### Cell Biology & Biotechnology I

**12:30 - 13:30**

**Isolation and Characterization of Salt-sensitive Mutants of the Moderately Halophilic Bacterium, Salinivibrio sp. DLE, Daochen Zhu, Shunyun Cui, Jianhe Wei, Shrishi Nagata**

**Simulating Biological Pathways with a Continuous Petri Net Using Runge-Kutta Methods, Sunku Kang, Byungwo Lee, Jihoon Yang, Seonho Kim, and Saeeun Kim**

**Reconstruction of Gene Regulatory Networks by Neuro-fuzzy Inference Systems, Sun Hoon Jang, Kwang-Hyun Cho**

**In-silico ligand-based (LB) and docking-based (DB) 3D-QSAR study, F. A. Pasha, M. Muddassar, So Ha Lee, Taebo Sim, Jung-Mi Hah, Seung Joo Cho**

**Relationships Between Structures of Hydroxyflavone Derivatives and Their Anti-oxidative Activities, Younghee Park, Sunhee Lee, Yoongho Lim**

**The Receptor Guided 3D-QSAR Method is a Powerful Tool to Design More Potent GFR-1R Inhibitors, Muhammad Muddassar, F. A. Pasha, Hwan Won Chung, Kyung Ho Yoo, Chang Hyun Oh, Seung Joo Cho**

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### Biomedicine I

**Analysis and Optimization of a Wireless Communication System for an Ingestible Sensor Microsystem, Nizamettin Aydin, Tugrul Arsan**

**Fractal Analysis of Umbilical Artery Doppler Signals From Normal Pregnant Subject Using Hurst Exponent, Sadek Karma, Fatma Lattifgul, Mehmeth Guney**

**Calculation of Joint Reaction Forces in the Equine Distal Forlimb During Walking and Trotting, Jonathan Simon Merritt, Helen Margaret Sarah Davies, Colin Buvrell, Marcus Gordon Pandy**

**Towards a Mobile and Context-Aware Technology Based Healthcare System, Jae-su Song, Seokho Kim, Gil-cheol Park**

**Ontology-based Semi-automatic Construction of Bayesian Network Models for Diagnosing Diseases in E-health Applications, Bum-Jun Jeon, In-Young Ko**

**Classification of Unbalanced Medical Data with Weighted Regularized Least Squares, Nguyen Ho Va, Yonggwon Won**

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### Coffee Break

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### Cell Biology & Biotechnology II

**Prediction of Interacting Motif Pairs using Stochastic Boosting, Jisu Kim, Byungkyu Park, Kyungsook Han**

**Resonant recognition model for prediction of ‘lead-in regions’ in proteins, Mohenish Jaiswal, S R Mahadeva Prasanna, Latha Rangan**

**Analysis of HCV Envelope Proteins Interacting with Human Proteins, Chandrak Nepal, Kyungsook Han**

**Discovering Inter-Domain Paths between Hepatitis C Virus NS5A and Human Liver Proteins, Guang-Zheng Zhang, Guang-Zheng Zhang**

**Multi-Layered Networks for Visualizing the Interactions between Heterogeneous Proteins, Yu Chen, Guangyu Cui, Kyungsook Han**

**A Study of Protein Secondary Structure Hydrogen Bonds under Oxidizing Conditions, C.M. Wood, H.J. Kadam**

**Computational Strategies for Protein Quantitation in 2D Electrophoresis Gel Image Processor for Matlab, Umar Zeeshan Ijaz, Saisfa Ullah Chaudhary, Moon Sang Don, Kyung Youn Kim**

**Feature Extraction in Spatially-Conserved Regions and Protein Functional Classification, Bum-Ju Lee, Heon Gyu Lee, Dae-sung Kim, Kuein Ho Ryu**

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### Biomedicine II

**Quantitative Analysis of Colonoscopy Skills Using the KAIST-Ewha Colonoscopy Simulator II, Sun Young Yi, Kum Ha Ry, Hyun Soo Woo, Woonjin Ahn, Wook Seok Kim, Doo Yong Lee**

**Haptic Rendering of Drilling into Femur Bone with Graded Stiffness, Jang Ho Cho, Hoeryong Jung, Kyungnoo Lee, Doo Yong Lee, and Hyung Soo Ahn**

**A Pilot Study of a Thermal Display Using a Miniature Tactor for Upper Extremity Prosthetics, Keehoon Kim, J. Edward Colgate, Michael A. Peshkin**

**A Miniature Tactor Design for Upper Extremity Prosthetics, Keehoon Kim, J. Edward Colgate, Michael A. Peshkin, Julio J. Santos-Munne, Alex Malakhin**

**Design and Applications of a Pen-Like Haptic Interface with Texture and Vibrotactile Display, Ki-Uk K jung, Yung-Young Lee, Junsoo Park**

**An Efficient Soft Texture Characterization Method for Haptic Rendering of Soft Tissue Deformation in Medical Simulation, Bummo Ahn, Jung Kim**

**Dissimilation of Virtual Environments Under Visual and Haptic Rendering Delays, In Lee, Seungmoon Choi**

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### Biometrics I

**A Bioinformatics Based Approach to Behavioural Biometrics, Kenneth Revett**

**Fingerprint Watermarking for H.264 Streaming Media, Suoeun Jung, Dongaeun Lee, Seongwon Lee, and Jonck Park**

**Fingerprint Verification Based on Absolute Distance and Intelligent BPN, Jie Wee Jia, Han Jung, Dongliun Lin, Huanmin Lin, Dongliun Lin**

**Neural Network Based Biometric Personal Identification, Rabi H.M. Abyev, Koryu Allahya**

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### Coffee Break

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### Biometrics II

**FuzzyHash: A Secure Biometric Template Protection Technique, Andrew Teoh Beng Jin, Jihae Kim**

**U-User Authentication Methods and Encryption Techniques Based on Biometric Technology, YoungJun Kim, Jason Kim**

**A Context-Aware Statistical Ontology Approach for Adaptive Face Recognition, Md. Reazul Bashar, Sang Kwang, Pankaj Raj Dawadi, Phil Kluy Rhee**

**Performance Evaluation Model for the Face Recognition System, YongNuo Shin, Jason Kim, YongJun Lee, Woochang Shin, Jinyoung Choi**

**Iris Segmentation and Verification, Jong-Gook Ko, Jang-Hee Yoo, Ki-Young Moon**

**Bio-inspired Adaboost Method for Efficient Face Recognition, Suman Sedai, Phil Kluy Rhee**

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### Lunch

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### Biotechnology

**Keynote Address:**

Professor Sang Yup Lee (Distinguished Professor, KAIST): V.I.P.

**Opening Address:**

October 11th 2007 FBIT 2007
9:00-11:15  Phylogenetics and Biomecule Discovery
Classification of Aquatic Plant transfers of Dicystylosiscoides by Phylogenetic Analysis, Kuo-Yuan Hwa, Te-Ling Pang, Mei-Yu Chen
Molecular Mimicry between SARS Coronavirus Spike Protein and Human Protein, Kuo-Yuan Hwa, Wan-Min Lin, Yung-Hou, Tsai, Meiyin Yang
Phylogenetic Analysis of Tricomphone Xylosyltransferases, Kuo-Yuan Hwa, Hsing-Hsuan Hung, Chen-Hsing Chen
Crystal structure and computer screened inhibitors of Helicobacter pylori uncured prenylprophosphate synthase, Chih-Jung Kuo, Reuy-Ting Gao, Hue-Li Lu, Yong-Wu Yu, Tsu-Ping Ko, Andrew H.-J. Wang, Po-Huang Liang
Structural Rationale for Differential Carbohydrate Recognition by Barley and Fibroblast sucosinegeneses 1.54-P-D Glucanases, Li-Chu Tsai
Unsupervised Learning in Spectral Genomic Analysis, Lutz Hamel, Naher Nahar, Maria S. Pospisilova, Olga Zhavorhayeva, Peter Gogarten
Evolution by communication: a revision of sperm-mediated gene transfer, Andrew V. Kuretsov

Aquaculture Research
Implementation of an Aquatic Plant Information Bank, JinKyu Park, Eunjin Hwag
IT Convergence Application System for Eco Aquafarms, Heeteak Ceong, Jeong-Seon Park, Sooheen Han
Design of Environment Monitoring System for Aquafarms, Sooheen Han, Youngman Kang, Kyehwa Park, Moonsoo Kang
Computer Simulation Framework for Flatfish Aquaculture, Heeteak Ceong, Hyun-Kum Park, Sung-Ju Chang
Fish Schooling Behavior Simulator for Cyber Aquarion, Eung Kon Kim, Jong Chan Kim

Interaction with Humanoids Speech and Gaze
Articulatory Reproduction of Voices of Hearing-impaired by a Talking Robot, Hideyuki Sawada, Mitsuki Kitani, Yasumori Hayashi
Speech Enhancement using Masking of Noisy Power Estimates and Linear Regression, Soojeong Lee, Soohooy Kim
3D Gaze Tracking and Analysis for Attentive Human Computer Interaction, Jeongseok Ki, Yong-Moo Kwon, Kwanghoon Shin
3D Environment Modeling and its Application to Human Robot Interaction, Kyong-Won, Jeongseok Ki, Yong-Moo Kwon, Hanaek Ko
Usability Evaluation of Humanoid Animation Avater with Physiological Signals, Sonho Kim, Gil Cheol Park, and Seoksoo Kim

Data Analysis and Information Mining
Exploring a Variant of Term Reweighing for Enhancing MEDLINE Documents Retrieval, Sooyoo Yoo, Jinwook Choi
Automated Classification and Information Extraction of Biological Text, Jinho Yang, Yoonhee Choi, Kiho Junghyuk, Soonho Kim
Three-phase Detection of Gene Interactions based on Syntactic Paths, Myung-Kim Young
A Cluster-Outlier Iterative Detection Approach to Multi-Dimensional Data Analysis, Yong Shi, Aiding Zhang
User Customized Document Clustering Using Attributes in Patent Documents, Yoo Gyoung Jun, Yilli Byung Lee
Data Mining Techniques for Emboli Detection, Adem Karahoca, Nazimettin Aydin
Mining Databases by Means of an Incremental Association Rule Learner, Lalai Efangary, Waldy Aldy Ateya

9:30-10:00  Coffee

10:15-11:30  Mathematical Genomics
Three Dimensional Chaos Game Representation of Genomic Sequences, Imam Tavassoli, Omid Tavassoli
Multifractal Analysis of Chaos Game Representation Images of Microbial DNA, Imam Tavassoli, Omid Tavassoli
Multifractal Analysis of Chaos Game Representation Images of Microbial DNA, Imam Tavassoli, Omid Tavassoli
Validation of Alternating Kernel Mixture Method Based Segmentation of the Human Brain, Nayoong A. Lee, Carey E. Priebe, Michael I. Miller
Mapping Genetic Influences on Brain Shape using Multi-Atlas Fluid Image Alignment, Meena Mani, Yiyu Chou, Natasha Lepore, Arthur W. Toga

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11:45-12:30  Lunch

12:30-13:30  Multi-scale Mathematical Modelling of Spatio-temporal Dynamics of Cancer
Bioinformatics Analysis of the Envelope Glycoprotein and Construction of Infectious RNA Transcripts of Dengue Virus, Huang Zhong, Shuji Gong, Wei Zhao, Lidan Chen, Jun Luo, Hong Cao, Min Zhang
Optimizing Face Recognition, Suman Sodhi, Phil Kye Rhee
Canonical View Synthesis for Gait Recognition, Sungsang Jeong, Su-Bin Kim, Byung-Uk Choi
two-level Classifier Scheme for Efficient Eye Tracking, Xi Wang, Sung Kwan Kang, Phil Kye Rhee

13:30-15:10  Computational Anatomy
Hippocampal shape-space analysis of clinicaly depressed, high risk, and control twin populations, Younger Park, Casey Prineb, Kelly Bottema, Michael Miller, Nihal Mohan
Brain Differences Visualized in the Blinded using Tensor Manifold Statistics and Diffusion Tensor Imaging, Agatha D. Lee, Natasha Lepore, Franco Lepore, Frainline Alary, Patrick Voss, Yiyu Chou, Caroline Brun, Marina Barysheva, Arthur W. Toga
Validation of Alternating Kernel Mixture Method Based Segmentation of the Human Brain, Nayoong A. Lee, Carey E. Priebe, Michael I. Miller
Mapping Genetic Influences on Brain Shape using Multi-Atlas Fluid Image Alignment, Meena Mani, Yiyu Chou, Natasha Lepore, Agatha Lee, Jan de Leeuw, Kate McMahon, Margie Wright, Arthur Toga, Paula M. Thompson

15:10-16:30  Coffee

16:40-18:00  Rough Sets for Biosciences
Evaluation of a Dominance-Based Rough Set Approach to Interface Design, Timothy McCaig, Daryl H. Hepping, Robert J. Hilderman, Dominik Slezak
Rough Set Based Information Retrieval from Argumentative Data Sources in Weblogs, Seo Wio Kim, Chin-Wan Chung
On the Use of Rough Sets for Artifact Extraction from EEG Data, Kenneth Revett
Approximation Degrees in Decision Based-Bit Rough Set Design

17:30-19:00  Registration opens 08:00~
October 13th 2007  FBIT 2007

Registration opens 08:00~

9:00- 10:00  Keynote Address:  Professor Kwang-Hyun Cho (KAIST): Systems Biology as a Merger of Mathematics, Computer Simulations, and Life Sciences

10:00- 10:15  Coffee

10:15- 12:30  Microarrays

A Graph Theoretic Classification of Gene Expression Microarray Data of Cancer, Saejoon Kim

A Direct Clustering Method for Imperfect Microarray Data without Imputation, Taegyun Yun, Soyoung Kim, Taeho Hwang and Gwan-Su Yi

k-TSNk-Top Scoring Ni: Microarray data classification based on rank-comparison decision rules, Youngmi Yoon, Sangjay Bien, Sanghyun Park

DNA Microarray Classification with Compact Single Hidden-Layer FeedForward Neural Networks, Hee Trung Huynh, Jun-Ja Kim, Yonggyun Won

Detecting Regulator-Target Gene Pairs from Expression Profile of Microarray, Hee-Jeong Jin, Ji-Yeon Lee and Hwan-Gue Cho

An Efficient Two-Phase Algorithm to Find Gene-Specific Probes for Large Genomes, Seung-Ho Kang, Man-Ho Choi, In-Seon Jeong, Hyeyaeng Seok Lim

Selecting Informativeness From Microarray Data For Cancer Classification With Genetic Programming Classifier Using K-Means Clustering And SNR Ranking, Supo Hengpraprohm, Prabhas Chongstitvatana

Infectomics II

Game Theory Models for Infectious Diseases, Sheng-He Huang, Wensheng Zhou, Ambrose Jung, Huan Qi

Role of Mononuclear Phagocytes in Pathogenesis of SARS, Li He, Yanqiu Dong, Qingling Zhang, Ping Liang, Xingyan Liu, Sheng-He Huang

Principal Component Analysis of infections in Human Brain Endothelial Cell after C. neoformans infection, Ambrose Y. Jong, Luo Feng, Steven H. M Chen and Sheng-He Huang


Mathematical modeling of dynamic host responses to HIV Infection, Changjiang Long, Huan Qi, Sheng-He Huang

Genetic and Evolutionary Computation and Heuristic Search II

Genetic algorithm that can dynamically change number of individuals and accuracy, Akihiko Tsukahara, Akinori Kanasugi

An Evolutionary Approach to Speech Quality Estimation, Adi Raja, Raja Muhammad Afi Azad, Colin Flanagan, Connor Ryan

A Destructive Evolutionary Algorithm Process, Joe Sullivan, Connor Ryan

A new approach to calculate the best context of a tree and its application in defining a constructive, context aware crossover for GP, Hammad Najjed, Connor Ryan

Capturing Domain Relevant Functionality Through Schematic Manipulation for Genetic Programming, Gearoid Murphy, Connor Ryan, Daniel Howard

Developmental Evaluation in Genetic Programming: A Position Paper, R.J.(Bob) McKay, Daryl Essam, Xuan Hoai Nguyen

Maintaining Diversity in EDAs for Real-Valued Optimisation Problems, David Wallin, Connor Ryan

Bioteches

Protein Structure Computation, Gwyn Skone, Stephen Cameron

Estimating the Reliability of Protein-Protein Interactions, Byungyuk Park and Kyungsook Han

Protein Classification by Matching 3D Structures, Slobodan Kajtazovic Georgia Mirceva, Kire Trivodaliev, Danco Davce

Classification of Cell Membrane Proteins, Seyed Koossa Golmohammadi, Lukasz Kurgan, Brendan Crowley, Marek Reformat

Identifying Functional Groups by Finding Cliques and Near-Cliques in Protein Interaction Networks, Kyungsook Han, Guangyui Cui, Y Chen

Proteomic Approach to Screen Peanut Genotypes with Enhanced Nutritional Qualities, Ramesh Katam, Hemanth Kn. Vasanthanah, Sheelii M. Basha

Cancer Screening

A Proposed Decision-Support System for (Renal) Cancer Imaging, Stuart Goldstez, Irina Voiculescu, Stephen Cameron

Computer-Aided Diagnosis of Cross-Institutional Mamograms using Support Vector Machines with Feature Elimination, Saejoon Kim, Sejong Yoon, Donghyuk Shin

Early Detection of Prostate Cancer with Classifier Ensembles, Richard Cammann, Stephan Konodoff

Application of the GM(h,N) Model to Analyze the Influence Factor in Cervical Cancer Screening, Su-Or Chen, Chih-Cheng Huang, Mei-Li You, Ching-Yung Kung

Mammography Phantom Studies Using 3D Electrical Impedance Tomography with Numerical Forward Solver, Umer Zaheen Iaz, Bong Seok Kim, Tzu-Jen Kao, Anil Kumar Khambampati, Sin Kim, Min Chan Kim, Jonathan C. Newell, David Isaacson, Kyung Youn Kim

Textural Classification of Mammographic Parenchymal Patterns with the SONNET Self-Organizing Neural Network, Daniel Howard, Simon C Roberts, Adrian Brezulianu, Connor Ryan

Neuroscience

Measurement and Analysis of “Yes” and “No” Responses by Auditory Stimuli Questions in Human EEG, Sanghee Seo, Haetong Chen, Donghee Ye, Jungtae Lee and Kyungjae Ha

Determination of Effects of Different Music on Frontal Muscle by using EMG signal, Sadik Kara, Pinar Ozcel


Learning to Decode Instantaneous Cognitive States from Brain Images, Rafael Ramirez, Enric Cecil

Molecular Simulation

A Web-based Interactive Monitoring System for Molecular System, Jun Lee, Taedoo Heo, SangjunPark, YoungUn Choi, Karpjo Jeong, Jee-In Kim

12:30- 14:00  Lunch

14:00- 16:00  Proteomics II

Protein Structure Computation, Gwyn Skone, Stephen Cameron

Estimating the Reliability of Protein-Protein Interactions, Byungyuk Park and Kyungsook Han

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Textural Classification of Mammographic Parenchymal Patterns with the SONNET Self-Organizing Neural Network, Daniel Howard, Simon C Roberts, Adrian Brezulianu, Connor Ryan

Bionetics

Adaptive Data Dissemination in Sensor Networks using HIP20, Falko Dressler, Reinhard German, Bettina Krüger

Noise-Assisted Control in Information Networks, Naoki Wakamiya, Kenji Leibnitz, Masayuki Murata

Molecular Communication - A Biochemically-Engineered Communication System, Yuki Moriishi, Satoshi Hiyama, Tatsuya Suda


Leveraging Biologically-inspired Mobile Agents Supporting Composite Needs of Reliability and Timeliness in Sensor Applications, Preet Boomaa, Qian Han, Junichi Suzuki

Classifer Research

Genetic Algorithm Approach to Construction of Specialized Multi-Classifier Systems: Application to DNA Analysis, Romesh Ranawana, Vashisht Patole, Daniel Howard

Knowledge Discovery via Incremental Learning, Tristan Ling, David P. Johns, Byeyong Ho Kang, Justin Walls, Gil-Chool Park

A Fast Heuristic Algorithm for Similarity Search in Large DNA Databases, In-Seon Jeong, Kyungsuk Lim, WookPark, Hyeyaeng Seok Lim

16:00- 16:15  Coffee

16:15- 17:00  Best Paper Awards – Conference Close