

**2013 3rd International
Conference on Instrumentation,
Communications, Information
Technology, and Biomedical
Engineering**

(ICICI-BME 2013)

**Bandung, Indonesia
7 – 8 November 2013**



IEEE Catalog Number: CFP1387H-POD
ISBN: 978-1-4799-1648-1

Table of Contents

KEYNOTE ADDRESS

Combination of High-throughput Genomic Technologies and Bioinformatics for Molecular Characterization of Cancer	1
<i>Eric Y. Chuang</i>	
A Brief Review on Existing Cyber-Physical Systems for Healthcare Applications and Their Prospective National Developments	2
<i>Soegijardjo Soegijoko</i>	
Precision Dynamic Force Measurements using the Levitation Mass Method (LMM)	3
<i>Yusaku Fujii</i>	
eHealth – Layers to Achieve Safe, Efficient and Cost Effective Solutions to Information Exchange	4
<i>Heather Grain</i>	
Microbial Landscape in Space Exploration.....	8
<i>Kazuhito Shimada</i>	
Developing Radio Astronomy at Bosscha Observatory.....	10
<i>Taufiq Hidayat</i>	

PAPERS

How Health Information System Could Help The Leprosy Control Program in Indonesia?.....	16
<i>Enny Rachmani, Chien Yeh Hsu, and Arif Kurniadi</i>	
Prototype Of 3D Reconstruction System For Ultrasound Imaging Modalities : Case Study Handmade Bone Phantom.....	21
<i>Muhammad Qurhanul Rizqie, Widyawardana Adiprawita, and Tati R. Mengko</i>	
Simulation of a Smart Home Environment ..	27
<i>Arni Ariani, Stephen J. Redmond, David Chang, and Nigel H. Lovell</i>	
Fabrication of Microfluidic Chips by Sandwiching Patterned Plastic Sheet by Microscope Slides ..	33
<i>Hendra Salim, Henri P. Uranus, and Endrowednes Kuantama</i>	
Design of Rectangular Stacked Patch Antenna with Four L-Shaped Slots and CPW-Fed for WiMAX Application	39
<i>H. Nornikman, F. Malek, N. Saudin, M. Md. Shukor, N. A. Zainuddin, M. Z. A. Abd Aziz, B. H. Ahmad, and M. A. Othman</i>	

Dual Layer Rectangular Microstrip Patch Antenna with H-Slot for 2.4 GHz Range Applications ..	44
<i>H. Nornikman, F. Malek, N. Saudin, N. A. Zainuddin, M. Md. Shukor, M. Z. A. Abd Aziz, B. H. Ahmad, and M. A. Othman</i>	
Impedance of the Unit Cell of the Frequency Selective Surface At 2.4 GHz	49
<i>M.Z.A. Abd. Aziz, M. Md. Shukor, M.K. Suaidi, B. H. Ahmad, M. F. Johar, S.N.Salleh, F.A. Azmin, and M. F. Abd. Malek</i>	
Facial Feature Extraction on Pre and Post-operative Infant With NFCS and nCRF ..	54
<i>Mira C. Kirana, I Ketut E. Purnama, Yoyon K. Suprpto, Mochamad Hariadi, and Mauridhi H. Purnomo</i>	
Facial Motion Capture with 3D Active Appearance Models ..	59
<i>Cahyo Darujati and Mochammad Hariadi</i>	
Thoracic X-ray Features Extraction using thresholding-based ROI template and PCA-based Features Selection for Lung TB Classification Purposes	65
<i>Ratnasari N. R, Adhi Susanto, Indah Soesanti, and Maesadji</i>	
Comparison on IV Characteristics Analysis between Silicon and InGaAs PIN Photodiode ..	70
<i>T. S. M. Arshad, M. A. Othman, N. Y. M. Yasin, S. N. Taib, M. M. Ismail, Z. A. F. M. Napiah, H. A. Sulaiman, M. N. Hussain, M. A. Meor Said, M. H. Misran, and R. A. Ramlee</i>	
Variable Junction Temperature Analysis in Silicon IMPATT Diode ..	76
<i>T. S. M. Arshad, M. A. Othman, N. Y. M. Yasin, S. N. Taib, Z. A. F. M. Napiah, M. N. Hussain, Y. Abd. Rahim, A. N. Che Pee, M. M. Ismail, M. H. Misran, M. A. Meor Said, H. A. Sulaiman, and R. A. Ramlee</i>	
An Analysis of Dielectric Constant of Pharmaceutical Medicines using Microwave Radiation Exposure ..	80
<i>M. A. Othman, P.N.M.M.M Noor, T. S. M. Arshad, N. Y. M. Yasin, S. N. Taib, M. M. Ismail, M. H. Misran, M. A. Meor Said, H. A. Sulaiman, and R. A. Ramlee</i>	
An Analysis of Low Pass Filter Using Bowtie Defected Ground Structure (DGS) at 10 GHz for Radar Application	85
<i>S. N. Taib, M. A. Othman, W.N.A. Makhzan, T. S. M. Arshad, N. Y. M. Yasin, M. M. Ismail, M. H. Misran, M. A. Meor Said, H. A. Sulaiman, and R. A. Ramlee</i>	
Radio Frequency Identification (RFID) Controller using Zigbee Technology for Reducing Machine Connection Failure ..	90
<i>T. S. M. Arshad, M. A. Othman, M. Esro, H. Mohd Fauzi, M. F. Johar, M. Z. A. Abd Aziz, N. Y. M. Yasin, and S. N. Taib</i>	
X Band Parallel Coupled-Line With Dumbbell DGS Filter For Radar Applications	94
<i>S. N. Taib, M. A. Othman, M. A. Mior Hamdan, N. Y. M. Yasin, T. S. M. Arshad, M. Z. A. Abd Aziz, N. Hassan, and A. Salleh</i>	
Miniaturized Paper Based Substrate Microstrip Antenna with Slot Configurations for Automotive Systems ..	100
<i>W. N. Z. W. Salleh, M. Y. Ismail, and N. Misran</i>	

Distance Approximation using Pivot Point in Narrow Phase Collision Detection	106
<i>Hamzah Asyrani Sulaiman, Mohd Azlishah Othman, Lizawati Salahuddin, Muhammad Noorazlan Shah Zainudin, Sani Irwan Md Salim, Mohd Muzafar Ismail, Abdullah Bade, and Mohd Harun Abdullah</i>	
Hardware Design of Spatial Mapper for 1.73Gbps Multi-User MIMO System of IEEE802.11ac	111
<i>Hendra Setiawan, Leonardo Lanante Jr, Masayuki Kurosaki, and Hiroshi Ochi</i>	
Design and Construction of Early Flood Warning System Through SMS based on SIM300C GSM Modem	115
<i>Endrowednes Kuantama, Pono Mardjoko, and Made Anggrezia Saraswati</i>	
InGaAs/InP Avalanche Photodiode Performance Effect using Variation Guard Ring Structures	120
<i>S. N. Taib, M. A. Othman, Z. A. F. M. Napiah, M. N. Hussain, N. Y. M. Yasin, and T. S. M. Arshad</i>	
Design and Implementation of Hardware-In-The-Loop-Simulation for UAV Using PID Control Method	124
<i>Sufendi, Bambang Riyanto Trilaksono, Syahron Hasbi Nasution, and Eko Budi Purwanto</i>	
The Effect of Sound Levels on Attention Deficit	131
<i>MMM Aminuddin and I Mustaffa</i>	
Development of Real-Time Precipitable Water Vapor Monitoring System	135
<i>Wayan Suparta and Kemal Maulana Alhasa</i>	
Interval Type-2 Fuzzy Logic Controller of Heat Exchanger Systems	141
<i>Dwi Ana Ratna Wati and Putri Nurul Jayanti</i>	
A Bandpass Filter Based on Square Open Loop Resonators at 2.45 GHz	147
<i>Dian Widi Astuti, Juwanto, and Mudrik Alaydrus</i>	
Comparing Edge Detection Methods to Localize Uterus Area on Ultrasound Image	152
<i>Retno Supriyanti, Dhea Adisti Putri, Eko Murdyantoro, and Haris B Widodo</i>	
Detection and Estimation of Weak Sine Waves with Random Offset and Additive Noise	156
<i>Diego Bellan</i>	
Design of Wideband Antenna for RF Energy Harvesting System	162
<i>N. A. Zainuddin, Z. Zakaria, M. N. Husain, B. Mohd Derus, M. Z. A. Abidin Aziz, M. A. Mutalib, and M. A. Othman</i>	
Parallelization of Star Alignment	167
<i>Asril Adi S, Wisnu Ananta Kusuma, and Heru Sukoco</i>	
Application of ANFIS Model for Prediction of Zenith Tropospheric Delay over Antarctica	172
<i>Wayan Suparta and Kemal Maulana Alhasa</i>	

Magnetic Field Distribution Simulation on Two Permanent Magnet Rotor Discs with Twelve Pole Pairs	178
<i>Prih Sumardjati Mulyaseputra, F. Danang Wijaya, Sasongko Pramono Hadi, and Suharyanto</i>	
Wiener Filter Based Channel Predictor Performance Improvement Using Polinomial Extrapolation	184
<i>Rifan Budi Resmana, Rina Pudji Astuti, and Adit Kurniawan</i>	
The Quaternion-based Attitude Control System with an Augmented Dynamic	190
<i>Harry Septanto, Bambang Riyanto Trilaksono, Arief Syaichu-Rohman, Ridanto Eko Poetro, and Adrianto Ravi Ibrahim</i>	
Malaria Parasite Identification on Thick Blood Films Using Genetic Programming	194
<i>I Ketut Eddy Purnama, Farah Zakiyah Rahmanti, and Mauridhi Hery Purnomo</i>	
Design of Contactless Hand Biometric System With Relative Geometric Parameters	199
<i>A. Siswanto, P. Tarigan, and F. Fahmi</i>	
Progress on Ligands effects in Porphyrin-based molecules in benzene solvent for Photodynamic Therapy Applications	204
<i>Vera Khoirunisa, Viny V. Tanuwijaya, Febdian Rusydi, Nugraha, and Hermawan K. Dipojono</i>	
Lie Detection in Interrogations Using Digital Signal Processing of Brain Waves	209
<i>Samreen Amir, Nimrah Ahmed, and Bhawani Shankar Chowdhry</i>	
Decision Support System For Information Resources Quality As A Tool For Quality Evaluation In Hospital	215
<i>Boy Subirosa Sabarguna, Anwar Soefi Ibrahim, Prasandya Astagiri Jusuf, and Ajeng Pramastuty</i>	
Ozone Production by Dielectric Barrier Discharge Plasma for Microbial Inactvation in Rice	221
<i>Muhammad Nur, Aribat Solichin, Endang Kusdiyantini, Tri A. Winarni, Susilo, Dian Arif Rahman, Resti Maryam, Sosiowati Teke, Wuryanti, and Harjum Muharam</i>	
Electrical Power Measurement Using Arduino Uno Microcontroller and LabVIEW	226
<i>Fransiska R.W., Septia E.M.P., Vessabhu W.K., Frans W., Abednego W., and Hendro</i>	
Modelling and Simulation of RKX200 Rocket Flight Dynamics ..	230
<i>Alfi Nurhafid, Bambang Riyanto Trilaksono, Rianto Adhy Sasongko, Ahmad Riyadl, and Herma Yudhi Irwanto</i>	
Modelling the Speed Control of Brushless DC Motor Base on Identification System ..	237
<i>Hidayat, Sasongko Pramono Hadi, Sarjiya, and Suharyanto</i>	
Image Processing as the Validation Method of Droplet Dispersion Modeling Process	242
<i>Narendra Kurnia Putra, Robert J. Dickinson, Jennifer H. Siggers</i>	

Polyvinyl Alcohol – Calcite Hydroxyapatite Composite Reinforced with Catgut Fibers for Biodegradable Bone Plates	246
<i>Taha Ma'ruf, Widowati Siswomihardjo, Marsetyawan HNE Soesatyo, and Alva Edy Tontowi</i>	
Guided Rocket Navigation Design and Implementation on Hardware in Loop Simulation	249
<i>Ammar Novel, Bambang Riyanto Trilaksono, and Rianto Adhy Sasongko</i>	
Design Technology in Wireless Mesh Network System for Eruption Disaster Mitigation of Merapi Volcano	255
<i>Firdaus, Syarif Hidayat, Alvin Sahroni, Hendra Setiawan, and Rois Akbar</i>	
A Validation Study on Muscle Activity Prediction of A Lower Limb Musculoskeletal Model Using EMG During Normal Walking	260
<i>A.D Wibawa, N. Verdonschot, J.G.M. Burgerhof, I.K.E Purnama, M.S Andersen, J.P.K Halbertsma, R.L.Diercks, G.J.Verkerke</i>	
Modeling of Tunneling Currents on Al/SiO ₂ /p-Si MOS Capacitors with Nanometer- Thick Oxides	265
<i>Budi Mulyanti, Lilik Hasanah, Arjuni B. Pantjawati, Hideki Murakami, and Khairurrijal</i>	
Simulation of Charge-Trapping Effect on Floating Gate Si/Ge/Si Quantum Dots MOSFET Memory with High-κ Tunnel Oxide	269
<i>Adha Sukma Aji and Yudi Darma</i>	
Retransmission Issue of SIP Session over UDP Transport Protocol in IP Multimedia Subsystem – IMS	273
<i>Heru Pranoto and Ardian Ulvan</i>	
Design and Implementation of 12 Lead ECG Signals Interpretation System ..	278
<i>Richard Mengko and Fredrick Sutjiady</i>	
RTL Design of 4x4 MIMO Wireless LAN	283
<i>Andjas W. Ardiansyah</i>	
Three-loop Autopilot for Attitude Control System on Hardware In Loop Simulation	286
<i>Angga Irawan, Bambang Riyanto Trilaksono, Rianto Adhy Sasongko, and Herma Yudhi Irwanto</i>	
Temperature and Humidity Characteristic of Cassava Fermentation Process: A Preliminary Study for Air Controlled Treatment for Cassava Fermentation Process.....	292
<i>Ely Aprilia, Deny Arief, Irvan Budiawan, Sasfan A. W., Estiyanti Ekawati, and Suprijadi</i>	
2.5-D Visual Servoing Experiment using Adept Viper s850	296
<i>Akif Rahmatillah, Bambang R. Trilaksono, and Hilwadi Hindersah</i>	
Brain Tumor Consistency Assessment using Digital Penetrometer and Diffusion Weighted MRI	302
<i>Dita Puspita Sari, Sigit Adi Kristanto, Rohmad Eko Wahyudi, Yanurita Dwihapsari, and Darminto</i>	

Design Control Systems of the Out Diameter Finish Machine Based on Programmable Logic Controller	307
<i>Syahril Ardi, Agus Ponco, and Adli Fadli Kurnia</i>	
Development and Optimization of Instant Drink Formulation from Pineapple (Ananas cosmosus) Juice ..	313
<i>Steffi, Maruli Pandjaitan, and Hery Sutanto</i>	
Evaluation Of Acute Oral Toxicity Of Butterfly Pea Root Extract On Experimental Mice ..	317
<i>Jessica Karta, Maruli Pandjaitan, and Min Rahminiwati</i>	
Design of Shoe-Integrated Running Gait Analysis Device For Normal People Case Study ..	324
<i>Megantara Pura, Barman Tambunan, and Aulia Arif Iskandar</i>	
The Effect of Spray Dried Butterfly Pea (Clitoria ternatea L.) Leaf Extract on Alloxan-Induced Diabetic Mice ..	329
<i>Henny Surya, Maruli Pandjaitan, and Abdullah Muzi Marpaung</i>	
Performance Evaluation of VoIP and Video Streaming Over Wimax IEEE 802.15d and 802.15e ...	334
<i>Firdaus, Etika Nuraini, and Hendra Setiawan</i>	
A Review of Blackhole Attack in Mobile Adhoc Network ..	339
<i>Satria Mandala, Abdul Hanan Abdullah, Abdul Samad Ismail, Habibollah Haron, Md. Asri Ngadi, and Yahaya Coulibaly</i>	
Development of Biosignal Processing Algorithm For Pulse Wave Calculation ..	345
<i>Astri Maria, Hasballah Zakaria, Tati R. Mengko, Richard K. Mengko</i>	
Radiation Dose Measurement on Computed Tomography Scanner Using Thermoluminescent Dosemeter ..	349
<i>Dwenda Dexiana and Muhammad Fathony</i>	
Integrating Line Tracking and 2D Haar Wavelet Response for Palmprint Identification ..	354
<i>Novanto Yudistira, Imam Cholissodin, and Ahmad Afif Supianto</i>	
Image Analysis for Correlation between Dental Panoramic and MicroCT to Measure Bone Density ..	359
<i>Hanifan Prafiadi, Azhari, Narendra Kurnia Putra, Suprijanto, and Fourier</i>	
Quantitative Image Analysis of Periapical Dental Radiography for Dental Condition Diagnosis.....	363
<i>Anita Ayuningtiyas, Narendra Kurnia Putra, Suprijanto, Endang Juliastuti, and Lusi Epsilawati</i>	
Modeling and Simulation of Electroporation System with Measured Bioimpedance: Determining Parameters ..	367
<i>Warindi, Hamzah Berahim, Suharyanto, and Sasongko Pramono Hadi</i>	

Dynamic Pressure Modeling of Damper System for Fluctuation Flow	373
<i>Putu Agus Aditya Pramana, Deddy Kurniadi, and Parsaulian I. Siregar</i>	
Improved Target Detection in Phase-Coded Radar By Constrained Matching Pursuit Algorithm	377
<i>Andriyan Bayu Suksmono</i>	
Measuring Acoustic Backscattering Strength of Underwater Target using High Frequency Sonar ..	381
<i>Henry M. Manik</i>	
The Development of A Simple Tool to Reduce the Sitting Time using Seeduino Stalker and LabVIEW ..	385
<i>Dian Artanto</i>	
Brain Signal Reference Concept Using Cross Correlation Based for Brain Computer Interface	388
<i>Beni Rio Hermanto, Tati R. Mengko, Adi Indrayanto, and Ary S. Prihatmanto</i>	
Basic Theory of Artificial Circular Resonator Encapsulated in a Circular Waveguide and Its Theoretical Analysis	392
<i>Hepi Ludyati, Andriyan Bayu Suksmono, and Ahmad Munir</i>	
Application Protocol Data Unit Implementation in E-Health Smart Card for Health and Medical Data Record ..	396
<i>Beni Rio Hermanto, Tati R. Mengko, Adi Indrayanto, and Taufiqur Rahman</i>	
Smart Card Mobile Data Collection System Concept For Health and Medical Data Collecting Activities in Rural Area ..	399
<i>Beni Rio Hermanto, Adi Indrayanto, and Arif Sasongko</i>	
Extracting Blood Flow Parameters from Photoplethysmograph Signals: A Review	403
<i>Nedya Utami, Agung W. Setiawan, Hasballah Zakaria, Tati R. Mengko, Richard Mengko</i>	
Preparation of PVDF Film Using Deep Coating Method for Biosensor Transducer Applied ..	408
<i>Ambran Hartono, Mitra Djamal, Suparno Satira, Herman, and Ramli</i>	
Indonesian Text-To-Speech Using Syllable Concatenation Approach: Speech Optimization ..	412
<i>Richard Mengko and Aulia Ayuningtyas</i>	
Method for Frequency Estimation by Constant Gate Time ..	416
<i>Ryosuke Araki, Akihiro Takita, and Yusaku Fujii</i>	
Feasibility Study on Image Reconstruction of Continuous Wave Domain Diffuse Optical Tomography for Quality Control on Seed Potatoes	421
<i>Vebi Nadhira, Deddy Kurniadi, and E. Juliastuti</i>	
Review of Digital Heart Sound Classification Methods via Artificial Neural Networks ..	425
<i>A.H. Salman, T.R. Mengko, R.K.W. Mengko, A.Z.R. Langi</i>	

Analysis of SQL Injection Attack in Web Service (A Case Study of Website in Aceh Province)	431
<i>Rizal Munadi, T. Surya Fajri, Ernita Dewi Meutia, and Elizar</i>	
Mapping of Coronary Stent Demand of Several Hospitals in Indonesia and Its Forecasting	436
<i>Alva Edy Tontowi, Putri Ikra, and Widowati Siswomihardjo</i>	
Scaffolds of Hydroxyapatite and Alginate Composite for Tissue Engineering: Microstructure Analysis	440
<i>DJ. Indrani, E. Budianto, and BS. Purwasasmita</i>	
Developing LED Light Curing Unitprototype by Combined Pulse Width Modulation: Ouput Beam Irradiance	443
<i>A. Sodri, T. Handoyo, and DJ. Indrani</i>	