

Editorial

We bring the second issue of the **Transactions in Machine Design** with the below papers.

In the first paper, “**The Gradient Boosting Regressor Efficient Integration of Solar Energy in Grid Systems**,” the authors used the Gradient Boosting Regressor in precisely predicting solar energy production. The study introduces a reliable method for real-time forecasting of solar energy facility performance, a way for further research on enhancing forecasting methods and emphasizes the importance of precise prediction models in the development of renewable energy technologies.

In the next paper, “**Maximum Power Point Tracking (MPPT) Controllers for Improving the Efficiency of Solar Panels**”, the authors used Long Short-Term Memory (LSTM) neural networks for the study of Maximum Power Point Tracking (MPPT) controllers for solar panels. Data on voltage, current, power output, temperature, and solar irradiance from various locations are utilized to train and assess the LSTM model. The findings show that LSTM-based MPPT controllers are more effective than traditional methods, providing better tracking precision and the ability to adjust to changing environmental conditions.

In the last paper, “**Increasing Efficiency of Armored Fighting Vehicles using smart technologies**,” the authors highlighted the role of AI in maintaining the engines of military vehicles, with a special emphasis on Armored Fighting Vehicles. The use of sensor technologies for predictive maintenance ensures continuous monitoring of equipment, leading to optimal performance and thereby strengthening the readiness of troops and the effectiveness of the military as a whole.

We hope that these papers are interesting to read.

Editors