**ISF Grant Review**

ALE Project: Isf Grant Application 2026 – 16126

Reviewer: Kimberly Moravec

Proposal Title: Multimodal Representation Learning from Unpaired Data

Date: 13-Sep-2025

**Overall Topic**

This appears to be the next research step in the PI’s career, based on the researcher’s 2018 paper on SpectralNet and prior experience. The questions appear to be new and innovative, but please see my comments below for how they could be highlighted.

This topic is focused to about the right level and is not too wide. The ambition appears to be at about the right level (about 1 or 2 students’ work). This is also basic science, but applications or real-life impact are shown in the proposal in several places.

**Overall Structure**

The structure was checked to ensure it covers all bases. Note that all elements are required, but their order is not mandatory, However, we do recommend sticking to the conventional structure to make it easier for the reviewer. The conventional ISF proposeal structure is as follows:

* Abstract (one page) **Yes**
* Main body (15 pages) **Yes**
  + Scientific background **Yes**
  + Research objectives and expected significance **Yes**
  + Detailed description of the proposed research **Yes (but different substructure, addressed in the report below)**
    - Working hypotheses
    - Research design and methods
    - Preliminary results
    - Resources
    - Expected results
    - Possible pitfalls and alternatives **Not provided**
* Bibliography **Yes**
* Basic research statement (half a page) **Not provided**

**Abstract**

A full page is allowed for the manuscript, and at the moment the Abstract is half a page. Hence, there is more room to expand. All suggested elements are there, and the flow of the text is good, so it is a matter of choosing where to expand to make the Abstract more compelling. The current structure is as follows:

* **General background, Problem, Proposed solution:** First paragraph, one sentence each.
* **Objectives and Goals:** Second paragraph
* **Significance and Innovation** and **Methodology:** First sentence of third paragraph
* **Conclusion (impact):** Remainder of third paragraph.

I suggest expanding the first paragraph to provide more details. In particular, it would be good to emphasize the gap in the current research (second sentence) more strongly, e.g., identify specific challenges that remain a problem despite advances in the field. You mention mathematical rigor and scalability as benefits... are a lack of mathematical rigor and poor scalability critical challenges in current multi-modal learning methods?

I think the “Significance and Innovation” could also be expanded. At the moment, the sentence is a general statement about advancing theory and practice. I suggest adding text specifically to address how each challenge mentioned in the first paragraph will (likely) be addressed by your advancements.

**Main body (15 pages)**

**Scientific background**

The opening paragraph includes a brief introduction, which is good practice. It also clearly mentions the limitations in current research, which are reliance on implicit or fragile alignment signals, lack of generality across domains and modalities, and absence of rigorous theoretical. In the abstract, you noted scalability. Is this also a research gap or is it more an expected characteristic of the proposed approaches?

This section doesn’t discuss the background of CCA. I couldn’t immediately tell if your unpaired CCA would be a novel contribution or you intend to use someone else’s unpaired CCA. A google scholar search threw up a very small number of papers with this term, but I see later on that this is a very novel contribution. I recommend being clear about the novelty and research landscape for this topic here, in the abstract, and throughout the proposal. Perhaps move some of the overall details from Section 3.2.2 up to here?

The potential for this research topic is mentioned in its own section, which is also good given the reviewer comments.

We recommend including citations to your own work and Israeli-based researchers who might be committee members in the scientific background. Currently, there aren’t citations to either in here, so I suggest working them in if possible.

**Research objectives and expected significance**

Before the objectives, I recommend adding a few sentences about the main aim that the objectives serve. This will orient the reader.

The three objectives themselves appear measurable and achievable. They describe what you wish to achieve, not just how you are going to do it, and focus on theoretical frameworks as opposed to applications.

The significance is well written, discusses what the research contributes to scientific knowledge/the research field/other fields. It mentions why it is timely, now it is innovative, and the potential for real world impact.

**Detailed description of the proposed research**

We recommend including “working hypotheses” at the beginning of this section: one working hypotheses for the main aim and three specific hypotheses (linked to the three objectives). For theoretical work, you can use the basic foundational assumptions at the heart of the research.

This section then treats each objective individually. They include the research design and methods. For each research method, why was it chosen and its potential, as shown by recent work, is described.

The preliminary work is not completed for each objective, but all objectives have placeholders.

**Final parts**

The last part of the grant includes a few non-standard sections:

* 4 Plan of evaluation

This section is well structured and informative, but I recommend making it a subsection of the “Detailed description of the proposed research” section. This will make the structure more conventional in style.

* 5 Work Plan

I do not think this needs a separate top-level section. It would space to integrate this at the end of the last section if you agree.

The last three first-level sections are unconventional sections for an ISF grant.

* + 6 Broader Impact
  + 7 Summary
  + Research team

The conventional final sections would be subsections of the “Detailed description of the proposed research” Section:

* + Resources
  + Expected results
  + Possible pitfalls and alternatives

To make it more conventional, I suggest the following revisions:

Since the conventional ISF grant proposal does not have a summary, this can be removed (although it is fine to keep if there is room).

* **Resources**

I suggest moving the text from the “Research team” section at the end to this section. I also have the following notes:

* + The description of the PI (expertise, previous research in this area and affiliations) is very good and is a strength of the proposal. If you can cite some papers in the bibliography, that would be good.
  + The description of the Team: research students, etc. is also good.
  + Mentioning the academic collaborations is good. If any of these collaborators have expertise that is different from your own, it would be valuable to state here.
* **Expected results**

I suggest considering moving the text from Section 6 “Broader impact” to this conventional ISF section. This will standardize the application. However, the text itself is good and does not require modifications.

* **Possible pitfalls and alternatives**

I suggest adding this section. Since a few reviewers of the last grant mentioned that spectral methods might not compete with more recent methods, this is a good place to directly answer their concerns. It is a conventional ISF section to include.

**Bibliography**

The bibliography may need some strategic work.

Please add a star \* to entries for researchers who would make good reviewers. This will help the ISF find reviewers for the grant.

There are only three papers you authored on this list. Are there additional papers you could add throughout the grant to increase this number? This will help build your credibility as PI.

In addition to the three papers authored by you, I could only find two more papers by Israeli researchers (still located in Israel) on this list. (There might be more, I did not do an exhaustive search for every author.) We recommend strategically adding citations to relevant Israeli researchers, especially those who might end up on your committee.

**Basic research statement (half a page)**

The basic research statement still needs to be provided. Note that it should contain the following elements:

* Research hypothesis
* Theoretical contribution and significance
* Why this a basic science project
* How it
  + addresses fundamental questions about the world
  + or tests basic scientific assumptions
  + or advances fundamental scientific knowledge