2019 IEEE Green Energy and Smart Systems Conference (IGESSC 2019)

Long Beach, California, USA
4-5 November 2019

IEEE Catalog Number: CFP1931Y-POD
ISBN: 978-1-7281-5651-4

Copyright © 2019 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:	CFP1931Y-POD
ISBN (Print-On-Demand):	978-1-7281-5651-4
ISBN (Online):	978-1-7281-5650-7
ISSN:	2639-2356

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

Communications & Digital Signal Processing

AI-enabled IoT, Network Complexity and 5G
Igor Alvarado (National Instruments Corp., USA).....1

Achievable Capacity of Multi-Polarization MIMO (MP-MIMO) toward 6G Wireless Communications
Son Doan and Sean (Seok-Chul) Kwon (California State University Long Beach, USA).....7

Energy Storage Systems

Multi-function Energy Storage System for Smart Grid
Jianlong Bai (CSSC-CMXD, China).....13

Dynamic Simulation and Control of a Battery Energy Storage System
Md Arifujjaman (Southern California Edison, USA).....17

Energy Management for a Community Microgrid in the city of Boston
Sohad Abu-elzait (University of Massachusetts, Lowell & Public Research University, USA).....22

Power Systems

Dynamic Simulation and Control of an Induction Generator Based Wind Energy Conversion System
Md Arifujjaman (Southern California Edison, USA).....26

Programmable Turbine Failsafe System for Pico-Hydroelectric Power in the Nepal Himalayas
Hsi-Jen James Yeh and Rick Sturdivant (Azusa Pacific University, USA); Mark Stambaugh (RDIS, USA); Alex Zahnd (RDIS, Switzerland).....31

MiniDES - Lightweight Python Simulation Framework for Interconnected Renewable Resources
Jonas Schlund and Julian Reisenweber (University of Erlangen-Nuremberg, Germany); Reinhard German (University of Erlangen, Germany).....37

Analyzing a Compenastor for Unbalanced Loading due to Electric Vehicle Integration
Tracy Toups (California State University, USA).....44

Designing a Dynamic Balancing Compensator for Unbalanced Loads in a Three Phase Power System
Tracy Toups (California State University, USA).....50

A traveling wave fault location system based on wavelet transformation
Yanghao Zheng (Shenzhen University, China); Yuan Xu and Zhiyong Xiao (Shenzhen Technology University, China).....56

Smart Systems

Statistical and Deep Learning Methods for Electric Load Forecasting in Multiple Water Utility Sites
J Yusuf (CE-CERT, USA); Rumana Binte Faruque (University of California Riverside, USA); A S M Jahid Hasan (University of California, Riverside, USA); Sadrul Ula (University of California Riverside, USA).....62

Deep Convolutional Neural Networks for Shark Behavior Analysis
Wenlu Zhang, Anthony Martinez, Emily Meese and Christopher G. Lowe (California State University, Long Beach, USA); Yu Yang and Hen-Geul Yeh (California State University Long Beach, USA).....67

Performance Comparison of Machine Learning Methods with Distinct Features to Estimate Battery SOC
ASM Jahid Hasan (University of California, Riverside, USA); J Yusuf (CE-CERT, USA); Rumana Binte Faruque (University of California Riverside, USA).....73

Classification of Shark Behaviors using K-Nearest Neighbors
Sainesh Karan (California State University - Long Beach, USA); Emily Meese (California State University, Long Beach, USA);

Yu Yang and Hen-Geul Yeh (California State University Long Beach, USA); Christopher G. Lowe and Wenlu Zhang (California State University, Long Beach, USA).....78

Designing a Robust Gasoline Blending Recipe Via Scenario-based Optimization
Yu Yang and Loren dela Rosa (California State University Long Beach, USA).....84

Transportation emissions and EVs in Smart cities:A study of multi-dimensional emission data
Ahmed Lasisi (University of Delaware); Nii Attoh-Okine (University of Delaware, USA); Fuad Ali (Amtrak Railway); Grace Ashley (University of Delaware).....89

Smart Street Light towards Energy Saving and Neighborhood Security
Yuan Xu (Shenzhen Technology University, China); Tongsheng Tang and Yanghao Zheng (Shenzhen University, China); Kezhong Yang (Shenzhen Nephotonics Technology Co. Ltd, China); Zhiyong Xiao (Shenzhen Technology University, China).....96