



REVIEWER'S REPORT

Manuscript No.: IJAR- 55162

Title: ADVANTAGES AND DISADVANTAGES OF ARTIFICIAL INTELLIGENCE AI IN MECHANICAL ENGINEERING

Recommendation:

- Accept as it is
- Accept after minor revision ✓**
- Accept after major revision.....
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: Dr. Umeshkumar Hiralal Chavan

Detailed Reviewer's Report:

1. Overall Evaluation

The paper presents a comprehensive review of the role of Artificial Intelligence (AI) in mechanical engineering, examining its applications in design, automation, predictive maintenance, and sustainability. It further evaluates the challenges associated with AI adoption, such as cost, workforce displacement, data quality dependence, and ethical/security concerns. The manuscript relies on a literature-based qualitative methodology supported by academic sources and industry examples

2. Strengths of the Manuscript

a. Well-Structured and Logical Flow

The article is organized in a clear and logical framework, starting with an introduction, research aims, objectives, methodology, discussion, and conclusion.

b. Comprehensive Literature-Based Insights

The manuscript reviews multiple credible academic sources and real-world examples to support its claims, particularly in areas of generative design, predictive maintenance, and automated manufacturing processes.

c. Clear Explanation of AI Advantages

Sections on design optimization, manufacturing automation, predictive maintenance, and sustainability are detailed and well explained, with relevant examples from current industry practices.

d. Balanced Discussion of Disadvantages

The paper appropriately highlights challenges such as:

- I. High implementation costs
- II. Job displacement
- III. Data quality issues
- IV. Ethical and cybersecurity concerns

These aspects add balance to the review and strengthen the manuscript's academic value.

3. Minor Revisions Required

While overall quality is good, the manuscript requires *minor revisions* for refinement:

a. Language and Grammar Improvements Needed

Some sentences contain minor grammatical issues, missing punctuation, or awkward phrasing. A thorough language and style review would improve clarity.

b. Methodology Section Needs More Precision

Although the paper states that a literature review was conducted, the methodology could specify:

- I. Selection criteria for sources

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- II. Number of studies reviewed
- III. Time range of publications
- IV. Thematic analysis approach

currently, the description remains general and could be more academically rigorous.

c. Redundant References and Formatting Issues

A few references appear duplicated (e.g., Al Yassi 2025 appears twice). These should be consolidated and formatted consistently according to a standard referencing style.

d. Certain Sections Could Be More Analytical

While advantages and disadvantages are described well, deeper critical analysis—such as comparing differing viewpoints in the literature—would strengthen the discussion.

4. Contribution to the Field

The manuscript provides a timely and relevant overview of AI's role in mechanical engineering. Its value lies in summarizing contemporary applications while highlighting challenges that industry and academia must address. Given the rising significance of AI-driven design and predictive maintenance, the paper contributes meaningfully to ongoing discourse.

5. Final Recommendation

The manuscript is well-written, meaningful, and suitable for publication after minor revisions. The suggested improvements will enhance clarity, academic rigor, and overall presentation.

Recommendation: Accept with minor revisions