

# Contents

## Part I Robotics, Control, Mechatronics and Automation

<b>1 Adaptive Discrete Sliding Mode Control for a Non-minimum Phase Electro-Hydraulic Actuator System . . . . .</b>	<b>3</b>
Rozaimi Ghazali, Yahaya Md Sam, Mohd Fua'ad Rahmat and Zulfatman Has	
<b>2 Musculoskeletal Robotics Modeling and Simulation . . . . .</b>	<b>15</b>
Ahmad Zaki bin Hj Shukor, Fariz bin Ali@Ibrahim, Muhammad Fahmi bin Miskon, Mohd Shakir bin Md Saat and Mohd Khairi bin Mohamed Nor	
<b>3 Analysis of Finger Movement for Robotic Hand (MAPRoh-1) by Using Motion Capture and Flexible Bend Sensor . . . . .</b>	<b>23</b>
M. Hazwan Ali, Khairunizam Wan, Y. C. Seah, Nazrul H. Adnan and Juliana A. Abu Bakar	
<b>4 Corrosion Detection Using LabVIEW for Robotic Inspection of Boiler Headers . . . . .</b>	<b>31</b>
Nadiyah Amalina Zulkifli, Khairul Salleh Mohamed Sahari, Adzly Anuar and Mohd Azwan Aziz	
<b>5 Kinematic Analysis of Walking with Scottish Rite Orthosis . . . . .</b>	<b>39</b>
Mahboubeh Keyvanara, Marzieh Mojaddarasil, Mohammad Jafar Sadigh and Mohammad Taghi Karimi	
<b>6 Color and Thermal Image Fusion for Augmented Reality in Rescue Robotics . . . . .</b>	<b>47</b>
Ludek Zalud, Petra Kocmanova, Frantisek Burian and Tomas Jilek	

**7 Horizontal Distance Identification Algorithm for Sit to Stand Joint Angle Determination for Various Chair Height Using NAO Robot . . . . . 57**  
 Mohd Bazli Bahar, Muhammad Fahmi Miskon,  
 Norazhar Abu Bakar, Ahmad Zaki Shukor and Fariz Ali

**8 Enhancing Wheelchair’s Control Operation of a Severe Impairment User . . . . . 65**  
 Mohd Razali Md Tomari, Yoshinori Kobayashi and Yoshinori Kuno

**9 Noise Cancelation From ECG Signals Using Householder-RLS Adaptive Filter. . . . . 73**  
 Shazia Javed and Noor Atinah Ahmad

**10 Robotic Arm Control Based on Human Arm Motion. . . . . 81**  
 Dickson Neoh Tze How, Chan Wai Keat, Adzly Anuar  
 and Khairul Salleh Mohamed Sahari

**11 Elevator Riding of Mobile Robot Using Sensor Fusion. . . . . 89**  
 Jaehong Lee, Xuenan Cui, Hyoungrae Kim,  
 Seungjun Lee and Hakil Kim

**12 Safe Global Path Planning of Mobile Robots Based on Modified A\* Algorithm . . . . . 99**  
 Jong-Hun Park, Jin-Hong No and Uk-Youl Huh

**13 Review of Research in the Area of Agriculture Mobile Robots. . . 107**  
 Sami Salama Hussen Hajjaj and Khairul Salleh Mohamed Sahari

**14 Design and Development of Small and Simple Dual Robot for Inspecting Pipe with Perpendicular Entry . . . . . 119**  
 Nur Shahida Roslin, Adzly Anuar, Khairul Salleh Mohamed Sahari  
 and Mohd Nazrin Afzan Abu Bakar

**Part II Vision, Image and Signal Processing**

**15 Near Infrared Face Recognition: A Comparison of Moment-Based Approaches. . . . . 129**  
 Sajad Farokhi, Siti Mariyam Shamsuddin,  
 U. U. Sheikh and Jan Flusser

**16 Acceleration of Retinex Algorithm for Image Processing on Android Device Using Renderscript . . . . . 137**  
 Duc Phuoc Phat Dat Le, Duc Ngoc Tran, Fawnizu Azmadi Hussin and Mohd Zuki Yusoff

**17 Image Transmission Over Noisy Wireless Channels Using HQAM and Median Filter . . . . . 145**  
 Md. Abdul Kader, Farid Ghani and R. Badlishah Ahmad

**18 Frog Identification System Based on Local Means K-Nearest Neighbors with Fuzzy Distance Weighting . . . . . 153**  
 Haryati Jaafar, Dzati Athiar Ramli, Bakhtiar Affendi Rosdi and Shahriza Shahrudin

**19 A New Robust Reversible Watermarking Method in the Transform Domain . . . . . 161**  
 Rasha Thabit and Bee Ee Khoo

**20 A Review for Image Segmentation Approaches Using Module-Based Framework . . . . . 169**  
 Guannan Jiang, Chin Yeow Wong, Stephen Ching-Feng Lin and Ngaiming Kwok

**21 Adaptive Image Super-Resolution with Neural Networks . . . . . 181**  
 Kah Keong Chua and Yong Haur Tay

**22 Fingerprint Recognition Based on Multi-Resolution Histogram of Gradient Descriptors . . . . . 189**  
 Munalih Ahmad Syarif, Thian Song Ong and Connie Tee

**23 A Phase Linearization Method for IF Sampling Digitizer . . . . . 197**  
 Eric Chan

**24 Driving Circuitry of Complementary Metal Oxide Semiconductor (CMOS) Area Image Sensor for Optical Tomography Instrumentation System . . . . . 205**  
 Suhaila Mohd Najib, Mariani Idroas and Muhammad Nasir Ibrahim

**25 A Novel Technique for Mammogram Mass Segmentation Using Fractal Adaptive Thresholding . . . . . 213**  
 P. Shanmugavadivu and V. Sivakumar

**26 Vehicle Classification Using Visual Background Extractor and Multi-class Support Vector Machines . . . . . 221**  
 Lee Teng Ng, Shahrel Azmin Suandi and Soo Siang Teoh

**27 A Robust Fuzzy-Based Modified Median Filter for Fixed-Value Impulse Noise . . . . . 229**  
 P. Shanmugavadivu and P. S. Eliahim Jeevaraj

**Part III Artificial Intelligence and Computer Applications**

**28 Vision-Based Human Gesture Recognition Using Kinect Sensor . . . . . 239**  
 Huong Yong Ting, Kok Swee Sim, Fazly Salleh Abas and Rosli Besar

**29 3D Facial Expression Classification Using 3D Facial Surface Normals. . . . . 245**  
 Hamimah Ujir, Michael Spann and Irwandi Hipni Mohamad Hipiny

**30 An Orchestrated Survey on T-Way Test Case Generation Strategies Based on Optimization Algorithms . . . . . 255**  
 AbdulRahman A. Al-Sewari and Kamal Z. Zamli

**31 Adaptive Rate Mechanism for WLAN IEEE 802.11 Based on BPA-Artificial Neural Network. . . . . 265**  
 Jiwa Abdullah and A. M. I. Okaf

**32 Traffic Sign Detection and Classification for Driver Assistant System. . . . . 277**  
 Nursabillilah Mohd Ali, Nur Maisarah Mohd Sobran, M. M. Ghazaly, S. A. Shukor and A. F. Tuani Ibrahim

**33 Comparison of Multilayer Perceptron and Radial Basis Function Neural Networks for EMG-Based Facial Gesture Recognition . . . . . 285**  
 Mahyar Hamed, Sh-Hussain Salleh, Mehdi Astaraki, Alias Mohd Noor and Arief Ruhullah A. Harris

**34 The Effect of Bat Population in Bat-BP Algorithm . . . . . 295**  
 Nazri Mohd. Nawi, Muhammad Zubair Rehman and Abdullah Khan

**35 Synthesizing *Asli* Malay Song: Transforming Spoken Voices into Singing Voices . . . . . 303**  
 Nurmaisara Za’ba, Nursuriati Jamil, Siti Salwa Salleh and Nurulhamimi Abdul Rahman

**36 Filled Pause Classification Using Energy-Boosted Mel-Frequency Cepstrum Coefficients . . . . . 311**  
 Raseeda Hamzah, Nursuriati Jamil and Noraini Seman

**37 Developing a Rule Base for Recommending Insurance Products. . . . . 321**  
 Siti Fatimah Abdul Razak, Shing Chiang Tan and Way-Soong Lim

**38 Modeling and Path Planning Simulation of a Robotic Arc Welding System . . . . . 327**  
 Muhammad Hafidz Fazli Bin Md Fauadi, Fairul Azni Jafar, Lau Ong Yee, Mohd Nazmin Bin Maslan and Saifudin Hafiz Yahya

**39 A New Optimized Cuckoo Search Recurrent Neural Network (CSRNN) Algorithm . . . . . 335**  
 Nazri Mohd Nawi, Abdullah Khan and Muhammad Zubair Rehman

**40 Using Time Proportionate Intensity Images with Non-linear Classifiers for Hand Gesture Recognition . . . . . 343**  
 Omar Ahmad, Basilio Bona, Muhammad Latif Anjum and Ikramullah Khosa

**41 Applying a Multi-Agent Classifier System with a Novel Trust Measurement Method to Classifying Medical Data. . . . . 355**  
 Mohammed Falah Mohammed, Chee Peng Lim and Umi Kalthum bt Ngah

**Part IV Electronic Design and Applications**

**42 High-Speed Transmitter Designs for DDR3 SDRAM Memory Interfaces . . . . . 365**  
 Lim Zong Zheng, Mohd Tafir Mustafa and Ch’ng Siew Sin

**43 Wideband Low Noise Amplifier Design for 2.3–2.4 GHz WiMAX Application. . . . . 373**  
 Nor Zaihar Yahaya, Shahrul Yazid, Anwar Osman and Helmi Huzairi

**44 Development and Implementation of Synchronous DC–DC Buck Converter for Photovoltaic Power Generation . . . . . 385**  
 Muhammad Hafeez Mohamed Hariri, Norizah Mohamad and Syafrudin Masri

**45 An Investigation of Raindrop Size in Raindrop Energy Harvesting Application via Photography and Image Processing Approach . . . . . 393**  
 Chin-Hong Wong, Joanne Neoh, Zuraini Dahari and Asrulnizam Abd Manaf

**46 Latency Insertion Method with MNA Blocks Via Node Tearing . . . . . 401**  
 Patrick Goh

**47 A Fully-Integrated Dual-Band Concurrent CMOS LNA for 2.45/5.25 GHz Applications . . . . . 409**  
 Hamidreza Ameri Eshghabadi, Mohd Tafir Mustafa, Norlaili Mohd Noh, Asrulnizam Abd Manaf and Othman Sidek

**48 Three Dimensional Through-the-Wall Imaging Using Ultrawideband (UWB) Sensors with Enhanced Delay-and-Sum Algorithm . . . . . 419**  
 N. S. N. Anwar and M. Z. Abdullah

**49 A Wideband LNA for Cognitive Radios . . . . . 427**  
 Chee Han Cheong, Norlaili Mohd. Noh and Harakrishnan Ramiah

**50 Direct Digital Synthesizer Based Clock Source for ADC Sampled System . . . . . 435**  
 Desmond Tung and Rosmiwati Mohd-Mokhtar

**Part V Telecommunication Systems and Applications**

**51 An Enhanced ITU-R 837-6 Rain Rate Prediction Model for Tropical Region . . . . . 449**  
 Folasade Abiola Semire, Rosmiwati Mohd-Mokhtar, Widad Ismail, Norizah Mohamad and J. S. Mandeep

**52 Study on the Effect of Dielectric Structure to the Cylindrical Dielectric Resonator Antenna (DRA). . . . . 457**  
 Mohamadariiff Othman, Mohd Fadzil Ain, Ubaid Ullah,  
 Seyi S. Olokeke, Mohd Zaid Abdullah, Arjuna Marzuki,  
 Wan Fahmin Faiz Wan Ali, Zainal Arifin Ahmad,  
 Julie Juliewatty and Srimala Sreekantan

**53 Feed Coupling Comparative Assessment of Selected Microstrip Patch Antenna. . . . . 463**  
 Seyi Stephen Olokeke, Mohd Fadzil Ain, Ubaid Ullah,  
 Arjuna Marzuki, Julie J. Mohammed, Srimala Sreekantan,  
 Sabar D. Hutagalung, Zainal A. Ahmad and Mohd Z. Abdullah

**54 Design of a 5.8 GHz Bandstop Filter Using Split Ring Resonator Array . . . . . 473**  
 Nor Muzlifah Mahyuddin and Nur Farah Syazwani Ab. Kadir

**55 Optic Flow Based Occlusion Analysis for Cell Division Detection. . . . . 483**  
 Sha Yu and Derek Molloy

**Part VI Power System and Industrial Applications**

**56 Design of Coreless PCB Transformer for DC/DC Converter Applications. . . . . 495**  
 Mohammadali Hashemi, Mohd Fadzil Ain and Majid Rafiee

**57 Vector Control of Induction Motor Using Neural Network. . . . . 501**  
 Azuwien Aida Bohari, Wahyu Mulyo Utomo, Zainal Alam Haron,  
 Nooradzianie Muhd. Zin, Sy Yi Sim and Roslina Mat Ariff

**58 Autonomous Dual Axis Solar Tracking System Using Optical Sensor and Sun Trajectory . . . . . 507**  
 Wong Yoong Wai Adrian, Vickneswari Durairajah  
 and Suresh Gobee

**59 Image Acquisition System for Boiler Header Inspection Robot. . . 521**  
 Dickson Neoh Tze How, Khairul Salleh Mohamed Sahari,  
 Adzly Anuar, Mohd Zafri Baharuddin,  
 Muhammad Fahmi Abdul Ghani and Mohd Azwan Aziz

**60 Some New Findings on Gauss–Seidel Technique  
for Load Flow Analysis. . . . . 529**  
Lea Tien Tay, Tze Hoe Foong and Janardan Nanda

**Author Index . . . . . 537**





<http://www.springer.com/978-981-4585-41-5>

The 8th International Conference on Robotic, Vision,  
Signal Processing & Power Applications  
Innovation Excellence Towards Humanistic Technology  
Mat Sakim, H.A.; Mustaffa, M.T. (Eds.)  
2014, XX, 539 p. 253 illus., 165 illus. in color.,  
Hardcover  
ISBN: 978-981-4585-41-5