INFORMATICS

A Parallel Biomedical Data Transportation Component and its Application 866
Kun Wang, Zhihui Du, Sanli Li

A Theoretical Study on the Critical Difference between the Mechanism of DNA Alkylation by Nitrosamines and Nitrosoureas.....871
Lijiao Zhao, Rugang Zhong, Yan Zhen

ALPHASUM: A Score Matrix Based on Low Identity All-alpha Proteins.....876
Hai Song Xu, Wen Ke Ren, Xiao Hui Liu, Xiao Qin Li

BioRL: An XML-based Active Rule Language for Biological Database Constraint Management 881
Huaqin Xu, Ying Jin

Complementary use of Fuzzy Decision Trees and Augmented Fuzzy Cognitive Maps for Decision Making in Medical Informatics 886
E.I. Papageorgiou, N.I. Papandrianos, D. Apostolopoulos, P. Vassilakos

Design and Evaluation of a 16S rRNA Gene-based Oligonucleotide Micrroarray for Identification of Plant Associated Beneficial Bacteria (PABB).....891
Zhengqiu Cai, Lei Sun, Jigang Han, Menghong Yan, Wei Song, Zhaobiao Guo, Yu Wang, Ruifu Yang

Direction Finding Signage System using RFID for Healthcare Applications 898
Nitin Sharma, Jong-Hoon Youn, Neeraj Shrestha, Hesham H. Ali

Heterogeneous Medical Data Share and Integration on Grid.....903
Ran Zheng, Hai Jin, Qin Zhang, Yingshu Liu, Pan Chu

Human GITRLaa50-177 Expressed in Bac-to-Bac Baculovirus Expression System.....908
Li Tang, Sheng-Jun Wang, Chao-Ming Mao, Jun Chen, Zheng-Jun Hu, Jun-Feng Bao, Qi-Xiang Shao, Hua-Xi Xu

NutriGeneOntology: A Biomedical Ontology for Nutrigenomics Research.....913
Antonio Fabregat, María Arregui, Elisabet Barrera, Olga Portolés, Dolores Corella, Oscar Coltell

Structuralization of Digestive Endoscopic Report Based on NLP.....918
Ying Li, Junjie Li, Huilong Duan, Xudong Lu

BIOMEDICAL IMAGING, IMAGE PROCESSING, AND VISUALIZATION (II)

An Algorithm Based on Girth-location for MR Head Image Segmentation.....922
Jun Wu, Xiaolin Tian

Analysis on Gender of Silkworms by MRI Technology.....927
Cong Liu, Zhao Hui Ren, Hong Zhi Wang, Pei Qiang Yang, Xue Long Zhang

Automatic Segmentation of Micro-calcification Based on SIFT in Mammograms.....932
Qiu Guan, Jianhua Zhang, Shengyong Chen, Andrew Todd-Pokropek

Automatic Segmentation of Nasopharyngeal Carcinoma from CT Images.....937
Panrasee Ritthipravat, Chanon Tatanun, Thongchai Bhongmakapat, Lojana Tuntiyatorn

Automatic Thresholding of Micro-CT Trabecular Bone Images.....942
Yongping Zhang, Zhongkun He, Shaojing Fan, Kejia He, Chen Li

Breast Tumor Identification in Ultrasound Images Using the Normalized Cuts with Partial Grouping Constraints.....947
Shao-Yu Chen, Herng-Hua Chang, Shuo-Hui Hung, Woei C. Chu

Cognitive Approach to Medical Pattern Recognition, Structure Modelling and Image Understanding.....952
Lidia Ogiela, Ryszard Tadeusiewicz, Marek R. Ogiela

Color and Position versus Texture Features for Endoscopic Polyp Detection.....957
Luís A. Alexandre, Nuno Nobre, João Casteleiro

Combination of Local Invariants with an Active Shape Model.....962
Jianhua Zhang, S.Y. Chen

Comparison between Voxel-based Morphometry and Volumetric Analysis in Schizophrenia.....967
Jing Zhang, Monte S. Buchsbaum, Kingwai Chu, Erin A. Hazlett

Comparisons between Circle and Structural Models in Lung Ventilation Reconstruction by Electrical Impedance Tomography.....972
Xiaoyan Chen, Huanxiang Wang, Xiaolei Shi, Li Hu

Computerized Segmentation and Classification of Breast Lesions Using Perfusion Volume Fractions in Dynamic Contrast-enhanced MRI.....977
Sang Ho Lee, Jong Hyo Kim, Jeong Seon Park, Jung Min Chang, Sang Joon Park, Yun Sub Jung, Woo Kyung Moon

Conductivity Reconstruction of Brain Edema Based on Improved Adaptive Genetic Algorithm.....982
Jicheng Liu, Kama Huang , Yayi Hu, Qing Chen

CT Image Processing and Medical Rapid Prototyping.....986
Jiman Han, Yi Jia

Feasibility of Imaging Photoplethysmography.....991
Jia Zheng, Sijung Hu, Vassilios Chouliaras, Ron Summers

Fluorescent Optical Imaging of Small Animals Using Filtered Back-projection 3D Surface Reconstruction Method.....995
Gang Hu, Junjie Yao, Hao Li, Jing Bai

Imaging of Calcium Oscillation in Mouse Oocyte/zygote by Two Photon Laser Scanning Microscopy.....1000
Pengfei Wang, Jianhua Fu, Wanyun Ma, Dieyan Chen, Danyu Lv, Rui Chen, Wenjia Bai

In Vivo Proton Magnetic Resonance Spectroscopic Study of the Healthy Chinese Adult Pons.....1004
J.T. Guan, X.H. Xu, Y.Q. Geng, X.J. Yu, R.H. Wu

Intelligent Vision Processor.....1009
John Morris, Georgy Gimel'farb, Hani Akeila, Robert Mckay, Jack Woon

Investigating the Intrinsic Differences in Flank Regions of Exon-Intron Junction Sites.....1015
Sing-Wu Liou, Yin-Fu Huang

IRVR Algorithm: A New Volume Rendering Accelerating Method Based on Image Recognition.....1021
Yuanlie He, Ping Chen

Knowledge-Guided Semantic Indexing of Breast Cancer Histopathology Images.....1026
Adina Eunice Tutac, Daniel Racoceanu, Thomas Putti, Wei Xiong, Wee-Kheng Leow, Vladimir Cretu

Local Elastic Registration of Multimodal Medical Image Using Robust Point Matching and Compact Support RBF.....1032
Xuan Yang, Zhixiong Zhang, Ping Zhou

Lymphocyte Tracking and Shape Changing Analysis.....1037
Chuanfeng Lv, Xing An, Juan Xiang, Zhiwen Liu

Magnetic Resonance Imaging and Diffusion Weighted Imaging Appearance of Cerebellar Liponeurocytoma.....1042
J.T. Guan, G. Guo, Y.Q. Geng, X.H. Xu, X.J. Yu

Medical Image Categorization Based on Gaussian Mixture Model.....1047
Dong Yin, Jia Pan, Peng Chen, Rong Zhang

Medical Image Registration Based-on Points, Contour and Curves.....1051
Peng Wen

Medical Image Segmentation based on a 3D-MRF.....1056
Zhou Zhenhuan

Medical Image Segmentation Based on Topology Correlation of Regions.....1061
Jianmin Dong, Mingquan Zhou

Methodological Approach to Reducing Speckle Noise in Ultrasound Images.....1066
Antonio Fernández-Caballero, Juan L. Mateo

Model and Simulation for Three-dimensional Medical Image Reconstruction of Spiral CT.....1074
Feng-rong Sun, Yan-ling Li, Ze Liu, Xiao-hong Qin, Jun-qing Geng,Yan-ping Zhang, Gui-hua Yao, Yun Zhang

MRI-Based Patient-Specific Computational Modeling of Right Ventricular Response to Pulmonary Valve Insertion Surgery: A Passive Anisotropic FSI Model with Fiber Orientation 1079
Chun Yang, Dalin Tang, Tal Geva, Pedro J. del Nido

MRTI-Based Optimization and Real-Time Laser Surgical Control for Cancer Treatment Using Fast Inverse Analysis Techniques 1087
Yusheng Feng, David Fuentes, Andrea Hawkins, J. Tinsley Oden

Multi-Channel Impedance Technology for Mapping and Monitoring of Cardioactivity 1092
Sergey I. Schookin, Larisa P. Safonova, Igor K. Sergeev, Oleg S. Medvedev

Multi-Channel Wavelet-Based Diffusion Method for Denoising DTI Images 1097
Xiangfen Zhang, Hong Ye, Hongmei Zhang

Multimodality Medical Image Registration Using Hybrid Optimization Algorithm 1102
Hanling Zhang, Fan Yang

Multi-step 3D/2D Image Registration for Image-guided Spinal Surgery 1107
Yi Zhang, Manning Wang, Zhijian Song

Neural Network Diagnosis System for 3-Dimensional Ultrasonography with Gabor Filter Aided Speckle Decorrelation 1112
Wei-Ming Chen, Chi-Hsiang Lo, Han-Chieh Chao, Chun Cheng Chang, Dar-Ren Chen

Nonlinear Dynamics Techniques for the Detection of the Brain Areas Using MER Signals 1117
Andrea Rodríguez-Sánchez, Edilson Delgado-Trejos, Álvaro Orozco-Gutiérrez, Germán Castellanos-Domínguez, Enrique Guijarro-Estellés

Novel Algorithm for Distortion Correction of Image Intensifier in X-ray Angiography System 1122
Yingchao Li, Yongtian Wang, Jian Yang, Yanhui Li

Pre-Processing of CT Brain Images for Content-Based Image Retrieval 1127
Fei Peng, Kehong Yuan, Shu Feng, Wufan Chen

Pulmonary Tumor Volume Detection from Positron Emission Tomography Images 1132
Aparna Kanakatte, Nallasamy Mani, Bala Srinivasan, Jayavardhana Gubbi

Pulse Signals Detection by Digital Image Correlation 1137
Zhang Aihua, Li Yongping, Yu Dong, Guo Weigang

Real-time Observation of Intracellular Calcium Changes in GSNO-induced Mouse Thymocyte Early Apoptosis 1142
Xiaochen Liu, Danying Lin, Wanyun Ma

ROI Boundary Detection Based on Geometric Active Contour Model in X-ray Skeletal Image 1147
Chuangxin Wang, Yiyan Ye, ZhongYun Lie

Segmentation of CT Head Images 1152
Tong Hau Lee, Mohammad Faizal Ahmad Fauzi, Ryoichi Komiya

Segmentation of the Left Ventricle from Cardiac MR Images Based on Radial GVF Snake 1157
Jia Liang, Gangyi Ding, Yuwei Wu

Survival of Rats with N29 Brain Tumours after Irradiation with 5 or 15 Gy and Immunization with IFN-gamma Secreting Tumour Cells 1162
Bertil R.R. Persson, Catrin BaurÃ©us Koch, Gustav GrafstrÃm, Crister Ceberg, Per Munck af RosenschÃld, Bengt Widegren, Leif G. Salford

Texture Analysis of Ultrasonic Liver Image Based on Wavelet Transform and Probabilistic Neural Network 1167
Yali Huang, Lanxun Wang, Caixia Li

Texture Characteristic Extraction for Dominant Directions in Content-based Medical Image Retrieval 1172
Gang Zhang, Z.M. Ma, Ying He, Tie-Nan Zhao

Texture Characteristics for Classification of the Ultrasonic Images of Roator Cuff Disease 1177
Ming-Huwi Horng

Texture Feature based Automated Seeded Region Growing in Abdominal MRI Segmentation 1182
Jie Wu, Skip Poehlman, Michael D. Noseworthy, Markad V. Kamath

The Evaluation of Wavelet and Data Driven Feature Selection for Image Understanding 1187
Liu Jinshuo, Zhang Dengyi, Liu Siwen, Fang Ying, Zhang Ming

The Scale-rate as the Measure of Local Complexity of Medical Images 1191
Xiaodong Zhuang, Hui Zhu, Liyan Xu

Two-dimensional Imaging and Tracking of Single Quantum dot-FRET 1196
Jiamin Li, Danying Lin, Wanyun Ma

Ultrasound Pulse-Echo Imaging with an Optimized Propagator 1200
Lianjie Huang, Youli Quan, Cuiping Li, Neb Duric, Kenneth M. Hanson

Visual Enhancement for Sentinel Lymph Node Mapping in Breast Cancer by Multiple Display Formats of SPECT/CT Images 1205
Jia-Yann Huang, Pan-Fu Kao, Yung-Sheng Chen

Visualization Enhancement of Arthrosis Tissues Structure in Ultrasound Image Based on Improved Diffusion 1209
Wei Wang, Yang Liu, Yingxia Shen, Baowei Liu, Yanjun Shi, Ping Gao, Yuerong Wang

Wavelet Transform Application in: Time Frequency Enhancement for Ventricular Late Potential Better Detection 1214
Saeid Rahati, Ghasem Sadeghy Bajestani, Homa Falsoleiman, Alireza HeidariBokavi

Wavelet-Based Medical Image Registration for Retrieval Applications 1220
Azhar Quddus, Otman Basir

BIOMEDICAL SIGNAL PROCESSING AND ANALYSIS

Automatic Detection of QRS Complexes using Quantum Neural Networks 1225
Wang Shuyan

A Comparative Study on the Fretting Behaviors of Human Femur Compact Bone under Tangential and Radial Fretting Models in vitro 1229
Cai Zhenbing, Zhu Minhao, Yu Haiyang

A Comparative Study to Extract the Diaphragmatic Electromyogram Signal 1234
Yaosheng Lu, Ying Xian, Jiongfeng Chen, Zeguang Zheng

A High Efficient Quality Control Strategy for Wavelet-Based ECG Data Compression System 1239
Cheng-Tung Ku, King-Chu Hung, Huan-Sheng Wang

A Hybrid Framework for ECG Interpretation by Computer and its Evaluation Platform 1243
Jianwei Dong, Shi Zhang, Yapeng Wan

A Multiscale Approach for Surface-enhanced Raman Spectroscopy (SERS) Spectrum Representation and its Application to Bacterial Discrimination 1247
Tsung-Heng Tsai, Ting-Ting Liu, Yung-Ching Huang, Yu Chen, Tian-Jiun Liu, You-Hsuan Lin, Yuh-Lin Wang, Juen-Kai Wang, Da-Wei Wang

A Practical Approach to Wrist Pulse Segmentation and Single-period Average Waveform Estimation 1253
Chunming Xia, Yan Li, Jianjun Yan, Yiqin Wang, Haixia Yan, Rui Guo, Fufeng Li

A Simulation Model for Doppler Ultrasound Signals from Pulsatile Blood Flow in Stenosed Vessels 1258
Lifang Wang, Yufeng Zhang, Dingkang Wang, Nafeng Su, Chengyan Du

A Study of the Relationship between Two Musical Rhythm Characteristics and Heart Rate Variability (HRV) 1263
Shih-Hsiang Lin, Yu-Chieh Huang, Ching-Yen Chien, Yi-Cheng Chen, Lei-Chun Chou, Sheng-Chieh Huang, Ming-Yie Jan

Absolute Quantification of Swine Brain Glutamate Compounds Concentration using MR Spectroscopy and LCModel after Nasal Spraying Butorphanol Tartrate 1267
J.L. Wu, T. Liu, Y. Lin, Z.W. Shen, Y.W. Miao, R.H. Wu, Z.J. Lang

Analysis of EEG Data Using an Adaptive Periodogram Technique 1272
Qihou Zhou, Matthew Brenneman, Jade Morton

Atrial Activity Detection through a Sparse Decomposition Technique 1277
Simão Paredes, Teresa Rocha, Paulo de Carvalho, Jorge Henriques

Brain Y-Aminobutyric Acid Detection with Improved Selectivity by Double Quantum Filter Technique 1282
Hui Wang, Tian-yu Tang, Yun Jiao, Zu-hong Lu, Ren-hua Wu

Cardiac Arrhythmia Detection based on Signal Variation Characteristic 1286
Chusak Thanawattano, Surapol Tan-a-ram

Classification of Elbow Electormyography Signals based on Directed Transfer Functions 1290
Rhonira Latif, Saeid Sanei, Kianoush Nazarpour

Classification of Surface EMG Signal Based on Energy Spectra Change 1294
Xiao Hu, Ping Yu, Qun Yu, Waixi Liu, Jian Qin

Combining Energy and Wavelet Transform for Epileptic Seizure Prediction in an Advanced Computational System 1299
Bruno Direito, António Dourado, Marco Vieira, Francisco Sales

Conductivity Analysis for High-Resolution EEG 1305
Sergei I. Turovets, Pieter Poolman, Adnan Salman, Allen D. Malony, Don M. Tucker

Detecting Effective Connectivity in Human Brain using Granger Causality 1313
Zhenyu Zhou, Yun Jiao, Tianyu Tang, Zuhong Lu, Yijun Liu, Yonghong Chen, Mingzhou Ding

Detecting Well-Harmonized Homeostasis in Heart Rate Fluctuations 1318
Yuo-Hsien Shiau

Detection of Long Term Variations of Heart Rate Variability in Normal Sinus Rhythm and Atrial Fibrillation ECG Data 1323
Desok Kim, Yunhwan Seo, Woo Ram Jung, Chan-Hyun Youn

Detrended Fluctuation Analysis of Heartbeat Interval Signal: Alternans Lowers the Scaling Exponent of Heartbeat Fluctuation Dynamics in Animal Models and Humans 1328
Toru Yazawa, Katsunori Tanaka, Tomoo Katsuyama

Different Approaches for Linear and Non-linear ECG Generation 1334
Saeedeh Lotfi Mohammad Abad, Nader Jafarnia Dabanloo, Mohammadreza Mohagheghi

Dynamic Epicardial Mapping Using 3D Emulation 1339
Weijia Lu, Tuo Zhou, Cuiwei Yang, Zuxiang Fang

Electrode Structure Optimum for Impedance Measurement of Intraoperative Breast Cancer Focus 1344
Chao Wang, Hong-bin Chen, Da-li Du, Ya-su Xiao, Hong-jun Sun

Estimation of Arterial Wall Moving Velocities by Application of Hilbert-Huang Processing to Continuous Wave Doppler Ultrasound Signals: A Simulation Study 1349
Nafeng Su, Yufeng Zhang, Lifang Wang, Chengyan Du

Feature Extraction of EEG Signals Using Power Spectral Entropy 1354
Aihua Zhang, Bin Yang, Ling Huang

Independent Component Analysis of Event-related Functional Near-infrared Spectroscopy (fNIRS) 1359
Yun Jiao, Zhenyu Zhou, Hui Wang, Hongyu Yang, Zongcai Ruan, Hui Gong, Zuhong Lu

Microbubble Suspensions Prepared via Electrohydrodynamic Jetting Process 1364
Yang Li, Jun Li, Hongbo Zhang, Yongsheng Su

Microelectrode Signals Segmentation Using Stationary Wavelet Transform 1369
Cristian Guarnizo, Alvaro Orozco, German Castellanos

Mixing Frequency Bio-impedance Measurement Technology based on DFT and Virtual Reference Vector 1374
Wang Chao, Huang Chunyan, Zhang Xiaoli, Wang Huaxiang

Modeling the Dynamics of the Human Pulse Data by MDL-optimal Neural Networks 1379
Yingnan Ma, Yi Zhao, Youhua Fan, Hong Hu, Xiujun Zhang

Monte Carlo Simulations of Diffusely Backscattered Polarization Patterns for Turbid Media with Birefringence 1383
Yinqi Feng

Multi-Class EEG Classification for Brain Computer Interface based on CSP 1388
Tang Yan, Tang Jingtian, Gong Andong

Myocardial Ischemia Detection by Pulse Signal Features and Fuzzy Clustering 1392
Kang-Ming Chang, Zhi-Zhong Lin, Shing-Hong Liu, Chu-Chang Tyan

Phase Locking Analysis of Motor Imagery in Brain-Computer Interface 1397
Jianfeng Hu, Zhendong Mu, Jinli Wang

Primary Study on Dielectric Property Detection for Cerebral Haematoma 1401
Wang Chao, Zhang Ming, Wang Xiang-yu, Wu Dong-yue, Wang Hua-xiang

Short Term Analysis of Long Term Patterns of Heart Rate Variability in Subjects under Mental Stress 1406
Desok Kim, Yunhwan Seo, Sook-hyun Kim, Suntae Jung

Signal Processing Based for Fetal Electrocardiogram Extraction 1411
Saman Sargolzaei, Karim Faez, Arman Sargolzaei

Signal Separation for Non-invasive Monitoring of Foetal Heartbeat 1416
R. Acharyya, Neil Scott, Eberhard Deuss, Paul Teal, Jurgen Flierl

Speech Visualization based on Locally Linear Embedding (LLE) for the Hearing Impaired 1421
Wang Xu, Xue Lifang, Yang Dan, Han Zhiyan

Speech Visualization based on Robust Self-organizing Map (RSOM) for the Hearing Impaired 1425
Wang Xu, Xue Lifang, Yang Dan, Han Zhiyan

Speckle Noise Reduction of Ultrasound Images Using M-band Wavelet Transform and Wiener Filter in a Homomorphic Framework 1429
Arash Vosoughi, Mohammad Bagher Shamsollahi

Study on EEG Time Series Based on Duffing Equation 1435
Ye Yuan,Yue Li

The Future of Automatic EEG Monitoring in the Intensive Care 1439
Beena Ahmed, Reza Tafreshi, Reza Langari

The Combination of Amplitude and Sample Entropy in EEG and its Application to Assessment of Cerebral Injuries in Piglets 1444
Zhang Dandan, Ding Haiyan, Hou Xinlin, Liu Yunfeng, Zhou Congle, Ye Datian

The Pretreatment Method for Epicardial Potential Mapping Signals Based on Independent Component Analysis and Wavelet Transform 1449
Yu Zhou, Cuiwei Yang, Zuxiang Fang

Use of PM Bearings in Permanent Maglev Centrifugal Pumps for Stability Investigation 1454
Kun-xi Qian, Teng Jing

Wavelet Based Analysis of Doppler Ultrasonic Wrist-pulse Signals 1458
Dongyu Zhang, Lei Zhang, David Zhang, Yongping Zheng

BIOMEDICAL SENSORS, DEVICES, INSTRUMENTATION, ARTIFICIAL ORGANS, AND NANO- TECHNOLOGIES

A Method for Extracting 3D Information of Cylinder in C-arm Image 1463
Jian Wu

A Novel Electrical Field Bioreactor for Wound Healing Study 1467
Gang Yang, Haiyan Long, Jiang Wu, Hua Huang

A Portable Intelligent ECG Monitor Based on Wireless Internet and Embedded System Technology 1472
Jianwei Dong, Shi Zhang, Xiaonan Jia

An Electromagnetic Chip for Microfluidic Manipulation of Ferromagnetic Microparticles 1476
Kang Wang, Yi Sun, Xiansong Wang, Juan Feng, Xuemei Ma, Yi Zeng

Automatic Segmentation of Optic Nerve Fibers 1480
Zhao Ximei, Wu Jinyan, Ren Qiushi, Zhou Guomin

Bilateral Foot Center of Pressure during Trunk Forward Bending and Reaching 1485
I-Fang Tseng, Jen-Suh Chern

Biological Sensor System Design for Gymnasium Indoor Air Protection 1491
Hui Xie, Fei Ma, Huifang Fan, Baoyu Shen

Closed-Form Expression of the SAR Distribution in a Multilayered Planar Model for Shortwave Inductive Diathermy 1496
Saverio Cristina, Mauro Parise

Considerations for Improving the Performance of Surface Plasmon Resonance Biosensors 1502
Zhang Yingying, Lai Jiancheng, Wang Chunyong, Li Zhenhua

Control System of an Electrical Treatment Chair for E.N.T. Doctor 1509
Rongguo Yan, Anmin Peng, HaiMing Xie, Bin Ge, Zhaoyan Hu

Design and Analysis of a High Sensitive Microcantilever Biosensor for Biomedical Applications 1512
Mohd. Zahid Ansari, Chongdu Cho

Design of Pre-processing Circuit for Wireless ECG Monitoring System 1517
Jie Zhu, Nini Rao, Dasong Liang, Wei Chen

Design of the Implantable Artificial Lung using Computational Fluid Dynamics 1522
Gi-Beum Kim, Mun-Yong Lee, Seol-Hee Jeon, Md. Mizanur Rahman, Woo-Suk Chong, Min-Ho Kim, Seong-Jong Kim, Suck-Ju Yoon, In-Shick Kim, Jin-Shang Kim, Hyung-Sub Kang, Chul-Un Hong

Development of Epicardial Mapping System for Studying Atrial Fibrillation 1525
Cuiwei Yang, Weijia Lu, Tuo Zhou, Xiaomei Wu, Zuxiang Fang

Development of Precise-temperature-controlled Cooling Apparatus for Medical Application by Using Peltier Effect 1529
Shigenao Maruyama, Atsuki Komiya, Hiroki Takeda, Setsuya Aiba

Evaluation of Hematocrit Measurement Using Spectral Domain Optical Coherence Tomography 1534
Xiangqun Xu, Zhongping Chen

Fiber-optic Nanoprobe Measurement of Intracellular pH in Single CA46 Cell Using pH-dependent Dye 1538
Na Fang, Yishen Qiu, Zhihao Chen, Qinmiao Chen, Qinghong Lu

Heme Oxygenase Induction Confers Cellular Adaptive Response against Multi-walled Carbon Nanotubes-induced Cytotoxicity in A549 Cell 1543
Liming Zhong, Shefang Ye, Yihui Wu, Qiqing Zhang

Implementation of Hardwired Distributive Tactile Sensing for Innovative Flexible Digit 1548
Mohamad Iskandar Petra, David Holding, Peter Brett

Insect Population Inspired Wireless Sensor Networks: A Unified Architecture with Survival Analysis, Evolutionary Game Theory, and Hybrid Fault Models 1555
Zhanshan (Sam) Ma, Axel W. Krings

Microdevice for Continuous Isolation of Plasma from Whole Blood 1563
Xing Chen, Dafu Cui, Lulu Zhang

Multispectral Imaging System Applied to Element Testing of Biology 1567
Zhao Jing, Pang Qichang, Ma Ji, Zheng Xiwen, Meng Qingxia

On Determining the Projected Sphere Center and Its Application in Optical Tracking Systems 1571
Yinqiang Zheng, Yuncai Liu

Optical Manipulation of Azimuthally Polarized Beam Altered by Phase Plate 1576
Xiumin Gao, Song Hu, Jian Wang

Piezoelectric Single Crystals of Pb(Mg1/3Nb2/3)O3-PbTiO3 and their Applications in Medical Ultrasonic Transducers 1581
Dan Zhou, Jing Chen, Haosu Luo

Portable ECG Measurement Device based on MSP430 MCU 1586
Hong Ming, Zhang Yajun, Hu Xiaoping

Preparation and Evaluation of Polyactin Microparticles from Supercritical CO2 Processing 1591
Jianhong Bi, Jinglan Zhao, Lang Bao, Yan Liu, Caosong Wu

Research and Exploit on PCR Apparatus 1595
Weihua Zhao, Min Zhang, Yan Li, Chong Tang

Research on the DDS' CPLD Control to Generate Special Band Signal 1600
Shi Yu Yan, Ji Zhou Li

Study and Computer Aided Analysis on a New Biomedical Auto-Suture Apparatus 1604
Jeremy (Zheng) Li, Sharon Wang

Theoretical Analysis of T-lymphocytes Electroporation Model.....1607
Jianjun Chen, Xianqing Luo, Jun Wang, Honghua Liao, Wenli Zhou, Ling Zhang, Heyou Han, Jun Yu

The Analysis of Chemotherapy Resistance in Human Non-small Cell Lung Cancer Cell Line with an Integrated Microfluidic Device.....1610
Siyan Wang, Lichuan Zhang, Li Jiang, Bingcheng Lin, Qi Wang

The Primary Mechanism of Photoexcited TiO2 Nanoparticles-induced Apoptosis in Human Hepatoma Bel-7402 Cells.....1617
Chun-Hui Xia, Wen-Xue Yu, Bai-Qi Wang, Yu Wang, Lu Wang

Tunable Optical Trap Induced by Focal Shift and Focal Switch in a Focusing Apodized Optical System.....1622
Xiumin Gao

INVITED SESSION: CANCER IMAGING AND TISSUE CHARACTERIZATION

Breast Imaging Using Transmission Ultrasound: Reconstructing Tissue Parameters of Sound Speed and Attenuation.....1627
Cuiping Li, Neb Duric, Lianjie Huang

Breast Imaging with Ultrasound Tomography: Clinical Results at the Karmanos Cancer Institute.....1632
Neb Duric, Cuiping Li, Carri Glide-Hurst, Peter Littrup, Lianjie Huang, Jessica Lupinacci, Steven Schmidt, Olsi Rama, Lisa Bey-Knight, Yang Xu

Measurements of Radiation-Induced Skin Changes in Breast-Cancer Radiation Therapy Using Ultrasonic Imaging.....1637
Tian Liu, Jun Zhou, K. Sunshine Osterman, Pengpeng Zhang, Shermian A. Woodhouse, Peter B. Schiff, Gerald J. Kutcher

Transmission and Reflection Diffraction Tomography in Breast Imaging.....1642
Francesco Simonetti, Lianjie Huang, Neb Duric

INVITED SESSION: THE PROCESSING AND ANALYSIS OF MULTIPLE BRAIN MAGNETIC RESONANCE (MR) IMAGING DATA

Improved Warping of Diffusion Tensor Fields Free of Artifacts.....1647
Dongrong Xu, Bradley S. Peterson

Respiratory Noise Correction Using Phase Information.....1652
Hu Cheng, Yu Li

INVITED SESSION: STATISTICAL ANALYSIS OF MEDICAL IMAGES

An Efficient Permutation Approach for Classical and Bioequivalence Hypothesis Testing of Biomedical Shape Study.....1656
Chunxiao Zhou, Yongmei Michelle Wang

Decision Thresholds in Functional MR Image Analysis.....1661
Michelle Liou, Hong-Ren Su, Arthur C. Tsai

Group Independent Component Analysis of Multi-subject fMRI Data: Connections and Distinctions between Two Methods.....1667
Ying Guo

On Image Registration in Magnetic Resonance Imaging 1672
Peihua Qiu, Tram Nguyen

INVITED SESSION: RECENTLY DEVELOPED STATISTICAL METHODOLOGIES IN MEDICAL IMAGING STUDIES

A Family of Nonparametric Statistics for LROC Curves 1677
Liansheng Tang

Assessment of Three-class Diagnostic Tests when Disease Verification is Subject to Selection 1682
Yueh-Yun Chi

Logit-transformation Based Confidence Intervals for the Sensitivity of a Continuous-scale Diagnostic Test 1687
Jihye Kim, Gengsheng Qin

An Application of a Theorem of Johnstone and Forrester to Testing for Familial Aggregation 1692
Yixin Fang

BIOMEDICAL ROBOTICS AND MECHANICS

Neural Network Control for Tele-rehabilitation Robot based on Variable Gain 1697
Guo Xiaobo, Song Aiguo, Zhai Yan

Small Robotic Assistant for Knee Surgery in Laboratory 1702
Wenqiang Zhang, Xuemei Huang

The Design of Bionic Joints: A Lesson from Synovial Joints 1707
Zhao Danpu, Wu Dan, Yi Qiang, Nie Chenghui, Chen Ken, Xu Leon, Salo Antti, Wang Xia

ELECTROTHERAPY AND RADIOTHERAPY

Deformation Design Technology of Dental Restoration Model 1712
Ning Dai, Xiao-Sheng Cheng, Wen-He Liao, Qing Yu, Yong Wang, Pei-Jun Lü, Quan-Ping Sun

Development of an Electroporation System for Preclinical Use 1717
Jeong Han Yi, Hyung Sik Kim, Hong Bae Kim, Saeyoung Ahn, and Youn-Suk Choi

Front-end Electronics Design based on Vernier Method for a High Resolution MicroPET 1719
Xiaowen Kang, Yaqiang Liu, Xishan Sun, Shi Wang, Yan Xia, Zhicheng Zhang, Zhaoxia Wu, Yongjie Jin

The Moving Target Induced Dosimetric Effect vs. Beam Direction in Proton Radiotherapy of Moving Lung Tumors 1723
Li Zhao, George Sandison, Jonathan Farr, Huanmei Wu, Markus Fitzek

REHABILITATION ENGINEERING

Analysis of Changes in Muscle Length of Lower Limbs during High-heeled Walking Based on the Musculoskeletal Model 1728
Jongsang Son, Hueseok Choi, Youngho Kim

Enzymatic Synthesis of ß-D-2', 3'-unsaturated-5-fluorocytidine by Whole Cell of Lactobacillus helveticus 1732
Yan Zheng, Li-Min Zhu, Na Qi, Bo Jiang

Joint Kinetics and Lumbar Curvatures during Symmetric Lifting: Squat and Stoop 1737
Seonhong Hwang, Youngeun Kim, Youngho Kim

OTHER TOPICS IN BIOMEDICAL ENGINEERING

A Computer Aided Diagnosis System in Mammography Using Artificial Neural Networks 1742
Guodong Zhang, Peiyu Yan, Hong Zhao, Xin Zhang

A Method Combining Review and Testing for Verifying Software Systems 1746
Yuting Chen, Shaoying Liu, W. Eric Wong

A Project-based Assessment for Introductory Bioinformatics Course – An Assessment Aimed to Reinforce Students' Ability in Data Analyses Interpretation and Integration 1751
Lynn Farh, Shyan-Jer Lee

Antibiotic Susceptibility of Potential Probiotic Lactobacilli Isolated from the Vagina of Chinese Pregnant Women 1757
Hengyi Xu, Wanhong Tian, Lijun Jia, Bocai Cheng, Hua Wei, Lanyin Wang, Cuixiang Wan, Ming Zeng

Care Policy for Patients with Dementia: Family's Decision and Its Impact 1762
Michihiko Koeda, Takeo Shibata, Kunihiko Asai, Yoshiro Okubo, Hiroshi Tanaka

Caspase-8 Regulates Caspase-3 and Rb Respectively in Fas- and Actinomycin D-Mediated Apoptosis Pathway in Human Hepatoma Bel-7402 Cells 1767
Yu Wang, Liguang Sun, Chunhui Xia, Liping Ye, Biao Wang

Comparison of ESI-MS Spectra in MassBank Database 1772
Hisayuki Horai, Masanori Arita, Takaaki Nishioka

Correlation between Child-Pugh Degree and the Four Examinations of Traditional Chinese Medicine (TCM) with Liver Cirrhosis 1777
Wang Yan, Ma Lizhuang, Liao Xiaowei, Liu Ping

Effects of Retinoic Acid-induced PKC-d on the Insulin Like Growth Factor-I (IGF-I)System is Involved in Reactive Oxygen Species (ROS) in MCF-7 Cells 1782
Young-Il Oh, Sang-Hoon Kim, Jong-Hoon Kim, Chang-Won Kang

Fitting Curve Passing through Designated Point to Data for Promoting the Reproducibility of Peripheral Quantitative Computed Tomography (pQCT) 1786
Lianwen Sun, Tian Xie, Yubo Fan, Chi Zhang

Foot/Ankle Roll-Over Characteristics for Different Joint Alignments of the Ankle-Foot Orthosis(AFO) during Level Walking 1791
Hueseok Choi, Youngho Kim

Relative Power Percentage and Time-Power Percentages Map Analysis of Electrogastrogram Slow Waves 1794
Peng Cheng, Ye Datian

The Process Data Driven Workflow Modeling Approach and itsâ€™ Implementation on Medical Infection Control Process 1798
Huang Zhengxing, Lu Xudong, Duan Huilong, Yin Dengfeng

Toxicity Study of Oral Vanadyl Sulfate by NMR-based Metabonomic 1802
Xiaoxia Dai, Jiyang Dong, Zhong Chen, Qiqing Zhang

Author Index