

VOLUME | ISSUE | YEAR  
26 | 3 | 2018  
ISSN 1300-0632 • E-ISSN 1303-6203

TURKISH JOURNAL OF  
**ELECTRICAL  
ENGINEERING  
& COMPUTER  
SCIENCES**

<http://journals.tubitak.gov.tr/elektrik/>



Published by the Scientific and  
Technological Research Council of Turkey

**TÜBİTAK**

## SCOPE

- The Turkish Journal of Electrical Engineering & Computer Sciences is published electronically 6 times a year by the Scientific and Technological Research Council of Turkey (TÜBİTAK)
- Accepts English-language manuscripts in the areas of power and energy, environmental sustainability and energy efficiency, electronics, industry applications, control systems, information and systems, applied electromagnetics, communications, signal and image processing, tomographic image reconstruction, face recognition, biometrics, speech processing, video processing and analysis, object recognition, classification, feature extraction, parallel and distributed computing, cognitive systems, interaction, robotics, digital libraries and content, personalized healthcare, ICT for mobility, sensors, and artificial intelligence.
- Contribution is open to researchers of all nationalities.

## ABSTRACTED

- Science Citation Index Expanded
  - Scopus
  - Academic Search Complete
  - Inspec
-

# CONTENTS

Effect of intuitionistic fuzzy normalization in microarray gene selection .....	1141
<b>Prema RAMASAMY, Premalatha KANDHASAMY</b>	
Modeling of realistic heart electrical excitation based on DTI scans and modified reaction diffusion equation .....	1153
<b>Ihab ELAFF</b>	
A compact branch-line coupler design using low-pass resonators and meandered lines open stubs ..	1164
<b>Fatemeh HOSSEINKHANI, Saeed ROSHANI</b>	
A comparative study on different types of metamaterials for enhancement of microstrip patch antenna directivity at the Ku-band (12 GHz) .....	1171
<b>Bilal TÜTÜNCÜ, Hamid TORPİ, Bülent URUL</b>	
Circularly polarized implantable antenna characterization for retinal prosthesis systems .....	1180
<b>Ademola Oluwaseun KAKA, Mehmet TOYCAN, Stuart Douglas WALKER</b>	
A new inset-fed UWB printed antenna with triple 3.5/5.5/7.5-GHz band-notched characteristics ..	1190
<b>Avez SYED, Rabah Wasel ALDHAHERI</b>	
Investigating the experimental limits of the Brewster's angle method .....	1202
<b>Can SÜMER, Alp KUŞTEPELİ, Mehmet Salih DİNLEYİCİ</b>	
A new method for detecting jittered PRI in histogram-based methods .....	1214
<b>Mostafa BAGHERI, Mohammad Hossein SEDAAGHI</b>	
Composite vector quantization for optimizing antenna locations .....	1225
<b>Zekeriya UYKAN, Riku JÄNTTI</b>	
Compact local Gabor directional number pattern for facial expression recognition .....	1236
<b>Zhengyan ZHANG, Guanming LU, Jingjie YAN, Haibo LI, Ning SUN, Xia LI</b>	
Ab initio study of the structural, electronic, and magnetic properties of $\text{Co}_2\text{FeGa}$ and $\text{Co}_2\text{FeSi}$ and their future contribution to the building of quantum devices .....	1249
<b>Abdallah OUMSALEM, Yamina BOUREZIG, Zakia NABI, Badra BOUABDALLAH</b>	
Digital image copy-move forgery detection based on discrete fractional wavelet transform .....	1261
<b>Amanjot Kaur LAMBA, Neeru JINDAL, Sanjay SHARMA</b>	
Dynamic simulation of the CAD model in SimMechanics with multiple uses .....	1278
<b>Jiří ZÁTOPEK, Zdeněk ŮŘEDNÍČEK, José MACHADO, João SOUSA</b>	
Gradient domain photomontage via interactive object selection .....	1291
<b>Bekir DİZDAROĞLU</b>	
Improvement of air pollution prediction in a smart city and its correlation with weather conditions using metrological big data .....	1302
<b>Talat ZAREE, Ali Reza HONARVAR</b>	
Interactive process miner: a new approach for process mining .....	1314
<b>İsmail YÜREK, Derya BİRANT, Kökten Ulaş BİRANT</b>	
Topological feature extraction of nonlinear signals and trajectories and its application in EEG signals classification .....	1329
<b>Saleh LASHKARI, Ali SHEIKHANI, Mohammad Reza HASHEMI GOLPAYEGAN, Ali MOGHIMI, Hamid Reza KOBRAVI</b>	
Will it pass? Predicting the outcome of a source code review .....	1343
<b>Çağdaş Evren GEREDE, Zeki MAZAN</b>	
Laser printer as a source of sensitive emissions .....	1354
<b>Ireneusz KUBIAK</b>	

Gait pattern discrimination of ALS patients using classification methods .....	1367
<b>Süleyman BİLGİN, Zahide Elif AKIN</b>	
Two-stage feature selection using ranking self-adaptive differential evolution algorithm for recognition of acceleration activity .....	1378
<b>Muhammad Noorazlan Shah ZAINUDIN, Md. Nasir SULAIMAN, Norwati MUSTAPHA, Thinagaran PERUMAL, Raihani MOHAMED</b>	
A modeling and simulation study about CO <sub>2</sub> amount with web-based indoor air quality monitoring .....	1390
<b>Nesibe YALÇIN, Deniz BALTA, Ahmet ÖZMEN</b>	
Hardware Trojan detection and localization based on local detectors .....	1403
<b>Amin BAZZAZI, Mohammad Taghi MANZURI SHALMANI, Ali Mohammad Afshin HEMMATYAR</b>	
High-speed data deduplication using parallelized cuckoo hashing .....	1417
<b>Jane Rubel Angelina JEYARAJ, Sundarakantham KAMBARAJ, Velmurugan DHARMARAJAN</b>	
Analyzing methods of network topologies based on chordal rings .....	1430
<b>Damian LEDZIŃSKI, Sandra ŚMIGIEL, Łukasz ZABŁUDOWSKI</b>	
Virtual force-based intelligent clustering for energy-efficient routing in mobile wireless sensor networks .....	1444
<b>Selvi MUNUSWAMY, Jothi Muneeswari SARAVANAKUMAR, Ganapathy SANNASI, Khanna Nehemiah HARICHANDRAN, Kannan ARPUTHARAJ</b>	
Experimental realization of a multi-input buck–boost DC–DC converter .....	1453
<b>Kushal KANHAV, Madhuri CHAUDHARI</b>	
Frequency equivalent circuits for the on and off state of an optically triggered switch based on a PIN photodiode .....	1470
<b>Ivan Olaf HERNANDEZ-FUENTES, Carlos VILLA-ANGULO, Jose Manuel RAMIREZ-ZARATE, Raul RASCON-CARMONA, Rosa Citlalli ANGUIANO-COTA</b>	
Probabilistic dynamic security assessment of large power systems using machine learning algorithms .....	1479
<b>Sevda JAFARZADEH, Veysel Murat İstemihan GENÇ</b>	
New approach in two-area interconnected AGC including various renewable energy sources using PSO .....	1491
<b>Prasun SANKI, Mousumi BASU</b>	
Higher order sliding mode controller for urea-SCR system .....	1505
<b>Palanikumar GURUSAMY, Uma GANDHI, Umopathy MANGALANATHAN, Arunshankar JAYABALAN</b>	
Conception and control of a WTGS system using a novel control technique based on MPC-DPC-MVF with a switch optimization process .....	1515
<b>Mansour MADACI, Djallel KERDOUN</b>	
The application of analytical mechanics in a multimachine power system .....	1530
<b>Zhijie WANG, Zhiyuan LIU, Jie WANG, Xiuchen JIANG, Sanming LIU, Yifang LIU, Gehao SHENG, Tianyu LIU</b>	
An integrated approach for the development of an electric vehicle powertrain: design, analysis, and implementation .....	1541
<b>Özgür ÜSTÜN, Ramazan Nejat TUNCAY, Mert Safa MÖKÜKCÜ, Ömer Cihan KIVANÇ, Gürkan TOSUN, Can GÖKÇE, Murat ÇAKAN</b>	
Bagged tree classification of arrhythmia using wavelets for denoising, compression, and feature extraction .....	1555
<b>Özgür TOMAK, Temel KAYIKÇIOĞLU</b>	

High-power density switched reluctance machine development for high-speed spindle applications .	1572
<b>Yusuf YAŞA, Yılmaz SÖZER, Muhammet GARİP</b>	
Performance analysis of radial and axial flux PMSM based on 3D FEM modeling .....	1587
<b>Oussama BOUAZIZ, Imen JAAFAR, Faouzi BEN AMMAR</b>	
A novel DTC-SVM approach for two parallel-connected induction motors fed by matrix converter	1599
<b>Mahdi JAFARI, Karim ABBASZADEH, Mustafa MOHAMMADIAN</b>	
Adaptive collaborative speed control of PMDC motor using hyperbolic secant functions and particle swarm optimization .....	1612
<b>Omer SALEEM, Khalid MAHMOOD-UL-HASAN</b>	
Model predictive control of a dual induction motor drive fed by a single voltage source inverter ...	1623
<b>Muhammad Abbas ABBASI, Abdul Rashid BIN HUSAIN</b>	
Diagnosis of reverse osmosis desalination water system using bond graph approach .....	1638
<b>Abderrahmene SELLAMI, Dhia MZOUGH, Abdelkader MAMI</b>	
Özyeğin Biopsy Robot: System integration architecture and motion compensation of a moving target .....	1651
<b>Awais AHMAD, Özkan BEBEK</b>	
Implementing universal dependency, morphology, and multiword expression annotation standards for Turkish language processing .....	1662
<b>Umut SULUBACAK, Gülşen ERYİĞİT</b>	
Forecasting the Baltic Dry Index by using an artificial neural network approach .....	1673
<b>Bekir ŞAHİN, Samet GÜRGEN, Bedir ÜNVER, İsmail ALTIN</b>	