

2007 IEEE International Workshop on Genomic Signal Processing and Statistics

**Tuusula, Finland
10-12 June 2007**



IEEE Catalog Number:
ISBN 10:
ISBN 13:

CFP07GEN-PRT
1-4244-0998-5
978-1-4244-0998-3

Table of Contents

RECOVERING GENETIC REGULATORY NETWORKS BY INTEGRATING MULTIPLE DATA SOURCES	1
<i>Wentao Zhao, Erchin Serpedin, Edward R. Dougherty</i>	
Correlation Model for Uniform Scalar Quantizers with Arbitrary Representation Levels.....	3
<i>Are Hjørungnes, Pradeepa Yahampath, Mirek Pawlak</i>	
BIDIRECTIONAL RELATIONSHIPS AND ATTRACTOR STRUCTURE OF BOOLEAN NETWORKS.....	7
<i>Golnaz Vahedi, Ivan Ivanov, Edward R. Dougherty</i>	
THRESHOLD LOGIC GENE REGULATORY NETWORKS.....	9
<i>Tejaswi Gowda, Samuel Leshner, Sarma Vrudhula, Seungchan Kim</i>	
PRIORITIZING MOLECULAR SIGNATURES BY COMBINING ACGH AND GLOBAL GENE EXPRESSION PROFILING	13
<i>Tae-Hoon Chung, Seungchan Kim</i>	
DETECTION OF PERIODICITIES IN GENE SEQUENCES: A MAXIMUM LIKELIHOOD APPROACH.....	17
<i>Raman Arora, William A. Sethares</i>	
UNCOVERING REGULATORY PATHWAYS WITH EXPRESSION QUANTITATIVE TRAIT LOCI.....	21
<i>Andreas Beyer, Silpa Suthram, Trey Ideker</i>	
A BAYESIAN APPROACH FOR UNCOVERING GENE NETWORK MOTIFS	25
<i>Yufang Yin, Yufei Huang, Viji Shanmugam, Marcel Brun, Jianping Hua, Edward R. Dougherty</i>	
TRANSCRIPTION FACTOR DISCOVERY USING SUPPORT VECTOR MACHINES AND HETEROGENEOUS DATA	27
<i>Jose F. Barbe, Ahmed H. Tewfik, Arkady B. Khodursky</i>	
COMPARISON OF AUTOREGRESSIVE MEASURES FOR DNA SEQUENCE SIMILARITY ABSTRACT	31
<i>Gail Rosen</i>	
LINEAR PREDICTIVE CODING FOR ENHANCED MICROARRAY DATA CLUSTERING	35
<i>Robert S. H. Istepanian, Ala Sungoor, Jean-Christophe Nebel</i>	
'S TEST FOR PERIODICITY DETECTION IN NOISY BIOLOGICAL TIME SERIES.....	39
<i>Miika Ahdesmaki, Harri Lahdesmaki, Olli Yli-Harja</i>	
RECIPROCAL RANK-BASED COMPARISON OF ORDERED GENE LISTS.....	43
<i>Ronald K. Pearson</i>	
IMPROVEMENT OF SPECTRAL ANALYSIS AS A GENOMIC ANALYSIS TOOL.....	46
<i>Evan Santo, Nevenka Dimitrova</i>	
DISTRIBUTED ROBUST BICLUSTERING ALGORITHM FOR GENE EXPRESSION ANALYSIS	50
<i>Alain B. Tchagang, Ahmed H. Tewfik</i>	
ON DNA NUMERICAL REPRESENTATIONS FOR PERIOD-3 BASED EXON PREDICTION	54
<i>Mahmood Akhtar, Julien Epps, Eliathamby Ambikairajah</i>	
FINDING INCOMING GLOBAL STATES IN BOOLEAN NETWORKS.....	58
<i>Tatsuya Akutsu, Morihiro Hayashida, Shu-Qin Zhang, Wai-Ki Ching, Michael K. Ng</i>	
ESTIMATION OF NEURONAL SIGNALING MODEL PARAMETERS USING DETERMINISTIC AND STOCHASTIC IN SILICO TRAINING DATA: EVALUATION OF FOUR PARAMETER ESTIMATION METHODS	62
<i>Antti Pettinen, Tiina Manninen, Olli Yli-Harja, Keijo Ruohonen, Marja-Leena Linne</i>	
DNA COPY NUMBER DETECTION AND SIGMA FILTER.....	66
<i>Abdullah K. Alqallaf, Ahmed H. Tewfik</i>	

Table of Contents

MODELING G-PROTEIN INDUCED PROTEIN KINASE C ACTIVATION CASCADE: DETERMINISTIC AND STOCHASTIC SIMULATIONS.....	70
<i>Eeva Makiratikka, Antti Saarinen, Olli Yli-Harja, Marja-Leena Linne</i>	
MODELING THE KINETICS OF HYBRIDIZATION IN MICROARRAYS	73
<i>H. Vikalo, B. Hassibi, M. Stojnic, A. Hassibi</i>	
PARAMETER ESTIMATION AND TUNING OF FIREFLY LUCIFERASE PATHWAY MODEL	77
<i>Tiina Manninen, Andre Ribeiro, Jason Lloyd-Price, Marja-Leena Linne, Keijo Ruohonen, Olli Yli-Harja, Stuart A. Kauffman</i>	
A UNIVERSAL MINIMUM DESCRIPTION LENGTH-BASED ALGORITHM FOR INFERRING THE STRUCTURE OF GENETIC NETWORKS	81
<i>John Dougherty, Ioan Tabus, Jaakko Astola</i>	
LEARNING CONTEXT-SPECIFIC GENE REGULATORY NETWORKS VIA IN-SILICO CONDITIONING	83
<i>Seungchan Kim, Ina Roy, Siddharth Raghavan, Edward R. Dougherty, Michael Bittner</i>	
ROBUSTNESS OF INTERVENTION STRATEGIES FOR PROBABILISTIC BOOLEAN NETWORKS.....	87
<i>Ranadip Pal, Aniruddha Datta, Edward R. Dougherty</i>	
Accurate Quantification of Gene Expression using Fuzzy Clustering Approaches.....	91
<i>Yu-Ping Wang, Maheswar Gunampally, Jie Chen, Wei-Wen Cai</i>	
PROBABILISTIC FRAMEWORK FOR TRANSCRIPTION FACTOR BINDING PREDICTION.....	95
<i>Harri Lahdesmaki, Ilya Shmulevich</i>	
EFFECT OF PARAMETER VARIATIONS ON THE INFERENCE OF CONTEXT-SENSITIVE PROBABILISTIC BOOLEAN NETWORKS	99
<i>S. Marshall, L. Yu, Y. Xiao, E. R. Dougherty</i>	
HAPLOTYPE BLOCK PARTITIONING USING A NORMALIZED MAXIMUM LIKELIHOOD MODEL	103
<i>Yinghua Yang, Ioan Tabus</i>	
IN SILICO SIMULATION OF EPIDERMAL GROWTH FACTOR SIGNALING IN PROSTATE CANCER CELLS	107
<i>Takashi Nakakuki, Kaori Ide, Noriko Yumoto, Takeshi Nagashima, Mariko Hatakeyama</i>	
STOCHASTIC COMPLEXITY FOR THE DETECTION OF PERIODICALLY EXPRESSED GENES	110
<i>Ciprian Doru Giurcaneanu</i>	
A UNIVERSAL ALGORITHM FOR RANDOM-ACCESS COMPRESSION AND APPLICATIONS FOR ANNOTATED DNA SEQUENCES	114
<i>Gergely Korodi, Ioan Tabus</i>	
IMMUNOME, IMMUTREE AND IMMUNITY: DATABASES FOR SYSTEMS BIOLOGY OF IMMUNE SYSTEM.....	118
<i>Csaba Ortutay, Markku Siermala, Kathryn Rannikko, Mauno Vihinen</i>	
DETECTION OF PATHOGENIC MUTATION PRONE LOCATIONS FROM PROTEIN SEQUENCES USING SOLVENT ACCESSIBILITY MEASUREMENTS.....	120
<i>Miika Ahdesmäki, Janita Thusberg, Heikki Huttunen, Mauno Vihinen, Olli Yli-Harja</i>	
DISCOVERING CONDITION-DEPENDENT BAYESIAN NETWORKS FOR GENE REGULATION	124
<i>Antti Ajanki, Janne Nikkila, Samuel Kaski</i>	
EXPLORING THE INTERRELATIONSHIP BETWEEN BIOREACTOR STABILITY AND CARBON BALANCE.....	128
<i>Tommi Aho, Virpi Kivinen, Perttu Koskinen, Jaakko Puhakka, Olli Yli-Harja</i>	

Table of Contents

INFERENCE OF BOOLEAN NETWORKS FROM TIME SERIES DATA WITH REALISTIC CHARACTERISTICS	131
<i>Timo Erkkilä, Tomi Korpelainen, Olli Yli-Harja</i>	
JOINTLY ENCODING PROTEIN SEQUENCES AND THEIR SECONDARY STRUCTURE INFORMATION.....	135
<i>Andrea Hategan, Ioan Tabus</i>	