

# **2015 International Conference on Automation, Cognitive Science, Optics, Micro Electro-Mechanical System, and Information Technology (ICACOMIT 2015)**

**Bandung, Indonesia  
29-30 October 2015**



**IEEE Catalog Number: CFP15C22-POD  
ISBN: 978-1-4673-7409-5**

**Copyright © 2015 by the Institute of Electrical and Electronic Engineers, Inc  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\*This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP15C22-POD
ISBN (Print-On-Demand):	978-1-4673-7409-5
ISBN (Online):	978-1-4673-7408-8

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## TABLE OF CONTENT

		Page
	<b>Welcome Message</b> .....	iii
	<b>Conference Organization</b> .....	v
	<b>List of Technical Committee Members and Reviewers</b> .....	xii
	<b>Technical Sessions</b> .....	xvii
1	<b>Effects of Flow Force on the Characteristics of Electrohydraulic Servovalves</b> <i>I. Iwan, S.W. Ji, H.H. Kim, I.Y. Lee (Pukyong National University), S.H. Kim, H.C. Lee (SG Servo Co.)</i> .....	1
2	<b>Active Brain Area Identification Using EEG-NIRS Signal Acquisition Trust Peer-to-Peer File Sharing</b> <i>M. Jawad Khan, Keum-Shik Hong (Pusan National University)</i> .....	7
3	<b>Finger Movement Pattern Recognition Method Using Artificial Neural Network Based on Electromyography (EMG) Sensor</b> <i>Mochammad Ariyanto, Wahyu Caesarendra, Khusnul A. Mustaqim, Mohamad Irfan, Jonny A. Pakpahan, Joga D. Setiawan, Andri R. Winoto (Diponegoro University)</i> .....	12
4	<b>Non-Contact Portable Infrared Thermometer for Rapid Influenza Screening</b> <i>Daniel Santoso, F. Dalu Setiaji (Satya Wacana Christian University)</i> .....	18
5	<b>Multiwavelength Erbium Doped Fiber Laser Based on Nonlinear Polarization Rotation</b> <i>Nurul Shahrizan Shahabuddin, Ruzita Abu Bakar (Nilu University)</i> .....	24
6	<b>Channel Characterization of a Last-mile Access Radio Over Combined Fibre and Free-Space Optics System</b> <i>Bohata J., Zvanovec S. (Czech Technical University in Prague), Mansour Abadi M., Ghassemlooy Z. (Northumbria University)</i> .....	27
7	<b>Security Mechanism for IPv6 Stateless Address Autoconfiguration</b> <i>Supriyanto Praptodiyono (Universitas Sultan Ageng Tirtayasa), Iznan H. Hasbullah, Mohammed M. Kadhum, Chong Yung Wey, Azlan Osman (Universiti Sains Malaysia), Raja Kumar Murugesan (Taylor's University)</i> .....	31
8	<b>Fast Optical Signals During Median Nerve Stimulation by Using Continuous-Wave NIRS</b>	

	<i>Hendrik Santosa, Keum-Shik Hong (Pusan National University), Theodore J. Huppert (University of Pittsburgh)</i> .....	37
9	<b>Numerical Study of Structural Integrity and Strain Response of Double End Beam Load Cell Using Finite Element Simulation</b> <i>Hilman Syaeful Alam (Indonesian Institute of Sciences)</i> .....	41
10	<b>Business Process Improvement Design of Indonesian National Standard (SNI) Product Certification</b> <i>Mas'ud Adhi Saputra (Indonesia's Ministry of Industry), Rina Meyilani (Indonesia's Ministry of Public Works and Housing)</i> .....	46
11	<b>Multi-Objective Optimization of The Structural Design of Double End Beam Load Cell</b> <i>Hilman Syaeful Alam, Bahrudin, Demi Soetraprawata (Indonesian Institute of Sciences)</i> .....	52
12	<b>Design and Implementation of Data Storage System Using USB Flash Drive in A Microcontroller Based Data Logger</b> <i>Oka Mahendra, Djohar Syamsi, Ade Ramdan (Indonesian Institute of Sciences), Marcella Astrid (Multimedia Nusantara University)</i> .....	58
13	<b>Queue Length Optimization of Vehicles at Road Intersection Using Parabolic Interpolation Method</b> <i>Mutiara Maulida, Endra Joelianto Agus Samsi (Bandung Institute of Technology), Herman Y. Sutarto (Harapan Bangsa Institute of Technology)</i> .....	63
14	<b>An Experiment of Lie Detection based EEG-P300 Classified by SVM Algorithm</b> <i>Artha Ivonita Simbolon, Arjon Turnip (Indonesian Institute of Sciences), Jeperson Hutahaeon, Yessica Siagian, Novica Irawati (Information System Department)</i> .....	68
15	<b>Embedded Sensor Fusion and Moving-average Filter for Inertial Measurement Unit (IMU) on the Microcontroller-based Stabilized Platform</b> <i>Grace Gita Redhyka, Dika Setiawan, Demi Soetraprawata (Indonesia Institute of Sciences)</i> .....	72
16	<b>Guaranteed Cost Filter Design for Discrete Time Neutral Systems</b> <i>Erwin Susanto, Ig Prasetya Dwi Wibawa, Junartha Halomoan and Agung Surya Wibowo (Telkom University), Mitsuaki Ishitobi (Kumamoto University)</i> .....	78
17	<b>A Classification Method for Prediction of Qualitative Properties of Multivariate EEG-P300 Signals</b> <i>Darmeli Nasution, T. Henny F. Harumy, Eko Haryanto (Universitas Pembangunan</i>	

	<i>Panca Budi Medan), Ferry Fachrizal, Julham (Politeknik Negeri Medan), Arjon Turnip (Indonesia Institute of Science).....</i>	82
18	<b>ECG Signal Classification Using Hjorth Descriptor</b> <i>Achmad Rizal (Telkom University), Sugondo Hadiyoso (Telkom University).....</i>	87
19	<b>Extraction of Predicate-Argument Structure From Sentence Based on PICO Frames</b> <span style="float: right;"><i>Siti</i></span> <i>Wiwin Suwarningsih (Indonesian Institute of Science), Ayu Purwarianti, Iping Supriana (Institut Teknologi Bandung) .....</i>	91
20	<b>Development of PV Simulator by Integrating Software and Hardware for Laboratory Testing</b> <i>Aryuanto Soetedjo, Yusuf Ismail Nakhoda, Abraham Lomi, Gunawan Eko Hendroyono (National Institute of Technology, Indonesia) .....</i>	96
21	<b>Active Suspension System Based on Lyapunov Method and Ground-hook Reference Model</b> <i>Ayub Wimatra, Sunardi, Juhfansyah margolang, Edi Sutrisno (Academy of Engineering and Flight Safety), Darmeli Nasution, Suherman (Universitas Pembangunan Pancabudi), Arjon Turnip (Indonesian Institute of Sciences) .....</i>	101
22	<b>Indonesian Medical Question Classification With Pattern Matching</b> <i>Wiwin Suwarningsih, Ayu Purwarianti, and Iping Supriana (Institut Teknologi Bandung).....</i>	106
23	<b>Estimation of Wave Propagation Distance in Swash Zone with Image Analysis Results of CCTV-Coastal Telemetry</b> <i>M. Luqman Hakim (BMKG), Endra Joelianto, Suprijanto (Bandung Institute of Technology) .....</i>	110
24	<b>The Influence of the Organic Solar Cell Open-Circuit Voltage and Short-Circuit Current Parameters on the Porosity of Titanium Electrode</b> <i>Irana Eka Putri and Anto Tri S. (Indonesia Institute of Science), Doty Dewi Risanti (Institut Teknologi Sepuluh Nopember) .....</i>	115
25	<b>Security Lock with DTMF Polyphonic Tone Sensor</b> <i>Herry Azhari Rangkuti, Joni Welman Simatupang (President University) .....</i>	119
26	<b>The Comparison of GVF Snake Active Contour Method and Ellipse Fit in Optic Disc Detection for Glaucoma Diagnosis</b> <i>Dwi Esti Kusumandari, ArisMunandar, Grace Gita Redhyka (Indonesian Institute of Sciences) .....</i>	123

27	<b>Tunable spacing of O-band Multiwavelength Brillouin Fiber Laser</b> <i>Siti Fatimah Norizan (International Islamic University of Malaysia), Mohd Zamani Zulkifli (University of Malaya) .....</i>	127
28	<b>A Touchless Interface for Interventional Radiology Procedures</b> <i>K. R. Sivaramakrishnan, Gattamaneni Kumar Raja, Chegu Girish Kumar (Philips India Limited).....</i>	130
29	<b>An Application of Online ANFIS Classifier for Wheelchair Based Brain Computer Interface</b> <i>Mardi Turnip, Abdi Dharma, Hendra H. S. Pasaribu, Mawaddah Harahap (Prima Indonesia University), M. Faizal Amri, M. A. Suhendra, Arjon Turnip (Indonesian Institute of Sciences) .....</i>	134
30	<b>EEG based Pattern Recognition Method for Classification of Different Mental Tasking</b> <i>Wahyu Caesarendra, Mochammad Ariyanto, Syahara U. Lexon, Elta D Pasmanasari (Universitas Diponegoro), Cindy R. Chang (University Of Wollongong), Joga D. Setiawan (Universiti Teknologi Petronas).....</i>	138
31	<b>Mobile Game Testing: Case Study of A Puzzle Game Genre</b> <i>Arlinta Christy Barus, Roy Deddy Hasiholan Tobing, Dani Novita Pratiwi, Siska Adelina Damanik, Jenny Pasaribu (Del Institute of Technology) .....</i>	145
32	<b>Particle Swarm Optimization and Fuzzy Logic Control in Gas Leakage Detector Mobile Robot</b> <i>Kanda Januar Miraswan (Sriwijaya University), Nur Ulfa Maulidevi .....</i>	150
33	<b>Design of Multi-wavelength Optical Power Meter Using Feedback Resistor Combination</b> <i>D. Hanto, T. B. Waluyo, A. Setiono, R. K. Ula, and B. Widiyatmoko (Indonesian Institute of Sciences), A. R. Permata Sari (Institut Teknologi Sepuluh Nopember) .....</i>	156
34	<b>Design of Instrumentation for Flatness Measurement of Railroads</b> <i>Yayan Prima Nugraha, Dwi Hanto (Bandung Institute of Technology), Andi Setiono (Indonesian Institute of Sciences) .....</i>	160
35	<b>Optimal Design of Parameters for Digital Controllers Using Nonlinear Progaming Technique</b> <i>Le Hoa Nguyen (University of Science and Technology-The Unversity of Danang), Arjon Turnip (Indonesia Institute of Science).....</i>	164

36	<b>Personal Computer Temperature Control Using PID Control Based Liquid Cooling System</b> <i>Nur Hidayat, Reza Fauzi Iskandar, Mamat Rokhmat (Telkom University)</i> .....	169
37	<b>Adventure Game as Learning Media for Introducing Music Interval and Ear Training to Kids</b> <i>Muhammad Ilham Rizqyawan (Indonesian Institute of Sciences), Galih Hermawan (UNIKOM)</i> .....	172
38	<b>Active Species Formation of Pulsed Plasma in Water with Ring-to-cylinder Reactor Type Electrode</b> <i>Anto Tri Sugiarto (Indonesian Institute of Sciences), Takayuki Ohshima (Gunma University)</i> .....	176
39	<b>Beef Freshness Classification by Using Color Analysis, Multi-wavelet Transformation, and Artificial Neural Network</b> <i>Danika Trientin, Bambang Hidayat (Telkom University), Sjafril Darana (Padjadjaran University)</i> .....	181
40	<b>Mathematical Modeling and Simulation of Temperature Control System for Artificial Catfish Spawning</b> <i>Hanif Fakhurroja and Iwan Rohman Setiawan (Indonesian Institute of Sciences)</i> .....	186
41	<b>The Design of High Throughput Wi-Fi Mesh Networked Wireless Sensor Network using OLSR Protocol</b> <i>A. Sumarudin (Politeknik Negeri Indramayu), Trio Adiono (Institute Teknologi Bandung)</i> .....	192
42	<b>Adaptive Neuro-Fuzzy Inference System for Texture Image Classification</b> <i>B. Ari Kuncoro, Suharjito (Bina Nusantara University)</i> .....	196
43	<b>Frequency-Tunable Electromagnetic Energy Harvester by means of Damping Switching</b> <i>B.L. Ooi (Quest International University Perak), J.M. Gilbert (University of Hull), A. Rashid A. Aziz (Universiti Teknologi PETRONAS)</i> .....	201
44	<b>R-TTT Module with Modified Residual Signal for Improving Multichannel Audio Signal Accuracy</b> <i>Ikhwana Elfritri, Amirul Luthfi, and Fitrilina (Andalas University)</i> .....	207