

A Novel Deep Learning Architecture for Data-Driven Energy Efficiency Management (D2EEM) - Systematic Survey

Akhtar, Shamim^a, Sujod, Muhamad Zahim Bin^a, Hussain Rizvi, Syed Sajjad^b

^a Universiti Malaysia, College of Engineering, Department of Electrical Engineering, Pahang, Malaysia

^b Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Department of Computer Science, Karachi, Pakistan

ABSTRACT

The Energy Management System (EMS) is the cost-effectiveness, robustness, and flexible approach for energy efficiency management (EEM). Data-Driven Energy Efficiency Management (D2EEM) is a recent advancement in EMS. The D2EEM is the blend of data science and artificial intelligence for EEM. Due to the highly tolerant to the performance plateau and unconstrained to the feature extraction, Deep Learning (DL) facilitates handling big data-driven problems of EEM. To the best of the knowledge, the accurate and robust D2EEM is the pressing need. Moreover, the accurate pre-trained DL network for EEM is not available in the recent literature. In this work, a comprehensive study is presented to devise a D2EEM. Moreover, the architecture is suggested in connection to the research gap.

KEYWORDS

Data driven; Deep learning; Energy efficiency; Energy management; Machine learning

ACKNOWLEDGMENT

This research work is supported by the funding by Universiti Malaysia Pahang Post Graduate Research Grant (PGRS 210366)