

IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT

A PUBLICATION OF THE IEEE INSTRUMENTATION AND MEASUREMENT SOCIETY



JANUARY 2018

VOLUME 67

NUMBER 1

IEIMAO

(ISSN 0018-9456)

REGULAR PAPERS

Algorithms, Artificial Intelligence, Soft Computing and Informatics

- Stroke Point Warping-Based Reference Selection and Verification of Online Signature *B. Kar, A. Mukherjee, and P. K. Dutta* 2
- Window Feature-Based Two-Stage Defect Identification Using Magnetic Flux Leakage Measurements *J. Liu, M. Fu, F. Liu, J. Feng, and K. Cui* 12

Acoustics and Ultrasonics Instrumentation and Measurements

- Similarity Judgment-Based Double-Threshold Method for Time-of-Flight Determination in an Ultrasonic Gas Flowmeter *Z. Fang, L. Hu, K. Mao, W. Chen, and X. Fu* 24

Instrumentation for Measurement of Electric Power Systems, Energy Metering, Electric Power Quality

- Electric Power Network State Tracking From Multirate Measurements *B. A. Alcaide-Moreno, C. R. Fuerte-Esquivel, M. Glavic, and T. Van Cutsem* 33
- A Gauss-Newton ADALINE for Dynamic Phasor Estimation of Power Signals and Its FPGA Implementation *S. Nanda and P. K. Dash* 45
- An Optical Voltage Sensor Based on Wedge Interference *D. Wang and N. Xie* 57
- Fast Amplitude Estimation of Harmonics Using Undecimated Wavelet Packet Transform and Its Hardware Implementation *V. K. Tiwari, A. C. Umarikar, and Trapti Jain* 65
- A Modified S-Transform and Random Forests-Based Power Quality Assessment Framework *M. Venkateswara Reddy and R. Sodhi* 78

Built-in Self-Test, Design-for-Testing, Fault Diagnosis and Fault-Tolerance

- A Structured Sparse Subspace Learning Algorithm for Anomaly Detection in UAV Flight Data *Y. He, Y. Peng, S. Wang, D. Liu, and P. H. W. Leong* 90

Imaging Techniques and Instrumentation

- Optical Modulation and Antialiasing Methods for Experimental Verification of Sensor Signal Integrity *F. Bodrucki, A. Hill, J. Davis, and J. Cordell* 101

Measurement of Materials and Applications

- Characterization of High-Frequency Dielectric Laminates Using a Scanning-Probe Based on EBG Structure *R. Yadav and P. N. Patel* 107

Mechatronics, Industrial Applications and Robotics

- Novel EKF-Based Vision/Inertial System Integration for Improved Navigation *T. B. Karamat, R. G. Lins, S. N. Givigi, and A. Noureldin* 116

(Contents Continued on Page 1)



Medical and Biomedical Instrumentation and Applications	
Accuracy Enhancement for Noninvasive Glucose Estimation Using Dual-Wavelength Photoacoustic Measurements and Kernel-Based Calibration	<i>P. P. Pai, A. De, and S. Banerjee</i> 126
Measurement Techniques	
A Flying Odor Compass to Autonomously Locate the Gas Source	<i>B. Luo, Q.-H. Meng, J.-Y. Wang, and M. Zeng</i> 137
Structure Models for Image-Assisted Geometry Measurement in Plenoptic Sampling	<i>C. Zhu, H. Zhang, and L. Yu</i> 150
Reducing the Lift-Off Effect on Permeability Measurement for Magnetic Plates From Multifrequency Induction Data	<i>M. Lu, W. Zhu, L. Yin, A. J. Peyton, W. Yin, and Z. Qu</i> 167
Prediction of Moisture Loss in Withering Process of Tea Manufacturing Using Artificial Neural Network	<i>N. Das, K. Kalita, P. K. Boruah, and U. Sarma</i> 175
Intelligent Bearing Fault Diagnosis Method Combining Compressed Data Acquisition and Deep Learning	<i>J. Sun, C. Yan, and J. Wen</i> 185
A Differential Output Interfacing ASIC for Integrated Capacitive Sensors	<i>S. K. Kar, P. Chatterjee, B. Mukherjee, K. B. M. Swamy, and S. Sen</i> 196
Metrology, Standards and Calibration	
Improvements to the NMR Method With Flowing Water at CMI	<i>M. Ulvr and J. Kupec</i> 204
Sensors, Sensor Fusion and Transducers	
Robust Attitude Estimation from Uncertain Observations of Inertial Sensors Using Covariance Inflated Multiplicative Extended Kalman Filter	<i>M. Ghobadi, P. Singla, and E. T. Esfahani</i> 209
A Wearable Device to Support the Pull Test for Postural Instability Assessment in Parkinson's Disease	<i>B. Andò, S. Baglio, V. Marletta, A. Pistorio, V. Dilibio, G. Mostile, A. Nicoletti, and M. Zappia</i> 218
Signals, Systems and System Identification	
Amplitude and Frequency Estimation of Exponentially Decaying Sinusoids	<i>S. Tomar and P. Sumathi</i> 229
SHORT PAPERS	
A Target-Free Automatic Self-Calibration Approach for Multibeam Laser Scanners	<i>Z. Gong, C. Wen, C. Wang, and J. Li</i> 238
RF Circuit Implementation of a Real-Time Frequency Spread Emulator	<i>M. Karabacak, A. H. Mohammed, M. K. Özdemir, and H. Arslan</i> 241
