

Project Summary

Intellectual Merit: **Cyberinfrastructure (CI) is not being fully leveraged by minority serving institutions to enhance science and engineering research and education.** There is significant knowledge about network and computational IT innovations at Florida International University, the largest Hispanic minority-serving institution in the Continental U.S. There is however a schism between this community and the majority of academic disciplines. Faculty members have established a *modus operandi* that is tailored to foster domain excellence. CI professionals are actively engaged in advancing applications and the science of CI. These applications are not effectively expanding the horizons for researchers and educators. The CI professionals lack a rich understanding of the domains they are targeted to serve. Faculty members are thus unable to see the full scope of opportunities enabled by CI.

We propose within CIARA: The Center for Internet Augmented Research and Assessment a pilot project ‘CyberBridges’. CyberBridges proposes a new model for the research workforce to develop a competency in using CI. CyberBridges will not be a locus for fundamental CI research; it does offer the potential to create a new generation of scientists and engineers who are capable of fully integrating CI into the whole educational, professional, and creative process of their diverse disciplines.

The goals are to increase the rate of discovery for science faculty by empowering them with CI, to foster inter-disciplinary research, to improve the effectiveness of minority graduate education, and to institutionalize this change process. We propose to assess the effectiveness of CyberBridges measured by publication volume and placement.

The hypothesis is that augmenting graduate student education to include a foundation of understanding in *research and education CI* will bridge the divide between the information technology communities and the disciplines. This will result in an improved system for the effectiveness, penetration, and utilization of CI with an underrepresented sector of our society.

Broader Implications: Preliminary results indicate that the hypothesis has great potential for broad impact. At the core of the proposal is an opportunity for bringing together graduate students of diverse disciplines, and disparate academic communities. The larger the number of graduate fellows collaboratively building their understanding in research and education CI, the greater the opportunities are for cross discipline communication.

We are poised to succeed because of the expertise of the investigators, the commitment of the institution, the clarity of the plan of work, and the positive preliminary results. The research scientists involved at FIU have substantial experience managing projects of this scale, and track records of success in both the CI community and as technical advisors to graduate students. The faculty investigators have demonstrated leadership in their respective fields, and will ensure the academic integrity of the computer science and pedagogy employed. FIU views CIARA’s CyberBridges as a key part of institutional improvement, and IS committed to its long-term success. Genuine enthusiasm is spread across the faculty, students, and administrators, involved in proposing CIARA’s CyberBridges.