

Review of: "Numerical Simulation and Computational Fluid Dynamics Analysis of Two-Dimensional Lid-Driven Cavity Flow Within the Weapon Bay of an Autonomous Fighter Drone"

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Potential competing interests: No potential competing interests to declare.

Reviewer Comments

In this paper, the efficient deployment of weapons in military operations is critical for mission success, and the flow of air within the weapon bay of an autonomous fighter drone plays a vital role in achieving this objective. In this paper, It was presented a comprehensive numerical simulation and computational fluid dynamics (CFD) analysis of the three-dimensional lid-driven cavity flow within the weapon bay of an autonomous fighter drone. To address this challenging problem, we employ CFD analysis and a multigrid approach to solve the Navier-Stokes equations for the aerodynamic problem. However, the followings should be carefully addressed in the revision to be published in Qeios.

1. The authors should be followed the instruction of the journal in all parts and sections in this manuscript.
2. Complete mathematic calculation model with all nomenclature missing. Please check the number of each section, equation, and chart.
3. The abstract needs more quantitative results. The abstract section is an important and powerful representation of the research. It is better that the results should be presented with the support of specified data. Please provide your contribution and work novelty.
4. The authors should indicate this technique to enhance system performance. Also, the author should add more references that discuss the effect of using this technique. It is recommended that the authors carry out wide analysis and comparison with the state-of-the-art studies.
5. Most tables and figures are needed improve the quality of all tables and figures.
6. Add references for all equations.
7. I would also expect to validate with two more experimental works available in the literature.
8. The literature review must be improved. Please highlight in the literature review the differences between previous papers and your paper. Please clearly indicate the knowledge gap and prove that it is a really not analyzed area of the field. Please indicate new approach / new methods in a comparison to the existing investigations (literature review should be extended and add below references). Effect of outlet impeller diameter on performance prediction of centrifugal pump under single-phase and cavitation flow conditions. Investigation of the Main Flow Characteristics Mechanism and Flow Dynamics Within an Axial Flow Pump Based on Different Transient Load Conditions. Effect of

Different Guide Vane Configurations on Flow Field Investigation and Performances of an Axial Pump Based on CFD Analysis and Vibration Investigation. Investigation of the Influence of Varying Operation Configurations on Flow Behaviors Characteristics and Hydraulic Axial-Flow Pump Performance. Investigation on the Characteristics of Internal Flow within Three-Dimensional Axial Pump Based on Different Flow Conditions. Experimental Diagnostic of Cavitation Flow in the Centrifugal Pump Under Various Impeller Speeds Based on Acoustic Analysis Method. Experimental and numerical investigations on the cavitation phenomenon in a centrifugal pump. Investigation of effect of pump rotational speed on performance and detection of cavitation within a centrifugal pump using vibration analysis.

9. You need to add error analysis of your results and add the error bars in your graphs to indicate your accuracy measurements.
10. Improve work justification. Also, add more analysis about velocity and pressure contours.
11. More quantitative conclusions should be presented. Please prepare additional comparisons, some percentage differences. There is a lack of quantitative conclusions which should contain main findings from the paper and highlight the new and high novelty and contribution of your work to the field.
12. Present the mathematical equation of the boundary conditions and initial condition.
13. I would also suggest including in the conclusion section but also in several other places in the manuscript discussion and comparison with findings from other authors with similar published research work.
14. The conclusion section lacks in summative conclusions. The main results, novelty and academic contributions should be emphasized in this section. Moreover, are the results obtained in this paper really applicable in other similar researches?
15. In the discussion development, it is very important to emphasize points of agreement or disagreement between results in this work and others cited in references part of manuscript.
16. Authors should discuss limitations of the current study and possible improvements for future directions/research works. Authors are requested to check the reference format and correct some inconsistent formats.
17. Finally, I strongly recommend the author to read through the whole text and correct it to make it more reader-friendly.