

2024 International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET 2024)

**Virtual Conference
12-13 November 2024**



**IEEE Catalog Number: CFP24C07-POD
ISBN: 979-8-3503-8993-7**

**Copyright © 2024 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:	CFP24C07-POD
ISBN (Print-On-Demand):	979-8-3503-8993-7
ISBN (Online):	979-8-3503-8992-0
ISSN:	2475-515X

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

Contents

Functionalization of Polydopamine on Fiber Opticbased Localized Surface Plasmon Resonance for Biosensor	1
<i>Nuha Nazilah Sahabudin, Shela Ilmiyah, Sjaikhurrizal El Muttaqien, Brian Yulianto, Ferry Anggoro Ardy Nugroho, Iwan Darmadi, Lia Aprilia</i>	
Preliminary Study on Development of D-Shape Polymer Optical Fiber-Based SPR Sensor for Biochemical Applications	7
<i>Finna Alivia Nabila, Isa Anshori, Gilang Gumilar, Robeth Viktoria Manurung</i>	
Low-SAR Implantable Antennas Design for Small Intestine and Scalp Tissue Phantoms	14
<i>Muhammad Kinan Ibrahim, Rina Pudjiastuti, Miftadi Sudjai</i>	
Design of New Traffic System YOLO-LIO: Light-Traffic Intercept and Observation	20
<i>Rachmat Muwardi, Haiyang Zhang, Hongmin Gao, Mirna Yunita, Yanxi Wang, Yuliza</i>	
The Design and Development of LoRa-LoRaWAN Wireless Network Infrastructure with Multi-hop Capability	26
<i>Yoga Prastiya Wibawa, Xerandy Xerandy, Moh Alma Samudro, Bondan Suwandi, Fito Wigunanto Herminawan, I Putu Ananta Yogiswara, Dimas Biwas Putra, Riski Fitriani, Wayan Wira Yogantara</i>	
Analysis of Hybrid Feature and Data Adaptation Techniques for User-Dependent and UserIndependent Driver Condition Recognition	32
<i>Jimmy Abdel Kadar, Nahdatul Fhadilla, Irwan Susanto, Winita Sulandari, Wuwus Ardiatna, Asri Rizki Yuliani, Hilman F Pardede, Candra Ihsan, Raden Sandra Yuwana</i>	
A Comparative Study of SnO₂ Deposition using Spray and Spin-Coating Technique for Electron Transport Layer of Inorganic Perovskite Solar Cells	38
<i>Almas Shafwan, Wilman Septina, Natalita M. Nursam, Xorell Ivanov Monov, Prima Fitri Rusliani, Shobih Shobih, Adhi Kusumadjati, Lia Yuliantini, Nunik Nurhayati</i>	
Performance Evaluation of ESP32 Random Number Generator for LoRa Communication Security	44
<i>Papat Hidayatulloh, Nada Syifa Qolbiyah, Asep Nugroho, Husneni Mukhtar, Irwan Purnama, Firman Simanjuntak</i>	
Performance Improvement of Ad-hoc On-demand Distance Vector (AODV) Routing Protocol Using K-Means Clustering in Flying Ad-hoc Network	50
<i>Samsudiat, Muhammad Haidar Ali, Hafni Ferdian, Riri Fitri Sari</i>	

Innovative Designs for Enhanced Connectivity for 3G and 4G Cellular Networks	56
<i>Ayman N Muhi, Mohaimen Qahtan Algburi, Mustafa Ghanim Rzooki, Haider Abdulelah Abdulkarim</i>	
Performance Analysis of Graphene Oxide-Coated QCM Sensors for Humidity Detection	62
<i>Siska Ilhami, Heriyanto Syafutra, Iqbal Syamsu, Erry Dwi Kurniawan, I Dewa Putu Hermida, Shobih Shobih, Murni Handayani, Goib Wiranto</i>	
Design of Elliptical Patch and Half-Circular Ground Microstrip Antenna with CPW-Fed for Chamber Applications	68
<i>Tri Ratnasari, Yono Hadi Pramono, Suyatno Suyatno, Gatut Yudoyono</i>	
A Promising Passivation Strategy using Hydroxyethyl Cellulose for Enhancing the Performance of Inorganic-based Perovskite Solar Cells	73
<i>Prima Fitri Rusliani, Shobih Shobih, Wilman Septina, Lia Yuliantini, Xorell Ivanov Monov, Brian Yuliarto, Natalita M. Nursam</i>	
Band Stop Frequency Selective Surfaces Using Ring Resonators: Simulation and 6G Metasurface Potential	78
<i>Raden Priyo Hartono Adji, Taufiqqurrachman Taufiq, Puput Dani Prasetyo Adi, Erry Dwi Kurniawan, Eko Joni Pristianto, Fajri Darwis, Arief Nur Rahman, Deni Permana Kurniadi, Pamungkas Daud, Dadin Mahmudin, Ashif Aminulloh Fathnan, Raden Deasy Mandasari</i>	
Design of Volumetric Magnetic Induction Tomography (VMIT) System Using COMSOL Simulation	84
<i>Muhammad Nurul Puji, Prawito Prajitno, Warsito P. Taruno</i>	
Rectangular Resonator with Radial Stubs Bandpass Filter at 3 GHz	89
<i>Teguh Praludi, Gunawan Wibisono, Yuyu Wahyu, Yana Taryana, Dian Rusdiyanto</i>	
Low-Cost 9.4 GHz Microstrip Patch Antenna Design with PLA and Copper Tape	94
<i>Raden Priyo Hartono Adji, Deni Permana Kurniadi, Taufiqqurrachman Taufiq, Arief Budi Santiko, Raden Deasy Mandasari, Eko Pristianto, Fajri Darwis, Arief Nur Rahman, Puput Dani Prasetyo Adi, Deni Kurnia, Raka Pratindy, Ashif Aminulloh Fathnan</i>	
Utilization of Partial and Curling Shaped Ground Planes Microstrip Antenna for L-Band Satellite Reception	100
<i>B. Pratiknyo Adi Mahatmanto, Dinari Nikken Sulastrie Sirin, Nugroho Widi Jatmiko, Dedi Irawadi, Hidayat Gunawan, Supriyono Yono, Anshari Akbar, Arief Budi Santiko, Suisbiyanto Prasetya, Aditya Inzani Wahdiyat, Catur Apriono</i>	
UWB Radar Self-Motion Cancellation for Through-Wall Vital Sign Detection	104
<i>Budiman P. A. Rohman, Masahiko Nishimoto, Ratna Indrawijaya, Dayat Kurniawan, Iman Firmansyah, Adhi Purwoko</i>	

Initial Research to Predict the Length and Weight of Nile Tilapia Using ImageAI	108
<i>Sakinah Puspa Anggraeni, Bondan Suwandi, Arif Rahmat Ardiansyah, Bagus Bhakti Irawan, Toto Bachtiar Palokoto, Reza Septiawan, Arief Rufiyanto, Nashrullah Taufik, Budi Sulistya</i>	
Exoskeleton Effects on Amplitude Distribution of Muscle Signals during Oil Palm Fruit Harvesting	114
<i>Kadek Heri Sanjaya, Asep Nugroho, Artha Ivonita Simbolon, Yukhi Mustaqim Kusuma Sya'ban, Muqorob Tajalli, Nugrahaning Sani Dewi, Ulfah Nadiya, Raizummi Filaini, M. Faiz Syuaib</i>	
Improved dye sensitized solar cells efficiency and stability using co-sensitization method of organic dyes	120
<i>Intan Paramudita, Lia Yuliantini, Lia Muliani Pranoto, Jojo Hidayat, Shobih Shobih, Farhana Aziz, Yuliar Firdaus</i>	
Impact of Substrate on the SnO₂ Electron Transport Layers and the Perovskite Solar Cells Performance	125
<i>Maria Ulfa, Widhya Budiawan, Phutri Milana, Yahdi Bin Rus, Natalita M. Nursam</i>	
Electron lifetime and electron transport time determination of the device with Pt/PW11Cs/cellulose as counter electrode in dyesensitized solar cells	130
<i>Nunik Nurhayati, Jojo Hidayat, Shobih Shobih, Phutri Milana, Lia Yuliantini, Yuliar Firdaus</i>	
Optical Fiber Simulation: Corning SMF-28 as a Fiber Bragg Grating (FBG) with Optigrating Application	136
<i>Nelfyenny Nelfyenny, Qomaruddin Qomaruddin, Sofyan Azmi, Andi Setiono</i>	
Leveraging Bellhop Model and Multi-Criteria Decision Making for a Reliable Underwater Acoustic Link in Marine Buoy System	142
<i>Xerandy Xerandy, A. A. N. Ananda Kusuma, Mohammad Hamdani, Widrianto Sih Pinastiko, Tahar Agastani</i>	
Laser-Powered Extensometer for Soil Displacement Monitoring	148
<i>Nelfyenny Nelfyenny, Raditya Sebastian, Suryadi Suryadi, Dwi Bayuwati, Imam Mulyanto, Qomaruddin Qomaruddin, Bambang Widiyatmoko, Andi Setiono</i>	
Deriving Effects of IQ-Imbalance on Phase- and Amplitude Noise in Radars	153
<i>Edgar Jirousek, Stefan Tertinek, Holger Arthaber</i>	
Unraveling the Interference Puzzle: A Comprehensive Analysis of Factors Contributing to Signal Degradation in Satellite-Based Navigation Systems in the Philippines	157
<i>Angelica Thea O. Parayno, Jennifer C. Dela Cruz</i>	
Enhancing ECG Signal Alignment Accuracy with Smoothed-Quasi-Periodic Dynamic Time Warping	164
<i>Marlin Ramadhan Baidillah, Pratondo Busono, Rony Febryarto, Syaeful Karim, I Made Astawa, Riyanto Riyanto, Chaerul Achmad</i>	

Configuration of Hybrid Clustered Structures in Large Planar Arrays for Optimizing Beam Pattern Coverage	170
<i>Nazik Hussein Ibrahim, Ahmed Jameel Abdulqader, Jafar Ramadhan Mohammed</i>	
Robust Features with Convolutional Autoencoder Speech Command Recognition	177
<i>Vicky Zilvan, Awalia Agustina Khoirunisa, Ade Ramdan, Hasih Pratiwi, Firnas Nadirman, Fajri Darwis, Endang Suryawati, Hilman F Pardede</i>	
The Robustness of Linear Quadratic Regulator (LQR) and Linear Quadratic Regulator Tracker (LQRT) Cascaded With Line-Of-Sight (LOS) Guidance Law for Quadrotor to Accomplish SAR Mission	182
<i>Muhammad Putra Rasuanta, Maristya Rahmadiansyah, Tinova Pramudya, Maratul Hamidah, Mustika Fitriana Dewi, Muhammad Yusha Firdaus, Marga Asta Jaya Mulya, Endang Suwandi, Hanifah Dwiyaniti, Ponky Ivo, Rahmayati Alindra, Sasono Rahardjo</i>	
Evaluation of Linear-Quadratic Optimal Control in Automatic Train Operation (ATO) during Unplanned Event	188
<i>Zaid Cahya, Chouki Sentouh, Estiko Rijanto, Jean-Christophe Popieul, Tsani Hendro Nugroho, Prasetyo Putranto</i>	
Luminescence Characteristics of Polystyrene-based Sensor for Gamma-rays Detection	194
<i>Rizka Fitriana, Rahmawati Rahmawati, Holnizar Holnizar, Marrisa Arlinkha Ega Putri, Adhi Harmoko Saputro</i>	
Frustum-Shaped Conformal Antenna Array for Air-to-Ground Communication	200
<i>Masoom Verma, Arthi R, Christopher S</i>	
Crosstalk Suppression by Using Aluminium and Copper Shield in UAV Cable	205
<i>Imas Tri Setyadewi, Yanuar Prabowo, Mohammad Amanta Kumala Sakti, Yomi Guno, Wahyudi Wahyudi, Donatina Miswati Hadiyanti, Novelita Rahayu, Teguh Praludi, Cahya Edi Santosa</i>	
Bandwidth-Efficient Image Transmission in Autonomous Vehicles Using Super-Resolution Techniques	210
<i>Mokhammad Mirza Etnisa Haqiqi, Ajib S. Arifin, Arief Suryadi Satyawan, Anindya Afina Carmelya, Salita Ulitia Prini</i>	
Rapid and Low-Cost Microfluidic Devices Fabricated Using a 3D Printer	216
<i>Theofillus Lisia Okta Hertanto, Erry Dwi Kurniawan, Aditya Tri Oktaviana, Crescentiana Cathlea Jessiena, Joana Putri Toba, Riki Muhammad</i>	
Study of Radiation Pattern Response on PhaseControlled Ku-Band 8×4 Array Antenna	222
<i>Yohanes Galih Adhiyoga, Tri Nur Arifin, Ganjar Febriyani Pratiwi, Erfiana Wahyuningsih, Bagus Edy Sukoco, Yaya Sulaeman, Teguh Praludi, Folin Oktafiani, Yuyu Wahyu</i>	

L5-Pelvic Junction Compression Force and Shear Force based on IMU sensors and Biomechanical Analysis during Oil Palm Harvesting-Push Technique	226
<i>Nugrahaning Sani Dewi, Muqorob Tajalli, Auditya Purwandini Sutarto, Wyke Kusmasari, Kadek Heri Sanjaya, Yukhi Mustaqim Kusuma Sya'ban, Asep Nugroho, Artha Ivonita Simbolon, M. Faiz Syuaib</i>	
Image Classification-based Ransomware Attack Detection Using Deep Learning Algorithm	231
<i>Shafi'i M Abdulhamid, Fawaz Issa Mohammed Albalushi, Mohammed Hamed Al-Kuwari, Yousef Abdullah Al-Sulaiti, Nadim Rana, Abdullah Hussein Al-Ghushami</i>	
Novel Square Wave Jamming Strategy for Countering Sequential Lobing Radars	237
<i>Mustafa Kucuk, Mustafa Nuhoglu, Lutfiye Durak-Ata, Hakan A. Çırpan, Radar, Electronic Warfare Systems Division of Aselsan Inc.</i>	
Design and Analysis of Modified Rectangular Array Configurations for Improved Radiation Performance in Ku-band Applications	242
<i>Muhammad Athallah Adriansyah, Aditya Inzani Wahdiyat, Catur Apriono</i>	
Measurement of pH Water based on Sensor, Arduino and Solar Cell in Laser Communication	247
<i>Assaidah, Saifudin Juri, Menik Ariani, Khairul Saleh, Yulia Fitri, Feriska Handayani</i>	
An Extension of Simulating Spanning Tree Protocols in a Dual Landing Station Cable-Based Tsunameter with Multiple Ocean Bottom Units	251
<i>Mohammad Hamdani, A. A. N. Ananda Kusuma, Dedy Irawan, Tahar Agastani, Toto Bachtiar Palokoto, Insan Ramadhan</i>	
Performance of PVA-SnO₂ and PVA-ZnO as Sensing Materials for Thick Film Resistive Type Humidity Sensors	257
<i>I Dewa Putu Hermida, Rizki Deva Berlian, Deviana Agustina, Desak Gede Sri Andayani, Shobih Shobih, Novrita Idayanti, Irzaman Irzaman, Sevia Mahdaliza Idrus, Asrul Izam Azmi, Goib Wiranto</i>	
Performance Comparison of 2x2 MIMO Antennas with Metasurface Structure for Mitigating Mutual Coupling in 5G MIMO Systems	263
<i>Aditya Inzani Wahdiyat, Fitri Yuli Zulkifli</i>	
Multi-Spectral-Based Imaging with Application to Millimeter Wave Imaging at W-Band	267
<i>Shahrokh Hamidi, M. R. Nezhad-Ahmadi</i>	
Modeling and Analysis of Spatial and Temporal Land Clutter Statistics in SAR Imaging Based on MSTAR Data	272
<i>Shahrokh Hamidi</i>	
I/Q Imbalance Compensation and Block-Sparsity-Based Harmonic Analysis with Applications to Vital Signs Estimation using CW Radar Systems	277
<i>Shahrokh Hamidi</i>	

Zirconia Spacer Optimization for Improved Performance in HTL-Free Mesoscopic Perovskite Solar Cells with Carbon Electrode	283
<i>Rahmatsyah Handayani Nasution, Natalita M. Nursam, Lia Muliani Pranoto, Jojo Hidayat, Lia Yuliantini, Riri Murniati, M Zuhnir Piliang</i>	
Prototypes of Footstep Voltage Generation on Different Tiles Placement Using Piezoelectric Sensor	289
<i>Joni Welman Simatupang, Azimah Nur Farisah</i>	
Performance Evaluation of State and Output Feedback-based Repetitive Controllers for Rotational Control Systems	295
<i>Akif Rahmatillah, Edi Kurniawan, Aulia Siti Aisjah, Katherin Indriawati</i>	
Enhanced Recognition of Hand-Drawn Circuit Components Using Fast R-CNN and Faster R-CNN	301
<i>Harsh Bhutra, D H Sai Tanishq, Bhavya Samidala, Vivek Venugopal, Neelima N</i>	
Exploration of In₂S₃ as an Electron Transport Layer for All-Inorganic CsPbBr₃ Perovskite Solar Cells	307
<i>Xorell Ivanov Monov, Annisa Nandhita Kurniawati, Prima Fitri Rusliani, Bening Tirta Muhammad, Phutri Milana, Roni Adi Wijaya, Gunawan Gunawan, Kartika Sari, Natalita M. Nursam, Brian Yuliarto, Wilman Septina</i>	
Analysis on Modified Wine Glass Shaped Transparent MIMO Antenna with Metamaterial	311
<i>Topik Teguh Estu, Noor Asniza Murad, Mohd Fairus Mohd Yusoff, Taufiqqurrachman Taufiq, Gandi Sugandi, Deni Permana Kurniadi, Raden Priyo Hartono Adji, Yahya Syukri Amrullah, Arie Setiawan, Arief Budi Santiko</i>	
Mobile Adhoc Network (MANET) Protocol Performance with Mobility and Tx Power Variations	316
<i>Dedy Irawan, A. A. N. Ananda Kusuma, Mohammad Hamdani, Christian Wisnu Purnaadi, Toto Bachtiar Palokoto, Arky Astasari</i>	
The Potential of Silica-Carbon Nanotubes Composite for Electromagnetic Absorber Coating	321
<i>Elvina Trivida, Aditia Nur Bakti, Alfiyani Az Zahro, Muhammad Fauzan, Qudsiyyatul Lailiyah, Mohamad Khoirul Anam, Haryo Dwi Prananto, Muhammad Imam Sudrajat, Yoppy Yoppy, Oman Zuas, Dwi Mandaris, Nadya Farah</i>	
Electrical Properties Observation of Polymer-based Hygroelectric Device	325
<i>Yuwana Pradana, Lia Aprilia, Zico Alaia Akbar, Ratno Nuryadi</i>	
Unstructured Road Detection Using A Superpixel Based Image Segmentation Clustering for Autonomous Vehicles	329
<i>Hanifah Dwiyaniti, Heru Taufiqurrohman, Abdul Muis, Yusuf Nur Wijayanto, Tsani Hendro Nugroho, Henry Widodo, Zaid CahyaAfif, Widaryanto, Mochamad Adityo Rachmadi</i>	

High-Level Synthesis of FPGA-Based Chirp Match Filtering for Synthetic Aperture Radar Systems	334
<i>Agus Wiyono, Jefri Abner Hamonangan, Nurul Chasanah, Satria Aditya, Agus Hendra Wahyudi, Abdurrasyid Ruhiyat, Abdul Rohman, Iman Firmansyah, Effendi Dodi Arisandi, Andria Arisal, Farohaji Kurniawan, Bambang Setiadi</i>	
Experimental Evaluation of Pothole Detection and Its Dimension Estimation Using YOLOv8 and Depth Camera for Road Surface Analysis	339
<i>Henry Widodo, Heru Taufiqurrohman, Abdul Muis, Yusuf Nur Wijayanto, Galuh Prihantoro, Hanifah Dwiyantri, Zaid Cahya, Afif Widaryanto, Tsani Hendro Nugroho</i>	
Impact of Uniaxial Strain Treatment on Thermoelectric Performance of Alkaline-Earth Stannate Oxides: DFT Study	345
<i>Nadya Larasati Kartika, Budi Adiperdana</i>	
Hardware Implementation of Systolic Array Architecture using 4:2 Compressor Approximate Multiplier for Image Processing Operations	350
<i>Vinay Kumar N, Sumanth Sakkara</i>	
Design and Implementation of an E-Textile SSPPBased Low-Pass Filter for Advanced Wearable Applications	356
<i>Jayshri S Kulkarni, Jack Engdahl, Gabrielle Quintiliani, Jose Alcala-Medel, Douglas E Dow, Yang Li</i>	
Single Parity Check Network Coding Based on Iterative Spatial Demapper	361
<i>Fachrul Rizal, Khoirul Anwar, Gelar Budiman</i>	
Performance Enhancement of CSRR-based C-Band Wave Absorber Using Evolved Double Split-Ring Structure	367
<i>Budi Syihabuddin, Agus D. Prasetyo, Dwi Andi Nurmantris, Folin Oktafiani, Akhmad Hambali, Dharu Arseno</i>	
PI-Sliding Mode Control on a Hydraulic Dynamometer Test Bed	371
<i>Afaf Fadhil Rifai, Arief Syaichu Rohman, Anisa Rakhmatia, Achmad Indra Aulia</i>	