Proposal Review 1 : 1829794

Agency Name:	National Science Foundation
Agency Tracking Number:	**1829794**
Organization:	
NSF Program:	CyberTraining - Training-based Workforce Development for Advanced Cyberinfrastructure
PI/PD:	Hickernell, Fred
Application Title:	CyberTraining: CIC: Cross-Disciplinary Education for Next-Generation Computational Scientists
Rating:	Very Good

Review

Summary

In the context of the five review elements, please
evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

Summary: The proposed project will leverage on the resources available through the newly established Center for Interdisciplinary Scientific Computing (CISC) at the Illinois Institute of Technology to train cyber infrastructure contributors (CIC) and CI Users (CIU).

Intellectual Merits: The project will create a summer computational science course, strengthen or enhance the existing computational science (undergraduate and graduate) courses, and a new courses at IIT.

Strengths û Through the creation of the summer course, strengthening existing courses, and adding new courses, the CISC could potentially create a good training ground for CICs and C The interdisciplinary nature with emphasis on CI usages can render transformative results in CIC and CIU training. The PIs clearly identified a set of skills needed to become effective CIC CIUs, and where and how they will teach those skills. The planned activities are well-reasoned and well-coordinated with sound justifications.

Weaknesses û The skill set identified in the proposal is quite broad. So, it is not clear how much can really be covered through the summer course, the expanded and added courses. It ap that the coverage may not be deep enough to truly accomplish the goals of developing competent skills.

In the context of the five review elements, please
evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

Strengths: The project will reach out to a broad community, high school students, community college students, and undergraduate and graduate students at IIT across various disciplines, as partners in National labs and industries. The proposal has a thorough presentation on broader impacts (Section 4) that articulates how the various constituents that will benefit from this and that breaks the traditional silos.

Weaknesses: Apart from engaging students from community colleges in greater Chicago area, which may have a good number of minority students, there seems to have no specific plans engage people from under-represented ethnic groups.

Please evaluate the strengths and
weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if
applicable

1. This proposal identified and articulated the challenge of educating CIC and CIU across scientific disciplines, developing CIC and CIU that are effective contributors to interdisciplinary sc pursuits with good computational skills, while avoiding 'jack of all trades and master of none'.
2. The learning outcomes listed in Section 3 form a skill set that may enable new modes of discovery and use of advanced CI resources and tools in fundamental research.

3. How well could this project advance the goal of integrating skills in advanced CI and computational and data science and engineering into institutional and disciplinary curriculum?

This reviewer believes that the activities with specific learning outcomes stated in the proposal, including a summer computational science course, enriched courses, additional courses, w have a good potential to advance these goals.

4. Through partnerships with community colleges, national labs, industry and reaching out to high schools, this project has a good potential to meet its broadening access and community adoption challenges with respect to the Nation's scientific and engineering research workforce and advanced CI.

5. The proposal shows a sound plan of engaging key stakeholders or forging partnerships for collective impact.

6. I believe the project can scale beyond NSF funding without much problem, as long as CISC continues to exist.

7. The proposal has a rather complete assessment plan that also includes tracking students' career outcomes. There is no explicit mention of a recruitment plan; however, it seems that tha be accomplished through outreach to high school students, research experience for community college students, and IIT's own admissions office.

8. The proposal has no 'Management Plan' per se, but it has a section on 'Timeline' that specifies the task plan and their schedule.

Summary Statement

This proposal aims to create a wholistic interdisciplinary computational science training for CIC and CIU, leveraging on the resources of the newly established CISC at IIT and existing cou IIT. It clearly articulated the skill sets needed for effective CICs and CIUs, with clearly stated learning goals.