

PI:

Proposal 1

Title:

MRI: Acquisition of a GPU-accelerated High Performance Computing & Visualization Cluster
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Please evaluate this proposal according to the two merit: intellectual merit and broader impact.

There are three (3) parts to the evaluation:

1. Rating and Summary Statement,
2. Intellectual Merit,
3. Broader Impacts.

See the discussion at the end of this document for guidance. Your substantive written comments on the proposal's strengths and weaknesses are critical to the evaluation. You may continue on additional sheets if necessary.

Rating

Excellent ☐ | Very Good ☐ | Good ☒ | Fair ☐ | Poor ☐

Excellent	Outstanding in all respects; deserves highest priority for support.
Very Good	High quality in nearly all respects; should be supported if at all possible.
Good	A quality proposal, worthy of support.
Fair	Lacking in one or more critical aspects; key issues need to be addressed.
Poor	Has serious deficiencies.

Summary Statement

Please summarize your evaluation of this proposal, including the extent to which the proposal meets both criteria.

This proposal requests funding to build a computing cluster at Boise State University. This cluster will be a midsized cluster, where a large tiled display (5'x8', approx 100MP) will also be constructed. This facility will support multiple diverse research projects, from weather prediction and analysis to biological modeling, to magnetic shape alloy mechanical modeling. Each of these projects proposes a way the additional computing power would advance their research, and how the large tiled display is critical to each of their projects.

Next, the proposal outlines specifics of previous grants won by the co-PIs, and the specific outline of how the cluster will be built in terms of what hardware will be used. Intellectual merit and broader impact are then thoroughly explained later in their own specific sections.

Criterion 1: Intellectual Merit

What are the strengths and weaknesses of the the intellectual merit of the proposed activity?

Strengths

Each of the individual projects will clearly benefit from having access to this cluster. It's presented how each of the projects has bottlenecks that can be addressed by the additional computational throughput, or the ability to view incredibly high resolution images.

Weaknesses

It's not very clear how each of these projects will actually be able to utilize the cluster in parallel. Several projects plan on using the tiled display, and I presume would need a lot of time with such a display. How will time between projects be managed? Also, the software the individuals are using for their projects is sometimes ambiguously said that it'll be expanded to multi-gpu capability. That's not a trivial task.

Criterion 2: Broader Impact

What are the strengths and weaknesses of the the broader impacts of the proposed activity?

Strengths

The cluster will foster connections between industry and academics because access to this new Ron and Linda Yanke Family Research Park will be shared with local technology companies. New students and different groups will also be exposed to the world of high performance computing with community outreach events.

Weaknesses

I wish there was some numbers on dollar impact for new startups or the value in research that individuals would get out of this cluster and visualization equipment. Other than that, I don't have any strong weaknesses here.

Merit Review Criteria

When evaluating proposals, please consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, evaluate all proposals against two merit criteria, given below. Both criteria are to be given full consideration during the review and decision-making processes. Each criterion is necessary but neither, by itself, is sufficient; therefore, proposers must fully address both criteria.

- What is the **Intellectual Merit** of the proposed activity?

The intellectual merit criterion encompasses the potential to advance knowledge. How important is the proposed activity to advancing knowledge and understanding within its own field and across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, please comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

- What are the **Broader Impacts** of the proposed activity?

The broader impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes. How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

The following elements should be considered in the review for both criteria:

- What is the potential for the proposed activity to:
 1. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 2. Benefit society or advance desired societal outcomes (Broader Impacts)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- How well qualified is the individual, team, or organization to conduct the proposed activities?
- Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?