

Optimization of Solar Photovoltaic System Performance Using Artificial Intelligence Techniques

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Abstract: The abstract should provide a concise summary of the entire research paper in approximately **100–150 words**. It should briefly introduce the research problem and its significance, followed by the objectives of the study. A concise description of the methodology or approach adopted should be included, along with the key findings or outcomes of the research. Where appropriate, the practical implications or potential applications of the work may also be highlighted. The abstract should conclude with the main contribution of the study or its broader significance. It should be written as a single paragraph without headings, citations, equations, tables, figures, or undefined abbreviations, enabling readers to quickly understand the scope, methodology, and major contributions of the research.

Keywords: keyword 1; keyword 2; keyword 3 (List three to ten pertinent keywords specific to the article; yet reasonably common within the subject discipline.)

1 Introduction

The introduction should provide background information related to the research problem. It should explain the importance of the study, define the problem statement, and describe the motivation behind the work. Relevant literature may be briefly introduced to establish the context of the research. The last paragraph of the introduction should clearly state the objectives and scope of the present study.

1.1 Background

This subsection provides general information related to the selected research area. It explains the current status of the field and introduces important concepts required to understand the study.

1.2 Problem Statement

This subsection briefly describes the research problem, identifies existing limitations, and explains why further investigation is required. It should clearly explain the research gap and justify the need for the present study.

1.3 Author Guidelines

The manuscript should be organized using a clear hierarchical structure of numbered sections and subsections. Major headings should be numbered sequentially (e.g., **1**, **2**, **3**), while

subsections should follow decimal numbering (e.g., **1.1, 1.2, 2.1**). If further division is required, sub-subsections may be numbered as **1.1.1, 1.1.2**, and so on.

Each section should begin with a brief introductory paragraph explaining its purpose. Subsections should present related content in a logical sequence and should not consist of only one subsection under a section. Authors should use concise and descriptive headings that accurately reflect the content. The manuscript should maintain consistency in formatting, numbering, font style, spacing, and heading levels throughout the paper. Excessive subdivision should be avoided unless it improves the clarity and organization of the manuscript.

2 Literature Review

The literature review summarizes previous studies related to the research topic. Relevant publications should be discussed to identify existing knowledge, research gaps, and opportunities for further investigation. The review should be organized logically and supported by appropriate citations.

3 Materials and Methods

This section describes the methodology adopted in the study. It should include sufficient information so that the work can be reproduced by other researchers.

4 Results and Discussion

Present the findings obtained from the study. Results should be explained clearly using tables, figures, graphs, or statistical analysis wherever appropriate. The discussion should interpret the results and compare them with existing literature.

Figure 1. The samples values collected durings survey of villages

Parameter	Sample 1	Sample 2	Sample 3
Value A	10	12	14
Value B	20	22	24
Value C	30	32	34

4.1 Guidelines for Tables, Figures, and Equations

3.1 Tables

Tables should present data clearly and concisely without duplicating information provided in the text. Tables must be numbered consecutively (e.g., Table 1, Table 2) and cited in the manuscript before they appear. The table caption should be placed above the table. Use a consistent format, define all abbreviations and symbols, and include SI units where applicable.

3.2 Figures

Figures include graphs, photographs, diagrams, and illustrations. All figures should be of high quality and clearly legible. Figures must be numbered consecutively (e.g., Figure 1, Figure 2) and cited in the text before they appear. The figure caption should be placed

below the figure. Ensure that labels, legends, and axes are readable and include appropriate units.

3.3 Equations

Important equations should be displayed on separate lines and numbered consecutively using Arabic numerals in parentheses, aligned to the right. All variables and symbols should be defined immediately after the equation, and SI units should be used throughout the manuscript. Equations should be referred to in the text as Equation (1), Equation (2), etc.

5 Conclusions

Describe the major observations obtained during experimentation or analysis.

Acknowledgements (Optional)

Conflict of Interest (Optional)

References

Authors should prepare references according to the **APA (7th Edition)** style. References should be arranged alphabetically by the surname of the first author. Ensure that every in-text citation has a corresponding reference in the reference list and vice versa. DOI should be included whenever available.

Examples:

Journal Article

He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep residual learning for image recognition. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 770–778. <https://doi.org/10.1109/CVPR.2016.90>

Conference Paper

Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, Ł., & Polosukhin, I. (2017). Attention is all you need. In *Advances in Neural Information Processing Systems* (Vol. 30).

Book

Rao, S. S. (2019). *Engineering optimization: Theory and practice* (5th ed.). John Wiley & Sons.

Book Chapter

Cover, T. M. (2011). Universal portfolios. In L. C. MacLean, E. O. Thorp, & W. T. Ziemba (Eds.), *The Kelly Capital Growth Investment Criterion: Theory and Practice* (pp. 181–196). World Scientific.

Website

National Institute of Standards and Technology. (2026). *Digital Library of Mathematical Functions*. <https://dlmf.nist.gov>

Thesis

Silver, D. (2009). *Reinforcement learning and search methods for computer game playing* (Doctoral dissertation, University of Alberta).