Review of: "Optimized Material Removal and Tool Wear Rates in Milling API 5ST TS-90 Alloy: AI-Driven Optimization and Modelling with ANN, ANFIS, and RSM"

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Potential competing interests: No potential competing interests to declare.

This is a very intriguing paper, and I strongly suggest that it be accepted for publication in this journal; however, a few trivial points require further discussion.

1. **Introduction section**

The provided introduction discusses the importance of productivity and cost-effectiveness in manufacturing, particularly in the metal-cutting industry, and the role of machining techniques in achieving these goals. It also introduces the study of material removal rate and tool wear rate as critical factors in milling activities. The text repeatedly emphasizes the importance of productivity, cost reduction, and tool wear, using similar phrases multiple times. This repetition can make the text seem redundant and could benefit from more varied and concise wording.

Some of the following papers might be a strong citation in your paper:

- https://www.sciencedirect.com/science/article/pii/S2468896723000423
- https://onlinelibrary.wiley.com/doi/full/10.1111/ffe.14094
- https://www.sciencedirect.com/science/article/pii/S1350630723006751
- https://link.springer.com/article/10.1007/s00170-022-10522-7
- https://link.springer.com/article/10.1007/s00170-023-12333-w

1. **Materials and Method**

- While the text provides detailed information about the specimen and cutting tool, it lacks an explanation of why these specific materials and tools were chosen. Providing a rationale for the selection would enhance the reader's understanding of the study.
- The text states that the experiment was carried out under "dry machining conditions" but does not clarify what this means. Dry machining typically implies the absence of cutting fluids, but it would be helpful to elaborate on the implications of this choice and why it was made.
- The text does not mention whether the experiment was conducted multiple times (replication) or if any control specimens were used. This information is crucial for assessing the reliability of the results.
- In the research design section, the ANOVA table should be provided completely to show the detail of model

significancy and accuracy.

- In the DOE table, please clarify the reason of choosing CCD and RSM, also the ANOVA tables of both and model residual error is needed.

1. **Results**

- In the Fig. 2, 3, 9, 10 please provide both Residuals- actual run order and Residuals- predicted plots which reveals the distribution of residuals based on run order and predicted data.
- In the RSM three dimensional plots, please report the curvature based on ANOVA table including MS_E.

1. **Conclusion**

- Given the depth of your work, the conclusion could benefit from a more comprehensive synopsis of the data gathered from RSM, CCD, and neural networks.