**Review of Thesis Outline**

Reviewer Name: Arushri Swarup

Investigator Name: Tianyu Zhou

Peer Review Committee #:

Project Title: Real-time Motion Tracking of Abdominal Targets based on MRI

Brief description of project (to be completed by reviewer):

This project will be developing an algorithm to quantify targets *in vivo* to focus a HIFU beam on a moving abdominal target. Using current technologies, PCA and PDF, an *in vivo* model will be validated after the algorithm is developed.

Please answer the following questions and provide detailed explanations/suggestions where appropriate.

1. Are the objectives/research questions clear?

Yes, define abdominal targets, sonications, focal point

2. Is the outline of the literature review appropriate and complete?

Yes, define more of the technical terms

3. Is the rationale for the study coherent and complete?

Yes, clear and thorough. Stay away from words like excellent – instead, define the accuracy or tolerance of PDF.

4. Is the research innovative?

Yes, there is a knowledge gap identified (need an algorithm to quantify abdominal targets to allow a HIFU beam to track the target) and will use existing methods to validate

5. Are the methods (design, measurement, analysis) appropriate to achieve the objectives?

Yes, the methods outline step by step reasonable and attainable steps to achieve the objectives. Specify what kind of animal will be used and how you will obtain the animals.

6. Are the expected study outcomes compelling and complete?

Yes, it explains what the final expected outcome will be (treating a breathing animal model). Maybe give examples of where and why this would be used by researchers elsewhere. Why is it useful to have targeted HIFU to treat animals? Are they developing this technology for use in humans later on?

7. Is the study feasible?

Yes, it seems as though you have access to both PCA and PDF. Explain what the outputs are of PCA and PDF. What are the artifacts? Why do you need to correct them?

8. Is the organization of ideas clear and easy to follow?

Yes.

9. Was the document easy to read and understand?

Yes, just explain the technical terms

10. What is your overall assessment of the project?

Try to break up sentences so that it is easier to read and understand. Read it as a person who has never heard of this technology before. It sounds like the work is reasonable, and the fact that it will be developing an algorithm and then testing it seems like a good engineering approach.

11. Please identify major issues and specific recommendations.

Make it clearer and easier to read. Split up the sentences into shorter statements so it has better flow. Other than that, it sounds like an interesting project with a good approach!