PROCEEDINGS OF
THE 2011 INTERNATIONAL CONFERENCE ON
BIOINFORMATICS & COMPUTATIONAL BIOLOGY

BIOCOMP 2011

Volume I

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WORLDCOMP'11
July 18-21, 2011
Las Vegas Nevada, USA
www.world-academy-of-science.org

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ISBN: 1-60132-170-8, 1-60132-171-6 (1-60132-172-4)
Printed in the United States of America

CSREA Press
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Foreword

It gives us great pleasure to introduce this collection of papers to be presented at the 2011 International Conference on Bioinformatics and Computational Biology (BIOCOMP'11), July 18 through 21, 2011, at Monte Carlo Resort, Las Vegas, USA.

The Academic Co-Sponsors of this year's conference include:
The Berkeley Initiative in Soft Computing (BISC), University of California, Berkeley, USA; Biomedical Cybernetics Laboratory, HST of Harvard University and Massachusetts Institute of Technology (MIT), USA; Intelligent Data Exploration and Analysis Laboratory, University of Texas at Austin, Austin, Texas, USA; Collaboratory for Advanced Computing and Simulations (CACS), University of Southern California, USA; Minnesota Supercomputing Institute, University of Minnesota, USA; Knowledge Management & Intelligent System Center (KMIS) of University of Siegen, Germany; UMIT, Institute of Bioinformatics and Translational Research, Austria; BioMedical Informatics & Bio-Imaging Laboratory, Georgia Institute of Technology and Emory University, Atlanta, Georgia, USA; Hawkeye Radiology Informatics, Department of Radiology, College of Medicine, University of Iowa, Iowa, USA; NDSU-CIIT Green Computing and Communications Laboratory, USA; Supercomputer Software Department (SSD), Institute of Computational Mathematics & Mathematical Geophysics, Russian Academy of Sciences, Russia; SECLAB (inter-university research groups at University of Naples Federico II, the University of Naples Parthenope, and Second University of Naples, Italy); Medical Image HPC & Informatics Lab (MiHi Lab), University of Iowa, Iowa, USA; Intelligent Cyberspace Engineering Lab., ICEL, Texas A&M University (Com./Texas), USA; and Model-Based Engineering Laboratory, University of North Dakota, North Dakota, USA.
Corporate Co-Sponsors, Co-Sponsors At-Large and Organizers include:
A number of university faculty members and their staff (names appear below and also on the cover of the proceedings); World Academy of Science (www.world-academy-of-science.org/); Computer Science Research, Education, and Applications Press; High Performance Computing for Nanotechnology (HPCNano); International Society of Intelligent Biological Medicine; World Academy of Biomedical Sciences and Technologies; The International Council on Medical and Care Compunetics; The UK Department for Business, Enterprise & Regulatory Reform, UK; and Scientific Technologies Corporation; HoIP - Health without Boundaries. In addition, several publishers of computer science and computer engineering books and journals, chapters and/or task forces of computer science associations/organizations from 8 countries, and developers of high-performance machines and systems provided significant help in organizing the conference as well as providing some resources.

An important mission of WORLDCOMP (a federated congress to which this conference is affiliated with) includes "Providing a unique platform for a diverse community of constituents composed of scholars, researchers, developers, educators, and practitioners. The Congress makes concerted effort to reach out to participants affiliated with diverse entities (such as: universities, institutions, corporations, government agencies, and research centers/labs) from all over the world. The congress also attempts to connect participants from institutions that have **teaching** as their main mission with those who are affiliated with institutions that have **research** as their main mission. The congress uses a quota system to achieve its institution and geography diversity objectives."

The program committee would like to thank all those who submitted papers for consideration. About 44% of the submissions were from outside the United States. Each paper was peer-reviewed by two experts in the field for originality, significance, clarity, impact, and soundness. In cases of contradictory recommendations, a member of the conference program committee was charged to make the final decision; often, this involved seeking help from additional referees by using a double-blinded review process. In addition, papers whose authors included a member of the conference program committee were evaluated using the double-blinded review process. The only exception to the above evaluation process was for papers that were submitted directly to chairs/organizers of approved sessions/workshops; in these cases, the chairs/organizers were responsible for the evaluation of such submissions. The overall paper acceptance rate for regular papers was 24%; 12% of the remaining papers were accepted as poster papers.

We are very grateful to the many colleagues who helped in organizing the conference. In particular, we would like to thank the members of the BIOCOMP'11 Program Committee who we hope will offer their help again in organizing the next year's conference (BIOCOMP'12). The BIOCOMP'11 Program Committee members were:

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- *Dr. Songfeng (Andy) Zheng, Missouri State University, Springfield, Missouri, USA*

We express our gratitude to keynote and invited speakers of WORLDCOMP and individual conference/tracks and tutorial speakers - the list of speakers appears on the conference web site.

We would also like to thank the followings: UCMSS (Universal Conference Management Systems & Support, California, USA) for managing all aspects of the conference; Dr. Tim Field of APC for managing the printing of the proceedings; and the staff of Monte Carlo Resort in Las Vegas for the professional service they provided. Last but not least, we would like to thank the Associate Editors of BIOCOMP 2011: Drs. Matthew He, Andy Marsh, Ashu M. G. Solo, and Jack Y. Yang.

We present the proceedings of BIOCOMP'11.

Hamid R. Arabnia and Quoc-Nam Tran
General Co-Chairs/Vice-Chairs & Coordinators, BIOCOMP'11

Contents

SESSION: COMPUTATIONAL METHODS FOR MICROARRAY, GENE EXPRESSION ANALYSIS, AND GENE REGULATORY NETWORKS

Optimization of a Microarray Probe Design Focusing on the Minimization of Cross-hybridization **3**
Fabian Horn, Hans-Wilhelm Nutzmann, Volker Schroeckh, Reinhard Guthke, Christian Hummert

EMMA: An EM-based Imputation Technique for Handling Missing Sample-Values in Microarray Expression Profiles. **10**
Amitava Karmaker, Edward Salinas, Stephen Kwek

Creation and Comparison of Different Chip Definition Files for Affymetrix Microarrays **16**
Christian Hummert, Franziska Mech, Fabian Horn, Michael Weber, Susanne Drynda, Ulrike Gausmann, Reinhard Guthke

A Validation Method for Fuzzy Clustering of Gene Expression Data **23**
Thanh Le, Katheleen Gardiner

Robust SVD Method for Missing Value Estimation of DNA Microarrays **30**
Fen Qin, Joseph Collins, Jeonghwa Lee

Finding Biomarkers for Non-Small Cell Lung Cancer Diagnosis with Novel Data Mining Techniques **36**
Quoc-Nam Tran

Identification of Pseudo-Periodic Gene Expression Profiles **42**
Li-Ping Tian, Li-Zhi Liu, Fang-Xiang Wu

Gene Selection using Multidimensional False Discovery Rate **47**
Ahmed Moussa, Mounir Maouene, Brigitte Vannier

Letting all have a say - A novel method for microRNA RT-PCR normalization **52**
Rehman Qureshi, Ahmet Sacan

Classification of High-throughput Data Using Correlation-shared Gene Clusters **58**
Pingzhao Hu, Hui Jiang

Markov Model Checking of Probabilistic Boolean Networks Representations of Genes **63**
Marie Lluberes, Jaime Seguel, Jaime Ramirez-Vick

Reliability Analysis of Classification of Gene Expression Data **69**
Sujata Dash, Bichitra Nanda Patra

SESSION: BIOINFORMATICS DATABASE, DATAMINING, AND PATTERN DISCOVERY TECHNIQUES

Clustering on Protein Sequence Motifs using SCAN and Positional Association Rule Algorithms **79**
Bernard Chen, Ben Nordin, Sriram Bobba, Devendar Singireddy, Brad Taylor, Sinan Kockara, Mutlu Mete

Constructing Super Rule Tree (SRT) for Protein Motif Clusters Using DBSCAN **85**
Bernard Chen, Sait Suer, Muhyeddin Ercan, Rahul Tada, Recep Avci, Sinan Kockara

Mapping Genes to Diseases With Translational Data Mining **91**
Modest Von Korff, Axel Klenk, Thomas Sander

Protein Sequence Motif Extraction Using Decision Forest **96**
Bernard Chen, Cody Hudson, Minwoo Kim, Aaron Crawford, John Wright, Dongsheng Che

Matlab Toolbox for Data Reduction, Visualization, Classification and Knowledge Extraction of Complex Biological Data **103**
Ali Mohammad-Djafari, Ghazaleh Khodabandelou, Jerome Lapuyade-Lahorgue

Portable Measurement System of the Spasticity Based on the K-means Clustering Algorithm of the Tonic Stretch Reflex Threshold **110**
Chul-Gyu Song, Keo-Sik Kim, Min-Ho Kim, Sang-Hun Ryu

GPU Accelerated PK-means Algorithm for Gene Clustering **116**
Wuchao Situ, Yau King Lam, Yi Xiao, Peter Wai Ming Tsang, Chi Sing Leung

Computation of Coronary Sinus Pressure Using Pattern Recognition Techniques **121**
Loay Alzubaidi, Ammar El Hassan, Jaafar Al Ghazo

Linear Models and Biomarker Search with Microarray Data **126**
Eulisa Rivera, Matilde Sanchez-Pena, Clara Isaza, Jaime Seguel, Mauricio Cabrera-Rios

Comparative Analysis of Krylov Iterative Methods in Support Vector Machines **131**
Matthew Freed, Joseph Collins, Jeonghwa Lee

Fast Splice Site Classification Using Support Vector Machines in Imbalanced Data-sets **136**
Jair Cervantes, Asdrubal Lopez Chau, Adrian Trueba Espinoza, Jose Sergio Ruiz Castilla

A Study on Acupressure Points Online Database **142**
Zizhong Wang, Tara Santos

Human Identification via Neural Network **148**
Parviz Eshaghi

Telomerase Gene Prediction Using Support Vector Machines **152**
David Luper, Spandana Makeneni

SESSION: PROTEIN CLASSIFICATION + STRUCTURE PREDICTION, EVOLUTIONARY, AND COMPUTATIONAL MOLECULAR + STRUCTURAL BIOLOGY

Solving Planted Motif Problem Using Modeling Method **161**
Subramanyam Desaraju, Ravi Mukkamala

Predicting Sequence and Structural Specificities of RNA Binding Regions Recognized by Splicing Factor SRSF1 **168**
Xin Wang, Liran Juan, Junjie Lv, Kejun Wang, Jeremy Sanford, Yunlong Liu

Correlation of Patristic Distance with Nominal Specimen Collection Date in Inflluenza A/H1N1 Hemagglutinin-Encoding Segments **175**
Jack Horner

Identification of Transcriptional Regulatory Elements by Functional Enrichment Analysis. **182**
Amitava Karmaker, Stephen Kwek

An Integrated Pipeline for Protein Classification using Specific PSSMs and Existing Protein Annotations **188**
Kyung Dae Ko, Hongfang Liu

Predicting DNA-Binding Sites by Exploring the Distribution of Atom Groups around the Surface **192**
Jing Hu, Changhui Yan

Stuctural Analysis of Molecular Networks: AMES Mutagenicity **196**
Laurin AJ Mueller, Karl G Kugler, Matthias Dehmer

A Study of Correlations Between the Definition and Application of the Gene Ontology **202**
Yuji Mo, Catherine Anderson, Stephen Scott

Phylogenetic Analysis Workflow Using the BioExtract Server **209**
Yosr Bouhlal, Douglas Jennewein, Carol Lushbough

SESSION: COMPARATIVE SEQUENCE, GENOME ANALYSIS, GENOME ASSEMBLY, AND GENOME SCALE COMPUTATIONAL METHODS

A Regression-based Approach for Estimating Recombination Rate from Population Genomic Data **215**

Lan Zhu, Feng Feng, Carlos Bustemante

Evaluation of the Suitability of a Zipfian Gap Model for Pairwise Sequence Alignment **222**

Ramu Chenna, Toby Gibson

A Probabilistic Approach for Characterizing the Marking System of Multiplex Sequencing in ABI SOLiD Platform **228**

Fabio Lobato, Pericles Machado, André Goncalves, Andrea Ribeiro-dos-Santos, Dayse Alencar, Sylvain Darnet, Adamo Santana

Enhancement on the Predictive Power of the Prediction Model for Human Genomic DNA Methylation **232**

Hao Zheng, Shi-Wen Jiang, Hongwei Wu

Parallelization of Needleman-Wunsch String Alignment Method **239**

Jaime Seguel, Carlos Torres

Genetic Matching: An Efficient Algorithm to Adjust Covariate Imbalance for Data Analysis and Modeling **245**

Kao-Tai Tsai, Karl Peace

A CAM (Content Addressable Memory)-based Architecture for Molecular Sequence Matching **252**

Parag Lala, James Parkerson

Effective Algorithms for Altering Human Chromosome Shapes **257**

Wei Wu, Xiaoli Yang, Charles Tseng

Identification of Minimum Redundancy Tagging SNPs via Gibbs Sampling **262**

Gaolin Zheng

Development Approach and Architecture of GenSAS : the Genome Sequence Annotation Server **267**

Taein Lee, Il-Hyung Cho, Cameron Peace, Sook Jung, Ping Zheng, Doreen Main

Sequence Analysis to Predict Protein Active Sites using SSHM **274**

Satheesh Patchikolla, Srinivas Bagam, Prasada Mandala, Appa Rao Allam, Charles Babu Gundupalli

SESSION: COMPUTATIONAL METHODS FOR FILTERING, NOISE CANCELLATION, AND SIGNAL + IMAGE PROCESSING

Quantifying Phenotypic Traits in Retinal Coronary Angiography: Automated Extraction of Retinal Vasular Networks and Localization of Optic Discs in Fundus Images **279**
Hesam Dashti, James Driver, Nader Sheibani, Amir Assadi

Common-Path Fourier-Domain Optical Coherence Tomography using Surface Tracking Algorithm **285**
Chul-Gyu Song, K. S. Kim, M. H. Kim, Sang-Hun Ryu, J. H. Seo

Registration of Confocal Fluorescence Endomicroscopy Images Using Phase Correlation **291**
Feng Zhao, T. M. McGinnity

Signal Processing Algorithm for Wireless ECG Monitoring Systems **297**
Abishek Thekkeyil Kunnath, Sahajhaksh Hariharan, Maneesha Vinodini Ramesh

Tracking of Active Cells Based on Kalman Filter in Time Lapse of Image Sequences of Neuron Stem Cells **301**
Chunming Tang, Yanqing Wang, Ying Cui

An Efficient Soft Graph Clustering Method for PPI Networks based on Purifying and Filtering the Coupling Matrix **307**
Ying Liu, Amir Foroushani

BRATUMASS Antenna Positioning Optimization with Genetic Algorithm **311**
Zhongling Han, Zhifu Tao, Meng Yao, Yizhou Yao, Blair Fleet, Erik D. Goodman, John R. Deller

Application of Quarter Iteration of FRFT in BRATUMASS for Weak Signal Extraction **315**
Zhongling Han, Zhifu Tao, Meng Yao, Yizhou Yao, Blair Fleet, Erik D. Goodman, John R. Deller

An X-Ray On Methods Aiming At Arrhythmia Classification In ECG Signals **319**
Eduardo Luz, David Menotti

The Application of the Genetic Algorithm Tool Box at Target Enhancement Processing in Breast Cancer Microwave Imaging **325**
Zhongling Han, Zhifu Tao, Meng Yao, Yizhou Yao, Blair Fleet, Erik D. Goodman, John R. Deller

Vitreous Imaging System - A New Method for Medical Diagnosis **328**
Boucherit Taieb

SESSION: SOFTWARE PACKAGES AND OTHER COMPUTATIONAL TOPICS IN BIOINFORMATICS + RELATED DISCUSSIONS

A Network of Hidden Markov Models and its Analysis **337**
Liqing Zhang, Layne T Watson, Lenwood S. Heath

Correlation of Patristic Distance with Nominal Specimen Collection Date in Influenza A/H1N1 Neuraminidase-Encoding Segments **343**
Jack Horner

GAPDH Architecture at Low Guanidine Concentrations: First Derivative Analysis of the Descending Slope of the UV Absorbance Peak **350**
Jessica Kim, Christopher Theisen, Norbert Seidler

Instantiation and Adaptation of CRISP-DM to Bioinformatics Computational Processes **355**
Santiago Gonzalez, Victor Robles, Jose Maria Pena, Ernestina Menasalvas

Analysis of Metabolic Networks: On the Similarity of the Three Domains of Life **361**
Karl G Kugler, Laurin AJ Mueller, Matthias Dehmer

Construction and Analysis of Metabolite Network of Arabidopsis thaliana Pathways **367**
Kasthuribai Viswanathan, Nita Parekh

A Professional Science Master Degree in Health Informatics **373**
Kevin Daimi, Gregory Grabowski

Laterality of Motor Control before the Advent of Experimental Psychology: Revisiting David Kinnebrook's 'Error of Judgement' at Greenwich in 1796 **379**
Iraj Derakhshan

SESSION: COMPUTER-ASSISTED MEDICAL CARE + SERVICE SYSTEMS, DIAGNOSTIC TOOLS IN BIOMEDICAL, AND COMPUTER-BASED MEDICAL SYSTEMS

Diagnosis of Breast Cancer Using Averaged Proximity Measure between Samples **387**
Roman Andrushkiw, Ekaterina Golubeva, Dmytro Klyushin, Yuri Petunin, Natalya Boroday

An Extensible Software Architecture to Facilitate Disaster Response Planning **393**
Martin O'Neill II, Armin R. Mikler, Tamara Schneider

Computer Modeling of Diffuse Axonal Injury Mechanisms **401**
Igor Szczyrba, Martin Burtscher, Rafal Szczyrba

A Computational Linguistics Approach to the Identification of Biological Factors that Contribute to the Development and Progression of Lung Cancer **408**
Christopher Frenz, Cheng Luo, Egon Urgard, Andres Metspalu

The Living Experience of a Diabetic Adult in India Using Fuzzy Relational Maps (FRM) **412**
Victor Devadoss Anthony Sany, Susanna Mystica Victor Devadoss

SleepGaze: A Wireless System for Monitoring and Detection of Sleep Disorders **418**
K. A. Unnikrishna Menon, Davis Jose, Maneesha V. Ramesh

Doppler Ultrasound Blood Flow Measurement System for Assessing Coronary Revascularization **424**
J Solano, M Fuentes, A Villar, J Prohias, F Garcia-Nocetti

Analysis of Electrogastrograms of the Elderly Subjects using Maximum Lyapunov Exponent - For the Evaluation of Motion Sickness induced by Stereoscopic Movies **429**
Yasuyuki Matsuura, Masaru Miyao, Hiroki Takada

A Personalized Health Information System to Foster Preventive Medicine **434**
Sebastian Klenk, Julia Mohrmann, Andre Burkovski, Jurgen Dippon, Peter Fritz, Gunther Heidemann

A High Throughput Computational Analysis of Claudin Gene Family in Human Ovarian Cancer **439**
Shaukat Iqbal Malik, Sheema Sameen, Zoya Khalid

SESSION: DRUG TARGETS, IMMUNOTHERAPY, AND COMPUTATIONAL METHODS FOR SYSTEM + MICRO BIOLOGY

Classifying HIV-1 Circulating Recombinant Forms **447**
Steven Eliuk, Keith Ruiter, Pierre Boulanger

Self-Regulating Physiologically Based Pharmacokinetic Model and Creation of Drug Concentration Profiles in Plasma and Tissues **454**
Stanislav Polinkevych

Identifying Co-targets to Fight Drug Resistance Based on a Random Walk Model **461**
Liang-Chun Chen, Hsiang-Yuan Yeh, Cheng-Yu Yeh, Carlos Roberto Arias, Von-Wun Soo

The Rhesus Macaque is Three Times as Diverse but More Closely Equivalent in 'Damaging' Coding Variation as Compared to the Human **468**
Qiaoping Yuan, Zhifeng Zhou, Stephen G. Lindell, J. Dee Higley, Betsy Ferguson, Robert C. Thompson, Juan F. Lopez, Stephen J. Suomi, Basel Baghal, Maggie Baker, Deborah C. Mash, Christina S. Barr, David Goldman

The Peak of a Pandemic? - A Phylogenetic Analysis of the H1N1 Influenza Virus from 2009 to Present **477**
Anthony Deeter, Mark Dalman, Gayathri Nimishakavi, Zhong-Hui Duan

Protease Complement of the Thermophilic Bacterium Coprothermobacter proteolyticus **484**
Hong Cai, Jianying Gu, Yufeng Wang

Computational Analysis on Cuminum Cyminum Compounds Against Aldose Reductase as Anti-diabetic Agents **487**
Naresh Babu Muppalaneni, Appa Rao Allam

Etiology of the Diseases Caused by Bacterium Escherichia Coli According to an Electromagnetic Mode **491**
Juan Esteban Correa Lopez

SESSION: MODELLING, SIMULATION AND OPTIMIZATION OF BIOLOGICAL SYSTEMS

Multi-scale Modelling of the Bile Acid and Xenobiotic System **499**
Noel Kennedy, Paul Thompson, Huiru Zheng, Werner Dubitzky

Computerized Platform for Optimal Organ Allocations in Kidney Exchanges **506**
Yanhua Chen, Jack Kalbfleisch, Yijiang Li, Peter Song, Yan Zhou

Application of Bioinformatics Models to Define Influenza Virus A Subtypes **513**
Mansour Ebrahimi, Parisa Agha-Golzadeh, Esmaeil Ebrahimie, N. Shamabadi

Simulated Docking of Oseltamivir with an Avian Influenza (A/H5N1) Neuraminidase Active Site **516**
Jack Horner

Accelerate Numerical Diffusion Solver of 2D Multi-scale and Multi-resolution Agent-based Brain Cancer Model by Employing Graphics Processing Unit Technology **523**
Beini Jiang, Le Zhang, Wen Zhang, Allan Struthers, Michael Berens, Xiaobo Zhou

EpiGraph: A Scalable Simulation Tool for Epidemiological Studies **529**
Gonzalo Martín, Maria-Cristina Marinescu, David E. Singh, Jesús Carretero

Altered Gliclazide Metabolic Pathway and its Implications on Increased Therapeutic Response in CYP2C9*2: Molecular Dynamics Simulation and Autodock Studies **537**
N Renuka, Hussaina Banu, Geetha Vasanthakumar

Optimizing a Cost Matrix to Solve Rare-Class Biological Problems **544**
Mark J. Lawson, Lenwood S. Heath, Hai Zhao, Liqing Zhang

Flow and Particle Deposition Simulations with Heat-transfer in the Nine-generation Lung Airways **551**
Bela Soni, Naveen Arra, Shahrouz Aliabadi

A Simple Nonadditive Model of Water **558**
Gregory Wood

Modeling as a Tool for Controlling the Production of Biofuels: Ethanol from a Biomass **562**
Aghareed M. Tayeb, N. A. Mostafa, I. A. Ashour

Analytical and Numerical Simulation of Epidemic Models using Maple and Sage **568**
Veronica Orjuela Contreras

Simulating The Reconstruction of Metabolic Networks Using Maple **575**
Diego Ignacio Vélez Jaramillo

Development of a Computing Mmodel for Resistance Screening of Citrus Limon Ccultivars Infected by the Ccausal Aagent of 'Mal secco' Phoma tracheiphila **581**
Khaled Khanchouch, Mohamed R. Hajlaoui, Hakan Kutucu

SESSION: ALGEBRAIC BIOLOGY AND BIOINFORMATICS, ABB

The Genetic Code, 8-Dimensional Hypercomplex Numbers and Dyadic Shifts **589**
Sergey Petoukhov

Alignment-free Phylogenetic Outline of a Random-sequence Library of Non-biological Proteins **596**
Miguel Jimenez-Montano, Matthew He

Amino Acids, Euclidean Distance and Symmetric Matrix **603**
Matthew He, Miguel Jimenez-Montano, Paolo Ricci

SESSION: PROTEIN STRUCTURE PROCESSING + MACHINE LEARNING + CLASSIFICATION + HPC + MODELING + GENOMICS + CLUSTERING + GENE REGULATORY NETWORKS + HEALTH INFORMATICS + MICROARRAY + BIOINFORMATICS + ASSISTIVE TECHNOLOGY + BIO-INSPIRED SYSTEMS + DATA ANALYSIS

SCOPE: An Open-Source, C++ Implementation for Calculation of Protein Energetics from First Principles **611**
Timothy Matthew Fawcett, Stephanie Irausquin, Mikhail Simin, Homayoun Valafar

Comparative Study of Alternative Energy Functions for the HP Model of Protein Structure Prediction **618**
Mario Garza-Fabre, Gregorio Toscano-Pulido, Eduardo Rodriguez-Tello

EST-PAC^HPC - a Web Portal for High-throughput EST Annotation and Protein Sequence Prediction **625**
Adam Wong, Andrzej Goscinski, Christophe Lefevre

Collagen Type XI alpha-1 Chain Amino Propeptide Structural Model and Glycosaminoglycan Interactions in Silico **632**
Chris Mallory, Owen McDougal, Julia Oxford

Probability Density Profile Analysis: A Method for Identifying Novel Protein Structures **636**
Arjang Fahim, Stephanie Irausquin, Timothy Matthew Fawcett, Mikhail Simin, Homayoun Valafar

Mimicking Transcription Process to Recognise Promoters in E.coli **642**
Sobha Rani Timmappareddy

Bio-Medical Data Integration Based on MetaQuerier Architecture **648**
Khondker Hasan, Munirul Islam, M Samiullah Chowdhury, Eusuf Abdullah Mim, Naieem Khan

Expression Network Analysis of Abiotic Stress Responsive Myb in Rice **655**
Shuchi Smita, Amit Katiyar, Dev Mani Pandey, Viswanathan Chinnusamy, Kailash Chander Bansal

Simplifying Gene Expression Microarray Comparative Analysis **658**
Philip Church, Andrzej Goscinski, Adam Wong, Christophe Lefevre

Comparison of Affymetrix Expression Array Summarization Methods for Reproducibility and Consistency Across Studies **663**
Xiaoyang Ruan, Ourania Kosti, Rado Goldman, Hongfang Liu

Comprehensive Comparison of Gene Set Analysis Tools **670**
Zheng Liu, Xuejun Li, Yate-Ching Yuan, Xiwei Wu

High Performance Grid Computation of the Scattered Field Formulation for Nth Order Debye Modeling of the General Dispersive Media **674**
Haythm Abdallah, Hala Elsadek, Hesham Eldeeb, Nader Bagherzadeh

Criteria for Annihilation of HIV-1 During HAART Therapy **679**
Frank Nani, Mingxian Jin

Stochastic Modelling of Tumour Immune Interactions **686**
K. S. S. Iyer, Swaminathan Sankaran, Rahul Athale

A Gaussian Packing Model For Phasing in Macromolecular Crystallography **692**
Yan Yan, Gregory Chirikjian

Biological Data Handling Methods **699**
Pradeep Achan, Ajit Warrier, Bhadrachalam Chitturi

A Bioinformatics Approach for Identification of Type III Signal Anchored Proteins in Rice **706**
Amit Katiyar, Shuchi Smita, Dev Mani Pandey, Viswanathan Chinnusamy, Kailash Chander Bansal

Application of W-curves and TSP to Clustering HIV1 Sequences **710**
Doug Cork, Steven Lembark, Nelson Michael, Jerome Kim

Electronic Health Records and Mobile Technology Use in Northwest Florida Medical Practices **716**
Edward Rodgers

Anode Effects on Microbial Fuel Cell Efficiency **718**
Michaela Brant, Geoffrey Chu, Mark Claire, Jane Curnutt, Ernesto Gomez, Andrea Gonzalez, Carly Gott, Michael Grigsby, Ruben Hovanesian, George Kaladjian, Jena Losch, Alex Nguyen, Alexandra Olano, Geoffrey Payton, Amina Razzak, Kara Rotunno, Sarah Saleemi, Allison Scheppelmann, Keith Schubert, Gerardo Solis, Elizabeth Statmore, Kristin Symer

Emerging Viral Agents at Risk in Global Health Approaches to Early Diagnosis and Prompt Therapy **722**
Giulio Tarro, Ciro Esposito

Applications of Aritificial Immune Systems **726**
Suhair Amer

On a Body Sway Model while Maintaining Upright Posture during Exposure to a Stereoscopic Movie on a Liquid Crystal Display **731**
Hiroki Takada, Kazuhiro Fujikake, Masaru Miyao

An Assistive Technology Computer Control System **738**
Eduardo Alberti, Tatiany Kazmieczak , Alessandro Brawerman

A Proposal of a Comperhensive Medical Emergency Decision Support System **744**
Asma AlJarullah, Samir El-Masri

Uncertain Gene Regulatory Networks Simplified by Gramian-Based Approach **751**
Anke Meyer-Baese, Susanne Cappendijk, Fabian Theis

Proposal of a Web Based Ambulance System in Saudi Arabia **760**
Hebah Mirza, Samir El-Masri

Stability Analysis of Hybrid Stochastic Gene Regulatory Networks **767**
Anke Meyer-Baese, Claudia Plant, Jan Krumsiek, Fabian Theis, Marc R. Emmett, Charles A. Conrad

Towards Integrating National Electronic Care Records in Saudi Arabia **777**
Mohammed Alnuem, Samir El-Masri, Ahmed Youssef, Ahmed Emam

Dynamics of HIV-1 Associated Kaposi Sarcoma During HAART Therapy **783**
Frank Nani, Mingxian Jin

A Proposal of Clinical Decision Support system Architecture for Distributed Electronic Health Records **787**
Shaker El-Sappagh, Samir El-Masri

Simulation of Genetic Regulatory Networks **794**
Rafat Parveen

TTCS: Three-Dimensional and Two-Dimensional Compound Structure Search Online Tools **800**
Hongzhi Li, Haiqing Li, Edward Lee, Yate-Ching Yuan

Cyberinfrastructure: A Case Study of IT Infrastructure for Next Generation Bioinformatics and Computational Biology **802**
Haiqing Li, Yate-Ching Yuan