

Proceedings of
International Symposium on
Health Informatics and Bioinformatics
Turkey'07

HIBIT'07

April 30 - May 2, 2007
Antalya, Turkey



Organized by

Middle East Technical University

Informatics Institute

Department of Computer Engineering

Department of Biological Sciences

in cooperation with



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Preface

This conference was initiated two years ago with the objectives of:

- starting a series of high quality international scientific conferences in Turkey in the subject area
- bringing together the research community in Turkey and in other countries,
- supporting especially young researchers in the area
- getting together with the industry for further cooperation.

First HIBIT held in November 2005 was a great success with more than 70 participants from more than 10 different countries. There was a big enthusiasm among the participants, keynote speakers and students alike.

This year's conference was announced to a very large international crowd, including universities, centers and hospitals. We received papers from 7 different countries and 26 papers are accepted for presentation. Moreover, 27 abstracts are accepted for poster presentations.

Our invited speakers and lecturers are worldwide experts in bioinformatics and health informatics. The conference will have parallel sessions in these two areas.

I would like to thank first of all my colleagues in the organization committee for spending their valuable time and trying relentlessly to make this conference a success.

I would like to thank TUBITAK, IEEE Turkey Section, Birim Bilgi Teknolojileri A.S., Tepe Teknoloji Servisler A.S., TürkMIA, HAVELSAN and MNG for their support.

I wish you a very fulfilling meeting

April 2007

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DETAILED PROGRAM:

MONDAY (30.04.2007)

8:15-8:45 Registration

8:45-9:00 Opening Remarks

9:00-10:00 Keynote Speech by **Anna Tramontano**
The Role of Molecular Modelling in Biomedical Research

10:00-10:30 Coffee Break

Oral Presentations

Health Informatics Session 1: Decision Support Systems and Computer Aided Diagnosis

10:30-11:00 K. Hakan Gulkesen *et al.*, “Use of Genetic Algorithm for Prediction of Prostate Cancer”

11:00-11:30 Alberto Freitas, “Effect of Costs on Medical Classification Problems”

11:30-12:00 Beyza Kaymakoglu *et al.*, “Evaluation of Breast Lesion Diagnostic Tests Using Information Graphs”

Bioinformatics Session 1: Structural Bioinformatics

10:30-11:00 Fan Zhang *et al.*, “Improving Protein Secondary Structure Prediction by Data Purification”

11:00-11:30 Alper Kucukural and Ugur Sezerman, “Detecting Native Proteins in Rosetta Dataset Using Graph Properties”

12:00-13:00 Lunch

13:00-14:00 Keynote Speech by **Peter Szolovits**
Rationalism and Empiricism in Medical Informatics

14:00-14:30 Coffee Break

Oral Presentations

Health Informatics Session 2: Clinical Informatics and Hospital Information Systems

14:30-15:00 Mohyuddin Mohyuddin *et al.*, “Collaborative Working of Multi-disciplinary Care Teams in Patient Centric Virtual Organizations (PCVOs)”

15:00-15:30 Hayrettin Evirgen and Numan Celebi, “A simulation model for kidney allocation system”

15:30-16:00 Kirsi Helkala, “Authentication in Norwegian Health Services”

Bioinformatics Session 2: Biomedical Proteome Research

14:30-15:00 Volkan Yildirim *et al.*, “Identification of Specific and General Stress Proteins of *Phanerochaete Chrysosporium*”

15:00-15:30 Gulay Ozcengiz *et al.*, “Identification of the New Immunogenic Proteins of *Bordetella Pertussis* by Immunoproteomics”

15:30-16:00 Pinar Kahraman and Metin Turkey, “Classification of 1,4-Dihydropyridine Calcium Channel Antagonists”

16:00-16:15 Break

16:15-17:00 Short Poster Presentations (HI 1 and BI 1 posters in parallel)

17:00-18:00 Poster Session: Poster Presentations at the Poster Hall

TUESDAY (01.05.2007)

8:15-9:00 Registration

9:00-10:00 Keynote Speech by **Thomas Beale**
The openEHR knowledge-enabled health computing platform

10:00-10:30 Coffee Break

Oral Presentations

Health Informatics Session 3: Health Information Systems

10:30-11:00 Koray Atalag and Semih Bilgen, “Multi-level Modeling and the Role of Archetypes in the Design of Health Information Systems: A Modeling Example in Endoscopy”

11:00-11:30 Mustafa Cavusoglu *et al.*, “SASA: A Software System for Sleep and Snoring Analysis”

11:30-12:00 Suveyda Yeniterzi *et al.*, “Feature selection with Genetic Algorithms on Cardiac Arrhythmia Database”

Bioinformatics Session 3: Ontologies and Networks in Biology

10:30-11:00 E. Zeynep Erson and M. Cenk Cavusoglu, “Ontology Based Design for Integrative Simulation of Human Physiology”

11:00-11:30 Ceren Caner Berkman *et al.*, “Genetic Contribution of Central Asia to Turkey & Azerbaijan and Search for Its Component to the Language Spoken In the Region”

11:30-12:00 Gerhard-Wilhelm Weber and Omur Ugur, “Optimizing Gene-Environment Networks: Generalized Semi-Infinite Programming Approach with Intervals”

12:00-13:00 Lunch

Health Informatics Lecture 1

13:00-14:00 M. Cenk Cavusoglu

Bioinformatics Lecture 1

13:00-14:00 Ozlem Keskin
Protein-protein Interactions

14:00-14:30 Coffee Break

Oral Presentations

Health Informatics Session 4: Statistical Modeling of Biomedical Signals

- 14:30-15:00** Elif Derya Ubeyli, “[Modified Mixture of Experts with Diverse Features for Analysis of Doppler Ultrasound Signals](#)”
- 15:00-15:30** M. Recep Bozkurt *et al.*, “[Classification of EMG Signals by Using AR Spectral Estimation Methods](#)”
- 15:30-16:00** Mesut Tastan *et al.*, “[New Approaches in Mathematical Modeling of Proximal Femur Geometry and Bone Mineral Density](#)”

Bioinformatics Session 4: Biomolecular Sequence Analysis

- 14:30-15:00** Eser Aygun and Zehra Cataltepe, “[Gene Ontology \(GO\) Molecular Function Prediction Based on Alignment Scores](#)”
- 15:00-15:30** Mehmet Levent Kurnaz *et al.*, “[Statistical Analysis of Genetic Information Coding Using Different Amino Acid Tables](#)”
- 15:30-16:00** Ulas Baran Baloglu *et al.*, “[A Top-down Support Model for Motif Discovery in Biosequence Datasets with Pattern Elimination](#)”

16:00-16:15 Break

16:15-17:00 Short Poster Presentations (HI 2 and BI 2 posters in parallel)

17:00-18:00 Poster Session: Poster Presentations at the Poster Hall

WEDNESDAY (02.05.2007)

8:15-9:00 Registration

Health Informatics Lecture 2

09:00-10:00 Oguz Dicle

Bioinformatics Lecture 2

09:00-10:00 Mayda Gursel
Applications of DNA and Quantum-Dots in Biomedicine

10:00-10:30 Coffee Break

Oral Presentations

Health Informatics Session 5: Medical Image Analysis

- 10:30-11:00** Elvan Ceyhan *et al.*, “[Modeling Metric Distances of Dendrite Spines of Mice Based on Morphometric Measures](#)”
- 11:00-11:30** Khalid Masood *et al.*, “[Hyperspectral Texture Analysis for Colon Tissue Biopsy Classification](#)”
- 11:30-12:00** Alper Pahsa and Baki Koyuncu, “[Radiation dosimetry detection system to generate brain tumor contour images](#)”
- 12:00-12:30** Closing Remarks

List of Posters

Bioinformatics I

- 1) Nese Akis, Nihal Buyukuslu, Seyda Yurdakul, “[EVOLUTIONARY HISTORY OF IKAROS OF THE ADAPTIVE IMMUNITY](#),” Trakya Universitesi
- 2) Seda TUNÇAY and Sreeparna BANERJEE, “[Microsatellite instability induced by Cd- a study of SSLP markers in zebrafish](#),” ODTU
- 3) M. Cankaya, H. Ozdemir, O. I. Kufrevioglu, M. Ciftci, H. Budak, and G. Eichele, “[Gene expression analysis of glutamate dehydrogenase 1 gene \(Glud1\) in mouse genome by in situ hybridization](#),” Erzurum Ataturk Universitesi, Max Planck Institute
- 4) A. Sarkhosh, Z. Zamani, R. Fatahi and A. Ebadi, “[Genetic relationships among pomegranate genotypes studied by fruit characteristics and RAPD markers](#),” University of Tehran, Iran
- 5) Sebastian Kuhlert and Jens Allmer, “[2DB: a publication grade proteomics database](#),” Izmir Ekonomi Universitesi - Institute for Plant Biochemistry and Biotechnology, Germany
- 6) Zerrin Sokmen, Tolga Can, Rana Soylu, Cetin Kocaepe, Meral Ozguc, Rengul Cetin Atalay, “[MLC1 structure prediction](#),” ODTU – Bilkent – Hacettepe University
- 7) Hande Küçük, Doğan Kaya Berktaş, Rengül Çetin-Atalay, “[DESIGN AND IMPLEMENTATION OF CYTOSCAPE PLUG-IN FOR KEGG PATHWAYS](#),” Bilkent

Health Informatics I

- 1) Dor Mohammad Kordi Tammandani, R.C.Sobti, M. Shekari, “[Association of pro-inflammatory cytokine gene polymorphism with susceptibility of cervical cancer](#),” Panjab University, India
- 2) Abdul Haleem S. A. Al-Tamimi, “[Effect of Pentostamon on Some Blood Parameters and Phagocytosis in Blood peripheral](#),” Thamar University, Yemen
- 3) Nizamettin Bayyurt, M. Fatih Abasiyanik, Ersan Sander, Barik A. Salih, “[Canonical Correlation Analysis of Factors Involved in the Occurrence of Peptic Ulcers](#),” Fatih Universitesi, Istanbul Egitim Hastanesi
- 4) A.M.Pashaev, F.G.Dadashev, A.M.Mamedov, K.G.Dadasheva, “[INTERACTIVE SYSTEM «NP-MONITORING» IN IDENTIFICATION AND FORECASTING OF THE PHYSIOLOGICAL CONDITION OF THE PERSON](#)”, National Academy of the Aviation, Azarbeijan
- 5) F. Cloppet, C. Navarro, P. Cau, N. Levy, “[Characterizing Nuclear Morphology in Images of Fluorescence](#),” University of Paris, France
- 6) Farzaneh Aminpour and Payam Kabiri, “[Health Information Pioneers in the Middle East](#),” Isfahan University of Medical Sciences, Iran
- 7) Ovezmuradov G, Erdal E, Toruner G, Ozturk M, Cetin-Atalay R., “[Gene expression profiling for unraveling the mechanism of mutant p53 gain of function in hepatocellular carcinoma](#),” Bilkent

Bioinformatics II

- 1) Alper Soyler, Tolga Can, and Zumrut Begum Ogel, “[Construction of a Phylogenetic Profile for Aspergillus fumigatus Proteins](#),” ODTU
- 2) Oral DALAY, Volkan ATALAY, “[Finding Motifs with Maximum Density Subgraphs](#),” ODTU
- 3) Sylvain Berlemont, Aaron Bensimon, Jean-Christophe Olivo-Marin, “[Detection of Curvilinear objects in Biological Noisy Image using Feature-Adapted Beamlet Transform](#),” Institut Pasteur - University of Paris - Genomic Vision S.A., Paris, France
- 4) Alina BUTU, “[THE ANALYSIS OF CAVITY CREATED BY THE ILE-VAL MUTATION IN I59V](#),” National Institute of Research and Development for Biological Sciences, Bucharest, Romania
- 5) Ömer Sinan Saraç, Özge Gürsoy-Yüzügüllü, Rengül Çetin-Atalay, Volkan Atalay, “[A System for Function Annotation via a Discriminative Classifier Database](#),” ODTU
- 6) Şenay Kafkas, Ekrem Varoğlu, Bahar Taneri, “[Building Interaction Networks of Proteins Coded by Alternatively Spliced Genes Using Text Mining Approaches](#),” Dogu Akdeniz Universitesi
- 7) Gokcen Alay , Tolga Can, Volkan Atalay, “[A Feature Mapping Technique for Protein Classification Problem Based on Frequent Patterns](#),” ODTU

Health Informatics II

- 1) Nigar ŞEN KÖKTAŞ, Neşe YALABIK, Güneş YAVUZER, Volkan ATALAY, Ezgi CİVEK, “[COMBINING DECISION TREES AND NEURAL NETWORKS FOR GRADING KNEE OSTEOARTHRITIS](#),” ODTU
- 2) Akhavan S, Ekim B, Erson AE, “[Characterization of two ubiquitin specific proteases in cancer](#),” ODTU – University of Michigan
- 3) Selcuklu SD, Tuna S, Yakicier MC, Erson AE, “[A search for microRNAs on genomic instability regions in breast cancer cells](#),” ODTU – Bilkent
- 4) Farzaneh Aminpour and Payam Kabiri, “[Bioinformatics, Health Informatics & Medical Informatics: Who searches for what?](#)” Isfahan University of Medical Sciences, Iran
- 5) Çiğdem Gökçek Saraç, Cemalettin Bekpen, İnci Togan, “[IDENTIFICATION OF GENES OR GENE FAMILIES INVOLVED IN RESISTANCE TO VIRAL DISEASE IN NATIVE TURKISH SHEEP BREEDS](#),” ODTU
- 6) Ayhan Serkan ŞIK, Kemal ARDA, and Nazife BAYKAL, “[COST SIMULATION OF TRANSITION FROM TRADITIONAL RADIOLOGY TO PACS IN TURKEY](#),” ODTU