

SCHOLARLY PUBLICATIONS School of Electrical Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Power Delivery

Title: Autoregressive Coefficients Based Intelligent Protection of Transmission Lines Connected to Type-3 Wind Farms

Author: Bera P.K., Kumar V., Pani S.R., Malik O.P.

Details: Volume 39, Issue 1, Pages 71 – 82, 1 February 2024

Abstract: Protective relays can mal-operate for transmission lines connected to doubly fed induction generator (DFIG) based large capacity wind farms (WFs). The performance of distance relays protecting such lines is investigated and a statistical model based intelligent protection of the area between the grid and the WF is proposed in this article. The suggested method employs an adaptive fuzzy inference system to detect faults based on autoregressive (AR) coefficients of the 3-phase currents selected using minimum redundancy maximum

relevance algorithm. Deep learning networks are used to supervise the detection of faults, their subsequent localization, and classification. The effectiveness of the scheme is evaluated on IEEE 9-bus and IEEE 39-bus systems with varying fault resistances, fault inception times, locations, fault types, wind speeds, and transformer connections. Further, the impact of



factors like the presence of type-4 WFs, double circuit lines, WF capacity, grid strength, FACTs devices, reclosing on permanent faults, power swings, fault during power swings, voltage instability, load encroachment, high impedance faults, evolving and cross-country faults, close-in and remote-end faults, CT saturation, sampling rate, data window size, synchronization error, noise, and semi-supervised learning are considered while validating the proposed scheme. The results show the efficacy of the suggested method in dealing with various system conditions and configurations while protecting the transmission lines that are connected to WFs.

URL: https://ieeexplore.ieee.org/document/10271697



IF: 4.4



SCHOLARLY PUBLICATIONS School of Electrical Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Learning Technologies

IF: 3.7

Title: Improvement of the Quality of Question Papers for Online Examinations toward Simultaneous

Enhancement of Students' Learning

Author: Allamsetty S., Chandra M.V.S.S., Madugula N., Nayak B.

Details: Volume 17, Pages 135 – 142, 2024

Abstract: The present study is related to the problem associated with student assessment with online examinations at higher educational institutes (HEIs). With the current COVID-19 outbreak, the majority of educational institutes are conducting online examinations to assess their students, where there would always be

a chance that the students go for malpractice. It is difficult to set a question paper for any technical course with great novelty. Under these circumstances, safeguarding academic integrity has become a challenge for HEIs. This study is aimed at improving the quality of questions for online exams to increase the accountability of HEIs by proper evaluation of their students. A detailed procedure with suggestions for setting the questions for technical courses, in the format of assertion and reason, matching, multiple select types, etc., has been discussed with adequate examples. It deals with a strategy for ensuring that all the students are held to the standards that are reflected in their grades. The proposed evaluation method has been implemented on a test batch and presented the results along with a comparison with that of traditional



question papers. It is witnessed that there is a simultaneous enhancement of students' learning as an additional benefit of implementing the proposed learning-oriented assessment method.

URL: https://ieeexplore.ieee.org/document/10119210





Journal Name: Engineering Technology & Applied Science Research

IF: 1.5

Title: Forecasting Tariff Rates and Enhancing Power Quality in Microgrids: The Synergistic Role of LSTM and UPQC

Author: Satyabrata Sahoo, Sarat Chandra Swain, Ritesh Dash and Padarbinda Samal

Details: Volume 15, Issue 1, February 2024, Pages 12506-12511

Abstract: The current paper presents an original approach into the microgrid control framework by incorporating LSTM-based optimization with specific emphasis on refining the

gain parameters of a Proportional-Integral-Derivative (PID) controller. This integration represents a significant advancement in improving the overall efficiency of microgrid control systems. By creatively applying LSTM optimization, the paper achieves dynamic adjustments of the PID controller's parameters, resulting in more precise regulation of output power quality. Through the utilization of the Unified Power Quality Conditioner (UPQC) in conjunction with LSTM-based optimization, the paper establishes a compelling link between improved power quality and



the resultant tariff rates. This highlights their combined influence on enhancing power quality and calibrating tariff rates, providing a fresh perspective on optimizing microgrid operations.

URL: https://etasr.com/index.php/ETASR/article/view/6481

