

2011 Biomedical Engineering International Conference

(BMEiCON 2011)

**Chiang Mai, Thailand
29-31 January 2012**



**IEEE Catalog Number: CFP1158R-PRT
ISBN: 978-1-4577-2189-2**

TABLE OF CONTENTS

Mathematical Model for the Secondary Infection of Infectious Disease with Incorporated the Disease Induced Death Rate	1
<i>R. Kongnuy, E. Naowanich</i>	
Effect of the Short-Term Magnetic Stimulation by rTMS on P300 Latency	7
<i>T. Torii, A. Sato, Y. Masada, Y. Nakahara, M. Iwahashi, K. Iramina</i>	
Malaria Transmission Model of Juvenile and Adult Humans	11
<i>P. Pongsumpun, P. Mumtong</i>	
Stability and Lyapunov Functions for the Dynamics of Leptospirosis	17
<i>R. Kongnuy, E. Naowanich</i>	
Gait Characterizations Under Dynamic Load During Walking in Hemiplegic Patients	22
<i>S. Sanghan, S. Chatpun, W. Leelasamran</i>	
An Instrumentation Design for Microsignal Output From Piezoresistive Microcantilever Biosensor For Human Stress	26
<i>L. Khuan, M. Ismail, A. Hamid, I. Rustam, M. Bujang, M. Abdullah, N. Madzhi, A. Ahmad</i>	
Guidelines for Virtual Simulator Sickness Experimentation	31
<i>C. Jinjakam, K. Hamamoto</i>	
Development of Finite Element Model for Analysis in the Realistic Human Skull Impact	36
<i>P. Woraratsoontorn, P. Sooraksa</i>	
Time-Frequency Analysis for Cancer Detection Using Proteomic MS-Spectra	40
<i>T. Limpiti, A. Assawamakin, A. Intarapanich, S. Tongsima</i>	
Development of Electric Field Sensing System as A Putative Skin Sensation Sensor	45
<i>S. Suzuki, Y. Saegusa, T. Takahashi</i>	
Evaluation of the Effect of Cosmetic Therapy by EEG	48
<i>A. Machida, M. Shirato, S. Takata, Y. Atsumi, T. Yagi</i>	
A Wireless Networked Smart-Shoe System for Monitoring Human Locomotion	54
<i>W. Donkrajang, N. Watthanawisuth, J.P. Mensing, T. Kerdcharoen</i>	
Investigation of The Ion Concentration Effect on Eucalyptus Root Growth in a.c. Electric Field	59
<i>T. Hotta, S. Suzuki, T. Takahashi</i>	
Breath Monitoring based on the Optical Electronic Nose System	63
<i>A. Eambaipreuk, S. Kladsomboon, T. Kerdcharoen</i>	
A Design of Configurable ECG Recorder Module	67
<i>A. Punapung, S. Tretriluxana, K. Chitsakul</i>	
Sensor Pillow System: Monitoring Cardio- Respiratory and Posture Movements During Sleep	71
<i>S. Lokavee, N. Watthanawisuth, J.P. Mensing, T. Kerdcharoen</i>	
Implementation of a Human Vital Monitoring System using Ad Hoc Wireless Network for Smart Healthcare	76
<i>P. Insom, P. Wongpanitert, J. Tipsupa, K. Rakjang, K. Kaemarungsi, P. Watanachaturaporn</i>	
Evaluation Method for Ion Transport via Nanopores	82
<i>Y. Ishii, T. Yagi, M. Sugawara</i>	
Detection of Mycobacterium Tuberculosis by Using Loop-mediated Isothermal Amplification Combined with a Lateral Flow Dipstick Biosensor	86
<i>T. Kaewphinit, S. Santiwatanakul, P. Jaratsing, K. Chansiri, N. Arunrut, W. Kiatpathomchai</i>	
Alphabet Matrix Layout in P300 Speller May Alter its Performance	89
<i>Y. Sakai, T. Yagi</i>	
Investigation of HC04 Human Hepatocyte Cells Interaction with Fibronectin and Gelatin Plated on Paper for Cell Based Sensor Application	93
<i>U. Waiwijit, A. Wisitsoraat, A. Tuantranont, B. Oonkhanond, W. Kandhavivorn</i>	
Industrial Community Odor Monitoring Utilizing Wireless Electronic Nose for Human Health Protection	96
<i>T. Pogfay, N. Watthanawisuth, A. Wisitsoraat, T. Lomas, A. Tuantranont</i>	
Comparison of Open Slot Angle for Asymmetry Slot Antenna using 3D Finite Element Method	100
<i>K. Thaiwat, P. Nantivatana, P. Phasukkit, S. Tungjitusolmun, M. Sangworasil</i>	
Optimal Matrix Size for Analysis of Tissue Engineering Scaffold Stiffness	104
<i>N. Chantarapanich, P. Puttawibul, P. Jeamwatthanachai, K. Sithiseripratip, S. Sucharitpwatskul, A. Laohaprapanon</i>	
Salmonella Cell Rupture on a Microfluidic Chip Using Electroporation Technique	108
<i>S. Jaikla, T. Maturos, T. Pogfay, C. Neatpisarnvanit, P. Sritongkham, A. Tuantranont</i>	

On-chip Cell Separation and Manipulation using Traveling Wave Dielectrophoretic Force Controlled by Four-phase Signal Generator	113
<i>K. Jaruwongrangsee, T. Maturros, S. Bunthawin, A. Wisitsoraat, M. Sangworasil, A. Tuantranont</i>	
Signal Processing for Heart Rate Variability Analysis Case Study: Ventricular Tachycardia Condition	117
<i>P. Muaynoi, S. Tretriluxana, K. Chitsakul</i>	
Knee Angle Model of Prosthesis for Stair Ascending Gait Detection.....	120
<i>J. Pinitlertsakun, W. Charoensuk</i>	
Driver Fatigue Monitoring System Using Video Face Images & Physiological Information	125
<i>S. Anumas, S.C. Kim</i>	
Surface EMG Based Controller Design for Knee Rehabilitation Devices.....	131
<i>J. Poonsiri, W. Charoensuk</i>	
Real-time Monitoring Glucose by used Microwave Antenna apply to Biosensor	135
<i>S. Wiwatwithaya, P. Phasukkit, S. Tungjitkusolmun, W. Wongtrairat</i>	
Cholesterol Biosensor based on Direct Electron Transfer of Cholesterol Oxidase on Multi-wall Carbon Nanotubes	138
<i>S. Pakapongpan, P. Sritongkham, A. Tuantranont</i>	
Counting Number of Points for Acne Vulgaris Using UV Fluorescence and Image Processing	142
<i>M. Khongsuwan, S. Kiattisin, W. Wongseeree, A. Leelasantitham</i>	
Counting Number of Sweat Glands Using Image Processing.....	147
<i>N. Pakkaselevat, S. Kiattisin, W. Wongseeree, A. Leelasantitham</i>	
The Automated Assesment of Artery Hemodynamic Parameters from Ultrasound Video.....	151
<i>U. Rubins, Z. Marcinkevics, A. Turkina</i>	
Ischemic Stroke Analysis of CT Perfusion Maps Cerebral Blood Volume and Cerebral Blood Flow Based on Digital Image Processing Techniques	156
<i>S. Fueanggan, S. Chokchaitam, S. Muengtaweepongsa</i>	
Development of Cooperate System with Medical Robot to Alleviate Fatigue in Echography.....	161
<i>K. Masuda, Y. Urayama, S. Saito, Y. Takachi</i>	
Development of Automatic Recognition Software of Left Ventricle by Time Series Processing Echocardiograms and Application to Disease Heart	165
<i>S. Takeshima, H. Matsuda, T. Yoshinaga, K. Masuda,</i>	
Automatic Segmentation and Degree Identification in Burn Color Images	169
<i>K. Wantanajittikul, N. Theera-Umporn, S. Auephanwiriyaikul, T. Koanantakool</i>	
Fingerprint Matching With Cross Correlation and Minutiae Scores	174
<i>S. Insankeovilay, P. Prasarn, S. Choomchuay</i>	
Design and Construction of Control Expiratory Time Adjustment Display Knob for the Bird Mark 7 Ventilator.....	178
<i>N. Thongpance, T. Yooto, N. Boorasit</i>	
How to Make an Easy Human Thorax Model.....	182
<i>C. Thajijiam</i>	
The Survey on Medical Equipment Maintenance System in General Hospitals of Thailand.....	186
<i>P. Jamkrajang, S. Daochai, W. Sroykham, Y. Kajornpredanon, C. Apaiwongse</i>	
Phthalocyanine/Graphene Hybrid-materials for Gas Sensing in Bio-medical Applications	190
<i>J. Mensing, C. Sriprachuabwong, A. Wisitsoraat, T. Kerdcharoen, A. Tuantranont</i>	
A Measurement of Soft Neurological Signs by Pronosupination using Wireless Acceleration and Angular Velocity Sensors	194
<i>M. Kaneko, K. Iramina, Y. Kamei, Y. Katayama, T. Ohya, Y. Yamashita, S. Takashima</i>	
An Insole Point Pressure Monitoring System.....	198
<i>A. Numchaichanakij, K. Chitsakul, S. Tretriluxana</i>	
Novel Amplitude Compensation for Digital Signal Processing System Using Minimum Phase Filter	202
<i>S. Praesomboon, K. Dejhan, S. Yimman, C. Phromlikhit</i>	
Experimental Study of Digital Microfluidic Biochip	207
<i>K. Ugsornrat, T. Pogfai, T. Maturros, A. Wisitsoraat, A. Tuantranont</i>	
Basic Investigation of Breast Cancer Detection in Early Stage Using Microwave Radiation: Finite Element Analysis Approach.....	212
<i>A. Sanpanich, P. Phasukkit, S. Tungjitkusolmun, C. Pintavirooj, W. Wongtrairat</i>	
Real Time Human Fall Detection by Wide Angle Camera Overhead Install	216
<i>T. Suntornwat, P. Rattanasakornchai</i>	
Non-invasive Blood Pressure Measurement: Auscultatory Method Versus Oscillometric Method	221
<i>S. Daochai, W. Sroykham, Y. Kajornpredanon, C. Apaiwongse</i>	
Improvements in Ultrasound Elastography using Dynamic Focusing	225
<i>D. Lertsilp, S. Umchid, U. Techavipoo, P. Thajchayapong</i>	

Detection of Disk Drug Orientation for Disk Diffusion Susceptibility Testing	229
<i>T. Okowat, S. Taertulakarn, S. Samosornsuk, C. Pintavirooj</i>	
Robustness of Geodesics to Affine Transformation	233
<i>C. Panyindee, P. Tosranon, C. Pintavirooj</i>	
Design and Development of Touch Screen Based Continuous Passive Motion Device for Knee Rehabilitation	237
<i>J. Rattarojpan, S. Umchid</i>	
Discrete Mathematical Model of Chest Thickness Using Kernel Function for Optimum kVp and mAs of Computed Radiography	242
<i>S. Suntaropas, S. Yimman, R. Boontawan, K. Dejhan</i>	
Mathematical Model of Audiogram with Second Order Recursive System	246
<i>T. Jongsataporn, S. Yimman, S. Praesomboon, K. Dejhan</i>	
Stability Characteristics of Patelofemoral Prostheses: an In-vitro Pilot Study	251
<i>W. Senavongse</i>	
Illuminant Effect on LCD and LED Stimulators for P300-based Brain-Controlled Wheelchair	254
<i>D. Puanhvuan, Y. Wongsawat</i>	
ROI Detection of Reading Process Using ANFIS Method	258
<i>P. Pongpanitanont, T. Prasertsakul, W. Sittiprapaporn, W. Charoensuk</i>	
Development of e-Health Application for Medical Center in National Broadband Project	262
<i>K. Noimanee, S. Noimanee, S. Wattanasirichaigoon, N. La-Oopugsin, V. Mahasitthiwat, K. Thongbunjob, S. Tungjitusolmun, P. Ratleadkarn</i>	
Selection and Removal of Artifacts in EEG Based on Independent Components	266
<i>T. Ikuno, Y. Katayama, K. Iramina</i>	
Focal Potassium Microinjection in Rat Hippocampal Slices Inducing Interictal Activities	269
<i>T. Parittotokkaporn, J. Sirirattanapan, P. Yu, M.C. Hsiao, D. Song, T. Berger</i>	
Fabrication of Novel Shark Collagen-pectin Scaffolds for Tissue Engineering	273
<i>Y. Sangsen, S. Benjakul, K. Oungbho</i>	
Optimal Parameters of Electroporation for Gene and Tissue	279
<i>S. Rodamporn</i>	
Biomimetic Materials as Scaffolds for Tissue Engineering	283
<i>J. Meesane</i>	
Biomedical Application of Thai Silks	286
<i>S. Kanokpanont, S. Damrongsakkul, P. Thitivuthikiat</i>	
Feasibility of Using Alginate/Gelatin Composite Scaffold for Human Chondrocyte Regeneration	290
<i>P. Osateerakun, T. Bunaprasert, S. Kuptniratsaikul, S. Kanokpanont, P. Itiravivong</i>	
A Single Tooth Segmentation Using Structural Orientations and Statistical Textures	294
<i>P. Choorat, W. Chiracharit, K. Chamnongthai</i>	
Engaging with the Medical Community in Biomedical Engineering Research	298
<i>T. Gale, C. Stack, P. Dargaville</i>	
Body Area Network Measurement with Ultra Wideband Technology	302
<i>D. Arpasin, M. Noitubtim, N. Manositthichai, S. Promwong</i>	
Antenna Transfer Function Evaluation Scheme for Ultra Wideband Medical Applications	306
<i>K. Koonchiang, N. Manositthichai, C. Fongsamut, S. Promwong</i>	
Evaluation of Ultra Wideband Body Area Network	311
<i>B. Ruckveratham, S. Teawehim, P. Chiochan, S. Promwong</i>	
Author Index	