

IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT

A PUBLICATION OF THE IEEE INSTRUMENTATION AND MEASUREMENT SOCIETY



MARCH 2016

VOLUME 65

NUMBER 3

IEIMAO

(ISSN 0018-9456)

REGULAR PAPERS

Algorithms, Artificial Intelligence, SOFT Computing and Informatics			
Two-Phase Slug Flow Characterization Using Artificial Neural Networks			
..... <i>C. Cozin, F. E. C. Vicencio, F. A. de A. Barbuto, R. E. M. Morales, M. J. da Silva, and L. V. R. Arruda</i>			494
A/D and D/A Conversion, Analog and Digital Instrumentation			
Sigma-Delta Digital Converter Suitable for a Resistive Displacement Sensor With a Floating Slide			
..... <i>S. Rana, B. George, and V. J. Kumar</i>			502
Analog and Digital Data, Image and Signal Processing			
Robust Visual Detection–Learning–Tracking Framework for Autonomous Aerial Refueling of UAVs			
..... <i>Y. Yin, X. Wang, D. Xu, F. Liu, Y. Wang, and W. Wu</i>			510
Instrumentation for Measurement in Communications			
Binder Identification Using Pattern Recognition on Phantom Measurements			
..... <i>R. Santos, C. Sales, M. Lima, C. Rodrigues, A. Araujo, W. C. Gomes, A. Fertner, and J. C. W. A. Costa</i>			522
Uncertainty Analysis, Accuracy, Precision and Parameter Estimation			
Performance Assessment of Linear State Estimators Using Synchrophasor Measurements			
..... <i>S. Sarri, L. Zanni, M. Popovic, J.-Y. Le Boudec, and M. Paolone</i>			535
Built-in Self-Test, Design-for-Testing, Fault Diagnosis and Fault-Tolerance			
Feature Knowledge Based Fault Detection of Induction Motors Through the Analysis of Stator Current Data			
..... <i>T. Yang, H. Pen, Z. Wang, and C. S. Chang</i>			549
An Empirical Demodulation for Electrical Fault Detection in Induction Motors			
..... <i>F. B. Batista, P. C. M. Lamin Filho, R. Pederiva, and V. A. D. Silva</i>			559
Imaging Techniques and Instrumentation			
Yawning Detection Using Embedded Smart Cameras			
..... <i>M. Omidyeganeh, S. Shirmohammadi, S. Abtahi, A. Khurshid, M. Farhan, J. Scharcanski, B. Hariri, D. Laroche, and L. Martel</i>			570
Automatic Crack Detection and Measurement Based on Image Analysis			
..... <i>R. G. Lins and S. N. Givigi</i>			583

(Contents Continued on Page 493)

Medical and Biomedical Instrumentation and Applications		
ECG Authentication for Mobile Devices	J. S. Arteaga-Falconi, H. Al Osman, and A. El Saddik	591
Measurement Techniques		
Joint Estimation of Bulk Flow Velocity and Angle Using a Lateral Line Probe	N. Strokina, J.-K. Kämäräinen, J. A. Tuhtan, J. F. Fuentes-Pérez, and M. Kruusmaa	601
Indoor Localization Using 802.11 Time Differences of Arrival	A. Makki, A. Siddig, M. Saad, J. R. Cavallaro, and C. J. Bleakley	614
A Technique for Improving the Linear Operating Range for a Relative Phase Delay Capacitive Sensor Interface Circuit	Y. Meng and R. N. Dean	624
A Portable Odor-Tracing Instrument	Y.-T. Wei, Q.-H. Meng, Y.-Q. Jing, Y.-J. Liu, and M. Zeng	631
A 6-DOF Measurement Solution for Permanent Magnet Synchronous Planar Motors Based on Motion Continuity Principle	L. Chen, J. Hu, Y. Zhu, S. Du, and Y. Chai	643
Object Recognition Using Tactile Measurements: Kernel Sparse Coding Methods	H. Liu, D. Guo, and F. Sun	656
Metrology, Standards and Calibration		
Development of High-Accuracy Standard Capacitors and Capacitance Box	H. Xiaobing, D. Dongxue, J. Pan, and W. Wei	666
Nondestructive Evaluation and Remote Sensing		
Simultaneous Multiparameter Measurement in Pulsed Eddy Current Steam Generator Data Using Artificial Neural Networks	J. A. Buck, P. R. Underhill, J. E. Morelli, and T. W. Krause	672
RF, Microwave, Millimeter Wave and Tera-Hertz		
A Square Patch Capacitive Voltage Divider for Measuring High-Voltage Ultrawideband Pulses in a Coaxial Pulse Forming Line	J. Ryu, H.-O. Kwon, S. H. Park, and D. W. Yim	680
Sensors, Sensor Fusion and Transducers		
A Novel PQCR-L Circuit for Inductive Sensing and Its Application in Displacement Detection	X. Ding, X. Chen, W. Ma, X. Chen, and N. Li	685
Investigation of the Electrical Characteristics on Measurement Frequency of a Thin-Film Ceramic Humidity Sensor	T. Islam and M. Z. Ur Rahman	694
Measurement of Flow Characteristics in a Bubbling Fluidized Bed Using Electrostatic Sensor Arrays	W. Zhang, Y. Yan, Y. Yang, and J. Wang	703
Signals, Systems and System Identification		
Recursive Discrete-Time Models for Continuous-Time Systems Under Band-Limited Assumptions	R. Relan and J. Schoukens	713
SHORT PAPER		
Automated Classification of Peach Tree Rootstocks by Means of Spectroscopic Measurements and Signal Processing Techniques	S. Matteoli, M. Diani, G. Corsini, R. Massai, and D. Remorini	724
CORRESPONDENCE		
Letter to Editor		
Letter to the Editor “On the Feasibility of Noncontact ECG Measurements”	R. Pallas-Areny and O. Casas	727
