



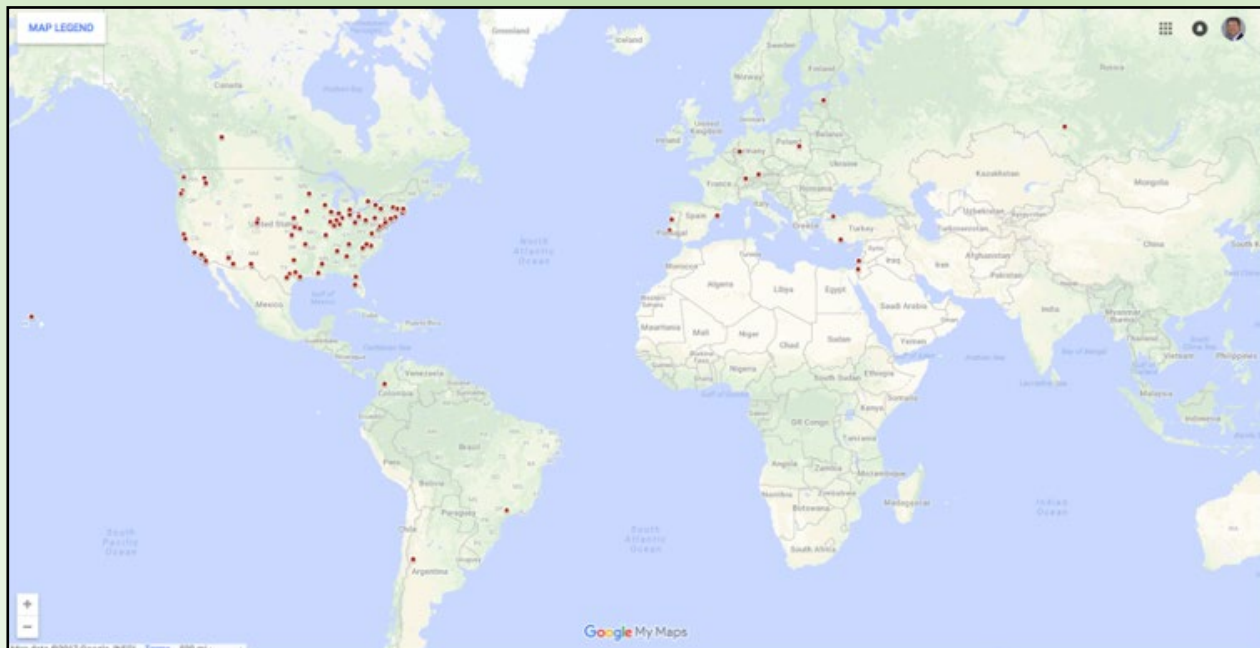
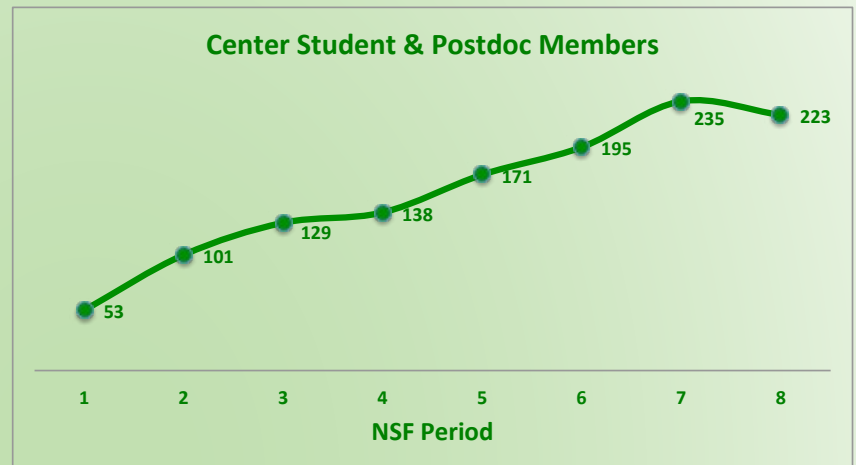
Information Frontiers Education Initiative Executive Summary - 2017



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The Information Frontiers Initiative successfully supports and integrates the research mission of the Center for Science of Information with a long term vision of: (1) developing the next generation of scientists who will continue to strengthen the community and solve grand challenge information problems, and (2) a set of courses, modules, and teaching resources available to all that provides information literacy at foundational and advanced levels.

Membership of students and postdocs in the Center has more than quadrupled with two-hundred-twenty-three currently conducting research with Center faculty. Of students completing our annual survey, ninety-six percent reported gaining value from their engagement in the Center.



Participation in CSOI education activities has surpassed three-thousand attendees. The impact has reached far beyond our Center partners with significant breadth where attendees at our activities represent one-hundred-twenty-one universities and colleges in the U.S. and abroad.

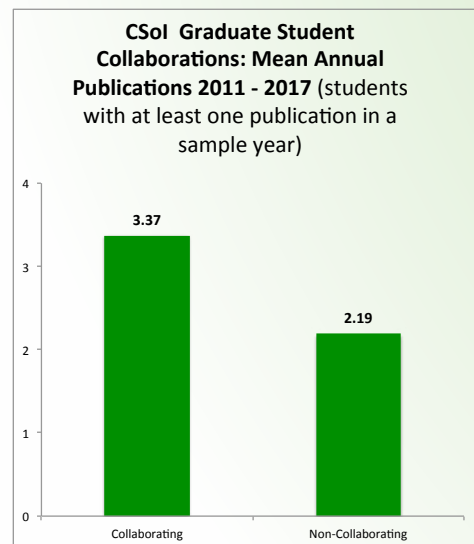
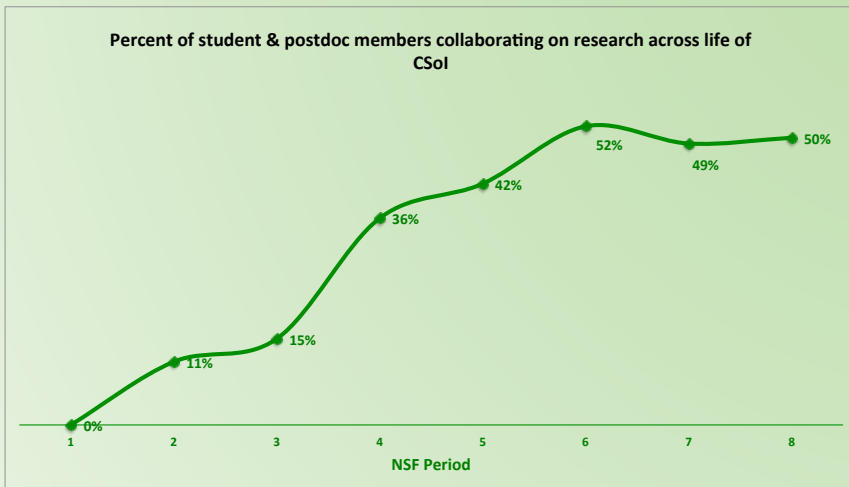


Fourteen interdisciplinary student research teams have formed, with twenty-one universities represented. Students and postdocs are working on a wide range of problems within the research thrusts of the Center. These teams have demonstrated success in working together toward solutions and co-presenting results with forty presentations (posters and oral) at conferences, and fifteen publications thus far (published & submitted). Our annual student and postdoc research workshops have provided a venue for this important knowledge exchange and team formation. Ratings by students evaluating the workshop are shown in table 1.

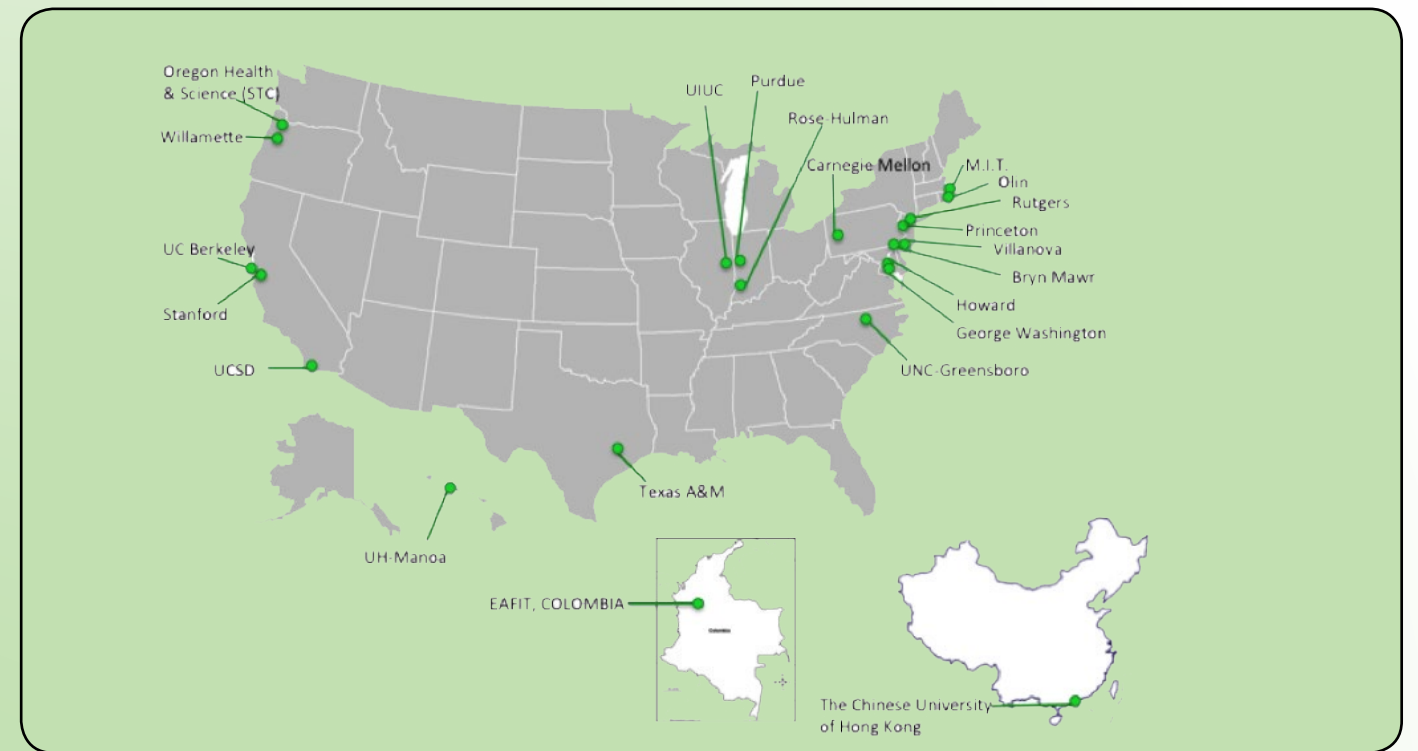
Table 1. Student and Postdoc Mean Ratings of Five Annual Multidisciplinary Data Science Workshops

Question	Mean/4.0
Overall, I learned specific skills I can put to use in my own research and courses	3.70
I gained an improved interdisciplinary understanding to approaching a research problem (either your research or another project)	3.68
I started some level of professional connections with peers through the workshop	3.66
I improved my ability to explain my research to others as a result of interactions during the workshop	3.59

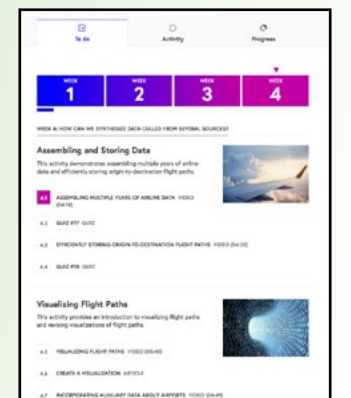
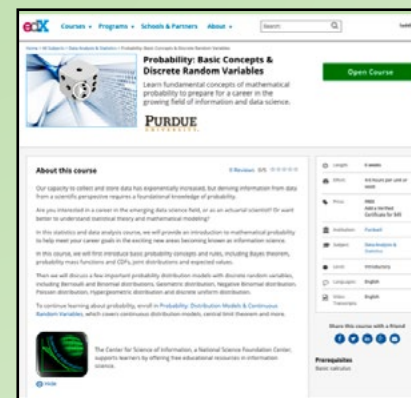
As result of these collective efforts a community of practice has emerged with collaboration on research between Center students, postdocs, and with Center faculty now showing significant percentages of members engaging in these interactions.



Furthermore, the number of published papers is significantly higher from students that collaborated on their research with other members of the Center, compared with students in the Center that did not collaborate beyond their major professor.



All CSOI partners, and an additional eleven universities have developed new SoI related courses and content. More than five-thousand students have been enrolled in classroom-based SoI content courses taught by our Center faculty. Evaluations from a subset of courses show that students are gaining broad awareness about information from a science perspective, with significant increases in information literacy, data skills, and multidisciplinary understanding.



Our online materials have reached over three-hundred-thousand learners, with an additional forty-three-thousand learners enrolling in our FutureLearn and EdX courses the past year. Faculty training workshops have lead to eleven universities outside the Center establishing courses for their students, such as computer science faculty member, Juan LaLind (above), at EAFIT, Colombia. He adapted our Introduction to Science of Information semester course for undergrads taught in Spanish with both classroom and online versions. These online platforms have allowed us to reach students around the world interested in gaining knowledge in the science of information.

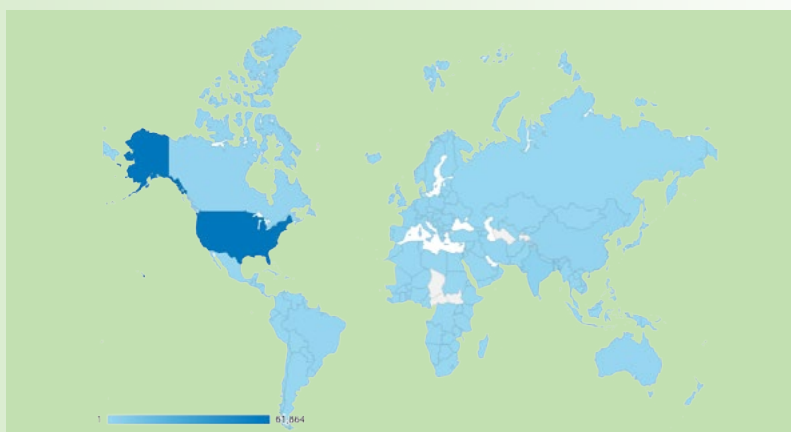


An extensive evaluation of learning outcomes from a subset of new science of information courses was undertaken in coordination with faculty and students at eight U.S. Institutions. As outcomes of completing one of these courses, the large majority of students reported moderate to significant increases in areas of multidisciplinary understanding (81.3%) science of information skills (81.1%), awareness (78.7%), and literacy (78.6%). Data science problem solving ability increased a moderate to significant level for 66.7% of students (See Table 2).

Table 2. Percent of students in CSol courses reporting increases in outcomes related to learning objectives.

Indicator	Significant Increase	Moderate Increase	Slight Increase	No Change	Mean (max = 4)
<i>Information Literacy</i>	40.5	38.1	19.0	2.4	3.17
<i>Data Skills</i>	39.7	41.4	15.5	3.4	3.17
<i>Multidisciplinary Understanding</i>	37.5	43.8	14.6	4.2	3.15
<i>SoI Awareness</i>	38.6	42.1	14.0	5.3	3.14
<i>Problem Solving Ability</i>	25.0	41.7	29.2	4.2	2.88

Outreach efforts included development of a series of printed educational posters that have been displayed at more than three-hundred programs in the U.S. Our ever-growing online content we make available through our soihub.org sites has now been accessed by users in all fifty U.S. states and one-hundred-seventy-two countries worldwide.



The goals of the education program and the activities supporting these goals lead to professionals with unique skills and experience levels that afford them opportunities to gain excellent positions upon graduation. We have graduated two-hundred-eighty-seven students and postdocs from the Center. Half of these members found positions in academia (graduate, postdocs, faculty), 35% in industry, 5% in government (10% are unknown).

In summary, our students state they value participation in the Center because it provides a venue for stimulating their own thinking about the science of information, provides productive networking and training opportunities with peers and leading researchers in the field, and fosters meaningful collaboration among students and faculty.