



Contribution ID: 232

Type: Oral Presentation

# Forecasting Short-term Power Consumption Using Deep Learning and Boosting Machine Learning Techniques

*Tuesday, 5 July 2022 11:30 (15 minutes)*

Naleli Jubert Matjelo<sup>1</sup>, Makhamsa Senekane<sup>2</sup>, Mhlambululi Mafu<sup>3</sup>, Sebota Mokeke<sup>1</sup>, Lerato Lerato<sup>4</sup>  
<sup>1</sup>Department of Physics and Electronics, National University of Lesotho, Roma, Lesotho  
<sup>2</sup>Institute for Intelligent Systems, University of Johannesburg, Johannesburg, South Africa  
<sup>3</sup>Department of Physics and Astronomy, Botswana International University of Science and Technology, Palapye, Botswana  
<sup>4</sup>Department of Mathematics & Computer Science, National University of Lesotho, Roma, Lesotho

Short-term power consumption forecasting is increasingly playing a crucial role in ensuring the optimal management of power systems. One approach that can be utilized for forecasting short-term power consumption involves using Machine Learning (ML) models. In this paper, we report the use of Machine Learning models to forecast one hour-ahead power consumption. Machine Learning models used include those based on Artificial Neural Networks (ANN) and those based on boosting. We then compared the performance results for both ANN-based and boosting-based techniques. The results obtained from the study reported in this paper underline the importance of using Machine Learning models for short-term power consumption.

## Apply to be considered for a student ; award (Yes / No)?

No

## Level for award;(Hons, MSc, PhD, N/A)?

N/A

**Primary authors:** SENEKANE, Makhamsa (Department of Physics and Electronics, National University of Lesotho, Roma, Lesotho); Dr LERATO , Lerato (National University of Lesotho); Mr MOKEKE, Sebota (National University of Lesotho); Dr MAFU, MHLAMBULULI (BOTSWANA INTERNATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY); Dr MATJELO, Naleli (National University of Lesotho)

**Presenter:** SENEKANE, Makhamsa (Department of Physics and Electronics, National University of Lesotho, Roma, Lesotho)

**Session Classification:** Applied Physics

**Track Classification:** Track F - Applied Physics