

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The student proposes to combine persistent homology and machine learning to create tools that can help better understand the topological properties of dynamic data. The goal is to provide not just a snapshot but a time-varying understanding of topological features of data that can be used/adapted for machine learning purposes. The work is nicely laid out, the structure and goals are clear, including the desire to create useful packages for users. But the exact applicability of the final product is not clear. Why would this be useful and to who?

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The student is engaged in various outreach and mentoring activities, all commendable activities. The applicability of this work is not however, very well spelt out. What specific data will be used? What is a concrete setting for which it is important to understand the dynamics of the topology with a system with machine learning methods?

Summary Comments

A very good student and abstract idea, but overall the narrative is lacking a clear example for application

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The candidate has a very impressive list of recognitions, including the 2024 Daus Award in Mathematics and the UCLA Dean's Honor List, and The candidate has presented their research in different conferences at the national level. The candidate has a very well-explained step-by-step research project titled "Developing topologically informed machine learning algorithms for dynamic data." Some of the tools needed for the proposed project will be developed by the candidate from scratch. The candidate seems well-qualified to pursue the research project proposed.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The candidate expects to become a professor, potentially impacting the field through interactions with her students and future scientists. The candidate is currently involved in STEM outreach and has plans to create "paper clubs" to help students learn to read mathematics research publications. The candidate is an active member of the UCLA Women in Mathematics group and feels strongly about encouraging other women and underrepresented individuals in mathematics moving forward.

Summary Comments

The candidate seems well-qualified to pursue the research project proposed. The candidate has great academic preparation and experience. The candidate is an active member of the UCLA Women in Mathematics group and feels strongly about encouraging other women and underrepresented individuals in mathematics moving forward

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The applicant has a stellar track record and accomplishments, from publications and presentations to research and internship opportunities.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The applicant has been engaged in a variety of diversity initiatives. The applicant has involvement in various mentorship activities to guide peers as well as helping fourth grade students with math concepts. Plan to establish a paper club is also noticeable in expanding participating in collaborative research.

Summary Comments

The mathematical aspects of the planned research are not well described. The objectives are vaguely stated in a general sense. Making the code developments, if successful, publicly available is particularly notable.