

# Review of: "Deep Learning in Medical Image Registration: Introduction and Survey"

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**Potential competing interests:** No potential competing interests to declare.

This manuscript delivers a comprehensive review of various techniques in medical image registration, presenting a well-structured overview and discussing pertinent methods in the field. The foundational structure and the coverage of relevant techniques provide a solid base, offering a potentially valuable contribution to the literature in this critical area.

The manuscript is systematically organized, providing a logical flow of content that encompasses significant techniques in medical image registration. The paper successfully encapsulates various relevant techniques in the field, providing a broad overview that could be beneficial for newcomers to the domain.

However, there are several pivotal aspects that necessitate attention and revision to elevate the manuscript from a mere compilation of known techniques to a substantial, contributive survey in the domain:

- **Lack of Comparative Analysis:** The manuscript falls short in providing a comparative analysis of the discussed techniques, which is crucial for a survey paper. A detailed comparison, highlighting the pros and cons of each method, would significantly enhance the utility and impact of the paper. It is imperative that the paper not only lists the techniques but also provides a critical analysis that aids readers in understanding the relative merits and demerits of each method, thereby guiding them in selecting an appropriate technique for specific applications.
- **Absence of Clear Conclusions:** The paper does not culminate in clear, decisive conclusions that encapsulate the insights derived from the discussed techniques. A well-articulated conclusion, summarizing the key findings and providing a directional guide based on the comparative analysis, is paramount.
- **Need for Experimental Comparison:** The incorporation of experimental comparisons of the discussed techniques, possibly through case studies or practical implementations, would substantiate the comparative analysis and enhance the credibility and practical relevance of the paper.
- **General Composition and Formatting Issues:** The manuscript exhibits several composition issues, including language consistency, capitalization, image resolution, and citation discrepancies, which need to be meticulously addressed to enhance the readability and professional quality of the paper.

In my opinion, the manuscript necessitates **major revisions** to address the critical concerns highlighted above. While the paper provides a good starting point and covers relevant techniques, it is imperative to enhance its contributive value through detailed comparative analysis, clear conclusions, and addressing composition issues. The manuscript has the potential to be a valuable addition to the literature upon the incorporation of the suggested enhancements and is



recommended for publication post-substantial revisions.