2016 19th International Multi-Topic Conference (INMIC 2016)

Islamabad, Pakistan 5-6 December 2016



IEEE Catalog Number: CISBN: 97

CFP16519-POD 978-1-5090-4301-9

Copyright \odot 2016 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:
 CFP16519-POD

 ISBN (Print-On-Demand):
 978-1-5090-4301-9

 ISBN (Online):
 978-1-5090-4300-2

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



Table of Content

-	4		T / T	
	Artitio	cial	ntel	ligence
-				

1.1	Student's performance in the context of Data Mining	3
1.2	Population of data in web-tables schema	
1.3	A machine learning approach for student assessment in e-learning using Quinlan's C4.5, Naïve Bayes and Random Forest algorithms	
1.4	Multimodal rule transfer into automatic knowledge based topic models	25
1.5	Histogram based rule verification in lifelong learning models	31
1.6	Intelligent Security Cycle: A rule based runtime malicious code detection technique for soap messages	36
1.7	A review on support threshold free frequent item-sets mining approaches	46
2. Co	mmunication System	
2.1	Behavioral LNA model in Simulink for S-Band applications	55
2.2	Design of adaptive infinite impulse response digital filter for ultra-wide band optimum pulse shaping	60
2.3	Interference control in cognitive radio using joint beam-forming and power optimization by applying artificial bee colony	65
2.4	Effect of phase shifting on self-imaging in optical multi-mode interference devices	71
2.5	A new power efficient wireless modem	77
2.6	Application of Differential and Cuckoo search algorithms in reduction of sidelobes	82
3. Co	mputer Architecture and Computing	
3.1	Voltage control technique for stable operation of SCIM using Direct- Quadrature transformation	89
3.2	Proposing a new process model for mashup development by applying Meta- Design principles and goals for managing end user expectations	94
3.3	Design and implementation of multimode CFAR processor	99
3.4	Emulating an Octeon MIPS64 based embedded system on X86 in QEMU	105
3.5	D3TAC: Utilizing distributed computing for DDoS attack traffic analysis on the cloud	112
3.6	A novel multiprocessor architecture for k-means clustering algorithm based on Network-on-Chip	118

4. Co	omputer Software and Networks	
4.1	A parametric effort estimation model for mobile apps	125
4.2	Security quality assurance through penetration testing	131
4.3	Comparative analysis of Software Defined Networking (SDN) controllers – In terms of traffic handling capabilities	137
4.4	A smart duty cycle adaptation algorithm for the low rate wireless personal area networks	143
4.5	Cooperative multipath routing in wireless sensor networks	149
4.6	Context-aware service composition of heterogeneous services in pervasive computing environments: A review	155
5. Co	ontrol Systems	
5.1	Bond graph modeling of an anthropomorphic prosthetic hand	163
5.2	Fuzzy state convergence based bilateral control of a tele-robotic system in unknown environments	170
5.3	Cloud based network management and control for building automation	176
5.4	Prosthetic hand module using electromechanical actuators: A simulation	182
5.5	Direct control of three-phase smart load for neutral current mitigation	187
5.6	Type-II neuro-fuzzy wavelet control for power system stability enhancement using STATCOM	193
5.7	A state estimation and fusion algorithm for high-speed low-altitude targets	200
5.8	Practical sliding mode controller in DC-DC converters for use in hybrid vehicles	205
5.9	Performance improvement of pendulum cart system using fractional controller	212
6. El	ectromagnetics	
6.1	Design of an efficient high power microwave antenna	223

Optimization of linear antenna array for low SLL and high directivity

Advanced optical material for enhanced solar spectrum confinement

xiv

Microwave transceiver prototype for under debris search and

6.2

6.3

6.4

rescue operations

229

235

242

	investigated	
6.5	Design of 50 ohm microstrip monopole inverted F antenna with extension slits for 2.4 GHz	246
6.6	A compact passive UHF RFID meandered dipole tag	
6.7	Robust control design of a magnetic levitation system	
6.8	Cost effective fully printable chipless RFID tag antenna	
6.9	A compact uniplanar LTE/WWAN antenna for mobile handset applications	262
6.10	Design and performance analysis of six element MIMO antenna for wireless routers	266
6.11	Hardware implementation of metric algorithms for a self-mixing laser interferometric sensor	270
7. Pov	wer and Energy Systems	
7.1	A comprehensive overview on the architecture of Hybrid Electric Vehicles (HEV)	277
7.2	Mathematical modeling of 3-phase induction motor to study the torque vs. speed characteristics using MATLAB Simulink	284
7.3	Design and simulation of microchannel for DNA amplification	291
7.4	Overhead line length impact on reactive power support from wind power plant	296
7.5	Breakdown characteristics of transformer oil based silica nanofluids	302
7.6	Fabrication of dye sensitized solar cells using natural dyes	
7.7	Economic viability of grid tied solar PV energy system in Muzaffargarh, Pakistan	312
7.8	Optimal switching angles for minimization of total harmonic distortion in single phase cascaded multilevel inverters	318
7.9	Modelling of a solar energy driven water desalination system using TRNSYS	324
7.10	Dramatically enhanced oxygen surface exchange kinetics of mixed conducting SOFC cathode by surface modification	330
7.11	Stochastic versus robust optimization of wind-hydro power plant's operational strategy	334
7.12	Optimization of daily operation of micro hydro power plant coupled with compress air storage	339
7.13	Comparative analysis of performance for seven and five levels inverter	344
7.14	Network security challenges in smart grid	350

7.15	Optimal time switching and power splitting in SWIPT	356
7.16	An optimized approach for home appliances scheduling in smart grid	361
7.17	Performance study of microgrid system for a small community at Islamabad, Pakistan	366
8. Sig	nal Processing	
8.1	A colon cancer grade prediction model using texture and statistical features, SMOTE and mRMR	375
8.2	Design and development of X-band FMCW based lab model of Synthetic Aperture Radar (SAR) for applications in engineering education	382
8.3	Black-Box: A new secure distributed peer-to-peer files storage and backup system	388
8.4	De-noising Of 3D Magnetic Resonance Images using non-local PCA and transform-domain filter	394
8.5	Evaluation of general purpose processor architecture for sensor array processing systems	400