

2021 International Symposium on Electrical and Electronics Engineering (ISEE 2021)

**Ho Chi Minh, Vietnam
15-16 April 2021**



**IEEE Catalog Number: CFP21FSR-POD
ISBN: 978-1-6654-3049-4**

**Copyright © 2021 by the Institute of Electrical and Electronics 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 is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21FSR-POD
ISBN (Print-On-Demand):	978-1-6654-3049-4
ISBN (Online):	978-1-6654-1487-6

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of contents

Integrated Circuits and Systems

Millimeter-wave Antenna Selection Switch using Advanced CMOS Technologies1

Tan Pham and Nicolas G. Constantin

A 63- μ W 92.68-dB SNDR Sigma-Delta Modulator using Self-biased Inverter-based Amplifiers5

Vania Maria Dela Cruz and Angelito Silverio

Hardware Implementation For Fast Block Generator Of Litecoin Blockchain System.....9

Le Vu Trung Duong, Doan Van Hieu, Pham Hoai Luan, Tran Thi Hong and Lam Duc Khai

A 3.86 μ W Miller-Compensated Inverter Transimpedance Amplifier for Photoplethysmography Sensing.....15

Adrian De Villa

A broadband, high even-order suppression distributed power amplifier for sub-6 GHz communication system20

Luan Nguyen, Anh N.K Pham, Sanghun Lee and Cuong Huynh

A 35-37 GHz MMIC GaN Low Noise Amplifier26

Nam Nguyen, Kim Phan, Sanghun Lee and Cuong Huynh

Electronic and Embedded Systems

Energy Management and Real-Time Scheduling for Self-Powered Sensors30

Rola El Osta, Maryline Chetto and Hussein El Ghor

Machinery Monitoring and Maintenance System Using Decision Tree Model for Fault Prediction36

Truong Quang Vinh, Pham Minh Hoang and Tran Quoc Hoa

Deep Learning Framework Applied For Predicting Anomaly of Respiratory Sounds	42
<i>Dat Ngo, Lam Pham, Anh Nguyen, Ben Phan, Khoa Tran and Truong Nguyen</i>	
LoRa Gateway Based on SoC FPGA Platforms	48
<i>Tan-Phat Dang, Tuan-Kiet Tran, Trong-Tu Bui and Huu-Thuan Huynh</i>	
A Reliable Approach to Secure IoT Systems Using Cryptosystems Based on SoC FPGA Platforms	53
<i>Tuan-Kiet Tran, Tan-Phat Dang, Trong-Tu Bui and Huu-Thuan Huynh</i>	
Utilizing Mean Correlation of Accelerometer Components in Counting Strides	59
<i>Cong Bang Pham, Minh Hoang Hua Nguyen, Quang Vy Bui, Thanh Chi Le and Quoc Toan Truong</i>	
Application of Image Processing Technology to Determine Building Structure Vibration	65
<i>Van Binh Nguyen</i>	

Communication Engineering and Systems

Citrus Leaf Disease Detection and Classification Using Hierarchical Support Vector Machine	69
<i>Hanh Dang-Ngoc, Trang N. M. Cao and Chau Dang-Nguyen</i>	
Implementation of Carrier-Cancellation Circuit for UHF RFID Reader RF Front-End using Genetic Algorithm Optimization	75
<i>Hoang Minh Le, Su-Tran Van and Minh Thien Nguyen</i>	
Bottled Water Classification Using Spectroscopy and Deep Belief Network ...	79
<i>Pham Quang Thai, Quan Trong Le Hoang and Tran Thanh Tuan</i>	
S11 Calculation for a Coaxial-Loaded-Type Stepped Cut-Off Circular Waveguide by the Moment Method	84
<i>Kouji Shibata</i>	

GAN-based Thermal Infrared Image Colorization for Enhancing Object Identification	90
<i>Thuong Le-Tien, Tran Huynh Duy Quang, Huynh Y Vy, Tuan Nguyen-Thanh and Hanh Phan-Xuan</i>	
Applying Kalman filter to UWB positioning with DS-TWR method in LOS/NLOS scenarios.....	95
<i>Tien Le Minh and Dung Trinh Xuan</i>	
Proactive Allocation of Radio Resources to Enhance Service Continuity in Cellular Networks	100
<i>Nandish P. Kuruvatti, Sachinkumar Bavikatti Mallikarjun, Sai Charan Kusumapani, and Hans D. Schotten</i>	
An Improved Offset Min-Sum LDPC Decoding Algorithm for 5G New Radio	106
<i>Bich Ngoc Tran-Thi, Thien Truong Nguyen-Ly, Hoa Nguyen Hong and Trang Hoang</i>	
Novel Method for Key Storage Systems	110
<i>Huong Thi Nguyen and Hung Quang Ta</i>	
Robust Blind Watermarking against Geometrical Attacks with Medical Images for EMR/EHR	114
<i>Tuan Nguyen-Thanh, Ngoc Nguyen-Chi and Thuong Le-Tien</i>	
Feature Extraction Using Neural Networks for Vietnamese Text Classification	120
<i>To Nguyen Phuoc Vinh and Ha Hoang Kha</i>	
Security for Jamming-Aided Energy Harvesting Cognitive Radio Networks	125
<i>Ngoc Pham-Thi-Dan, Khuong Ho-Van, Thiem Do-Dac, Son Vo-Que and Son Pham-Ngoc</i>	
Modeling Ka-Band Radar System to Characterize the EM Wave Propagation Properties in the Application of Target Detection.....	129
<i>Minh N. T. Nguyen</i>	

Control Engineering and Automation

Multi-View Digital Mammography Mass Classification: A Convolutional Neural Network Model Approach 133

Hoang Duc Quy, Cao Van Kien, Ho Pham Huy Anh and Nguyen Ngoc Son

AI and IoT-powered Smart University Campus: Design of Autonomous Waste Management..... 139

Son Thanh Nguyen, Bich Ngoc Le and Quy Xuan Dao

Computer Vision Based Estimation of Shrimp Population Density and Size. 145

Trung Thanh N. Thai, Thanh Sang Nguyen and Viet Cuong Pham

A Neural-network-based Nonlinear Controller for Robot Manipulators with Gain-learning Ability and Output Constraints..... 149

Dang Xuan Ba, Manh-Son Tran, Van-Phong Vu, Vi-Do Tran, Minh-Duc Tran, Nguyen Trong Tai and Cong-Doan Truong

Adaptive Switching Controller: A New Design of Dual Prescribed Sliding Surface and PID for Vibration Control..... 154

Do Xuan Phu and Nguyen Quoc Hung

Computer Vision System for Reading Analog Gauges at Power Substation.. 160

Minh Quan Tran, Huu Tho Tran and Viet Cuong Pham

Four In-Wheel BLDC Motors Speed Control in EV Based on Hybrid Fuzzy-PI Controller Visual on GUI..... 166

Chhith Chhlonh, Bunthern Kim, Phok Chrin, Sokchea Am and Theara Seng

Online Robust Sliding-Windowed LiDAR SLAM in Natural Environments. 172

Quang-Ha Pham, Ngoc-Huy Tran, Thanh-Toan Nguyen and Thien-Phuc Tran

Torque Ripple Eliminations for Multiphase Non-sinusoidal Permanent Magnet Synchronous Machines 178

Duc Tan Vu, Ngac Ky Nguyen and Eric Semail

A consensus sliding mode control for trajectory tracking of multiple manipulators..... 184

Duc Thien-Tran, Trong Tai-Nguyen and Kyoung Kwan Ahn

Power and Energy Systems

Research on trial production of lithium-ion battery with positive electrode by doping of Al fibers189

Shunji Hasuo, Wei Gong and Shouji Usuda

Evaluation and Improvement Distribution actual network Reliability using ETAP..... 193

Huynh Tien Dat, Nguyen Thi Bich Tuyen, Le Quang Binh, Nguyen Ngoc Phuc Diem and Le Thi Tinh Minh

Energized IoT devices through RF Wireless Power Transfer 199

Mohamed Zied Chaari and Rashid Al-Rahimi

An Improved Model-Free Predictive Current Control Strategy with Stagnant Current Variation Update Reduction 204

Van-Tien Le and Hong-Hee Lee

Advanced Grid Voltage Synchronization Method Under Abnormal Grid Conditions 209

Anh Tan Nguyen and Dong-Choon Lee

Environmental Economic Dispatch Using Stochastic Fractal Search Algorithm 214

Thang Phan Van Hong, Dieu Vo Ngoc and Khanh Dang Tuan

Transient stability analysis in high photovoltaic penetration scenarios 220

Huu Phuc Nguyen and Hoang Quan Le

Variable Pulse Density Modulation for Induction Heating 226

Thuong Ngo-Phi and Nam Nguyen-Quang

Investigation of Effects of Rising and Falling Time, Ringing Phenomena and Dead Time in GaN Inverter on Iron Loss with Very High Sampling Rate 232

Nguyen Gia Minh Thao, Hiroyuki Kojima, Takaya Sugimoto and Keisuke Fujisaki

Decentralized Capacitor Voltage Control of Flying Capacitor Multilevel Inverter 238

Quoc Dung Phan, Phu Cong Nguyen, Huu Phuc To, Bao Anh Nguyen, Dang-Khoa Le-Nguyen, Khoa-Minh Nguyen-Huu and Le Nam Pham

Combined Equalizer Based on Switch-matrix and Bi-directional Converter for Parallel-Connected Battery Packs in Data-Center or Telecommunication 244

Phuong-Ha La and Sung-Jin Choi

Performance Comparison of Reluctance-Based Synchronous Motors Consider for Electric Scooter 249

Duc-Kien Ngo, Huu-Nguyen Thai and Vo Tien Trung