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Data Analytics for Renewable Energy Integration

Technologies, Systems and Society

6th ECML PKDD Workshop, DARE 2018 Dublin, Ireland, September 10, 2018 Revised Selected Papers



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Preface

This volume presents a collection of papers focused on the use of data analytics and machine learning techniques to facilitate the integration of renewable energy resources into existing infrastructure and socioeconomic systems. This collection includes papers presented at DARE 2018: the 6th International Workshop on Data Analytics for Renewable Energy Integration, which was hosted by ECML PKDD 2018.

Climate change, energy security, and sustainability have stimulated extensive research on the development of clean and renewable energy sources. However, of equal importance is the integration of these sources into existing infrastructure and socioe-conomic systems. While increasing the generating capacities of renewable energy sources is still important, issues such as efficient and cost-effective storage and distribution, demand response, planning, and policy making must be resolved in parallel. These challenges are inherently multidisciplinary and depend heavily on robust and scalable computing techniques and the ability to handle large, complex data sets. The fields of data analytics, pattern recognition, and machine learning have a lot to offer in this context. Relevant topics include fault and event detection, forecasting of energy time series, cyber security, and demand response.

An additional element that was highlighted this year was the integration of renewable energy in society. It is clear that the spread of renewable energy will require the participation and support of end users. In this context, related topics include demand response, residential PV installations and even social media analytics in the context of building and measuring awareness of and attitudes toward renewable energy. The focus of this workshop is to study and present the use of various data analytics techniques in the different areas of renewable energy integration.

This year's event attracted numerous researchers working in the various related domains, both to present and discuss their findings and to share their respective experiences and concerns. We are very grateful to the organizers of ECML PKDD 2018 for hosting DARE 2018, the Program Committee members for their time and assistance, and the Masdar Institute, MIT, and the Universidad Autónoma de Madrid for their support of this timely and important workshop. Last but not least, we sincerely thank the authors for their valuable contributions to this volume.

October 2018

Wei Lee Woon Zeyar Aung Alejandro Catalina Feliú Stuart Madnick

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Contents

Mathematical Optimization of Design Parameters of Photovoltaic Module Dávid Kubík and Jaroslav Loebl	1
Fused Lasso Dimensionality Reduction of Highly Correlated NWP Features	13
Sampling Strategies for Representative Time Series in Load Flow Calculations Janosch Henze, Stephan Kutzner, and Bernhard Sick	27
Probabilistic Graphs for Sensor Data-Driven Modelling of Power Systems at Scale <i>Francesco Fusco</i>	49
Renewable Energy Integration: Bayesian Networks for Probabilistic State Estimation Ole J. Mengshoel, Priya K. Sundararajan, Erik Reed, Dongzhen Piao, and Briana Johnson	63
Deep Learning for Wave Height Classification in Satellite Images for Offshore Wind Access	83
Machine Learning as Surrogate to Building Performance Simulation: A Building Design Optimization Application Sokratis Papadopoulos, Wei Lee Woon, and Elie Azar	94
Clustering River Basins Using Time-Series Data Mining on Hydroelectric Energy Generation	103
Short-Term Electricity Consumption Forecast Using Datasets of Various Granularities	116
Intelligent Monitoring of Transformer Insulation Using Convolutional Neural Networks	127
Nonintrusive Load Monitoring Based on Deep Learning Ke Wang, Haiwang Zhong, Nanpeng Yu, and Qing Xia	137

X Contents

Urban Climate Data Sensing, Warehousing, and Analysis: A Case Study in the City of Abu Dhabi, United Arab Emirates	
Author Index	167