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| Book Name: | [Engineering Research: Perspectives on Recent Advances](https://www.bookpi.org/bookstore/product/engineering-research-perspectives-on-recent-advances-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_4142** |
| Title of the Manuscript:  | **A long short-term memory based prediction model for transformer fault diagnosis using dissolved gas analysis with digital twin technology** |
| Type of the Article | **Book chapter** |

**General guidelines for the Peer Review process:**

This Book’s peer review policy states that **NO** manuscript should be rejected only on the basis of ‘**lack of Novelty’**, provided the manuscript is scientifically robust and technically sound.

To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

<https://r1.reviewerhub.org/general-editorial-policy/>

**Important Policies Regarding Peer Review**

Peer review Comments Approval Policy: <https://r1.reviewerhub.org/peer-review-comments-approval-policy/>

Benefits for Reviewers: <https://r1.reviewerhub.org/book-benefits-for-reviewers>

**Special note:**

**A research paper already published in a journal can be published as a Book Chapter in an expanded form with proper copyright approval.**

**Source Article:**

**This chapter is an extended version of the article published by the same author(s) in the following journal.**

**International Journal of Power Electronics and Drive Systems (IJPEDS), Vol. 13, No. 2, June 2022, pp. 1266~1276**

**DOI: 10.11591/ijpeds.v13.i2.pp1266-1276**

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| PART 1: Comments |
|  | Reviewer’s comment | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript presents a significant contribution to the scientific community by addressing a critical need for accurate and early fault diagnosis in transformers, a cornerstone of power system reliability. The reported high validation accuracy of 99.83% underscores its potential impact on reducing operational costs, downtime, and safety risks in industrial applications. However, its practical relevance to the broader scientific community is limited by several factors. The reliance on a single transformer dataset raises concerns about the generalizability of the findings to diverse operational scenarios and transformer types. Moreover, the exclusion of certain fault types during preprocessing and the lack of a detailed comparison with alternative methods diminish the robustness and completeness of the study.Authors may improve the drawback here with further exploration. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | The current title, *"A Long Short-Term Memory-Based Prediction Model for Transformer Fault Diagnosis Using Dissolved Gas Analysis with Digital Twin Technology,"* is descriptive and captures the primary focus of the manuscript. However, it is somewhat lengthy and could be streamlined for clarity and impact. Additionally, it could better emphasize the integrating LSTM and digital twin technology.Suggestion: “Advanced Transformer Fault Prediction via LSTM and Digital Twin Integration” |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract of the article is generally comprehensive, as it highlights the key aspects of the study, including the use of LSTM for transformer fault diagnosis, the integration with digital twin technology, and the achievement of high validation accuracy. However, there are areas where improvements could make the abstract more impactful and precise.* Include Key Methods
* Broader Impact
* Simplify Technical Terms
* Limit Redundancies
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| **Is the manuscript scientifically, correct? Please write here.**  | The manuscript appears to be scientifically correct, as it employs well-established methods like LSTM and digital twin technology for fault diagnosis and achieves high validation accuracy. The preprocessing steps and model training are consistent with standard practices in machine learning, and the results are validated using appropriate metrics like accuracy and a confusion matrix. However, the exclusion of certain fault types and limited dataset diversity may slightly impact the generalizability and robustness of the conclusions. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | The manuscript includes a comprehensive list of references, many of which are relevant and recent, particularly those addressing dissolved gas analysis, machine learning techniques, and digital twin technology. However, several cited works are older than five years, such as Rogers (1978) and some sources from the early 2010s. While foundational, these older references might not fully capture the latest advancements in LSTM networks or digital twin applications.Suggestions for Improvement:1. Replace or supplement older foundational references (e.g., Rogers, 1978) with more recent studies or reviews that discuss advancements in DGA or transformer diagnostics.
2. Include newer references related to digital twins in fault diagnosis, such as papers discussing real-world implementations or improvements in computational efficiency.
3. Expand the citation base to cover recent developments in LSTM-based fault prediction in other industrial contexts to strengthen the manuscript's interdisciplinary relevance.

Including newer studies from the last 3–5 years could enhance the manuscript's scientific currency and relevance.  |  |
| Is the language/English quality of the article suitable for scholarly communications? | The language quality of the article is generally suitable for scholarly communication, but it could benefit from some refinements to improve clarity and readability. The technical terms are appropriate for the target audience, and the scientific explanations are mostly precise. However, there are occasional grammatical errors, awkward phrasing, and redundancies that could distract readers.Suggestions for Improvement**:**1. Simplify overly complex sentences to enhance readability without losing technical depth.
2. Avoid repetitive phrases, such as multiple mentions of validation accuracy, and ensure consistent terminology throughout the manuscript.
3. Proofread for minor grammatical issues, such as subject-verb agreement and article usage.
4. Refine transitions between sections for smoother flow and coherence.
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| Optional/General comments | Overall, with revisions and professional editing, the manuscript can meet the standards for high-quality scholarly communication.The manuscript presents an important study on transformer fault diagnosis using advanced LSTM and digital twin technologies, but it requires significant revisions to meet publication standards. The authors should address the lack of generalizability by including diverse datasets and providing a more critical discussion of limitations. Additionally, the language quality, especially in terms of grammar and coherence, must be improved to ensure clarity for an international scholarly audience. |  |

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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*** |
| **Are there ethical issues in this manuscript?**  | ***(If yes, Kindly please write down the ethical issues here in details)*** |  |

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| **Reviewer Details:** |
| **Name:** | **Anonymous reviewer (Only for this stage as per Review policy)** |
| **Department, University & Country** |  |