Broader Impacts of the Information Frontiers Integrated Education and Diversity Program

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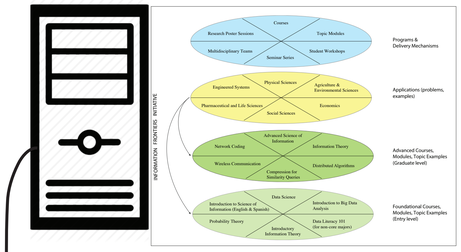
Center for Science of Information NSF Science & Technology Center http://soihub.org

Center for Science of Information:
Advancing science and technology through a new quantitative understanding of the representation, communication, and processing of information in biological, physical, social, and engineered systems.

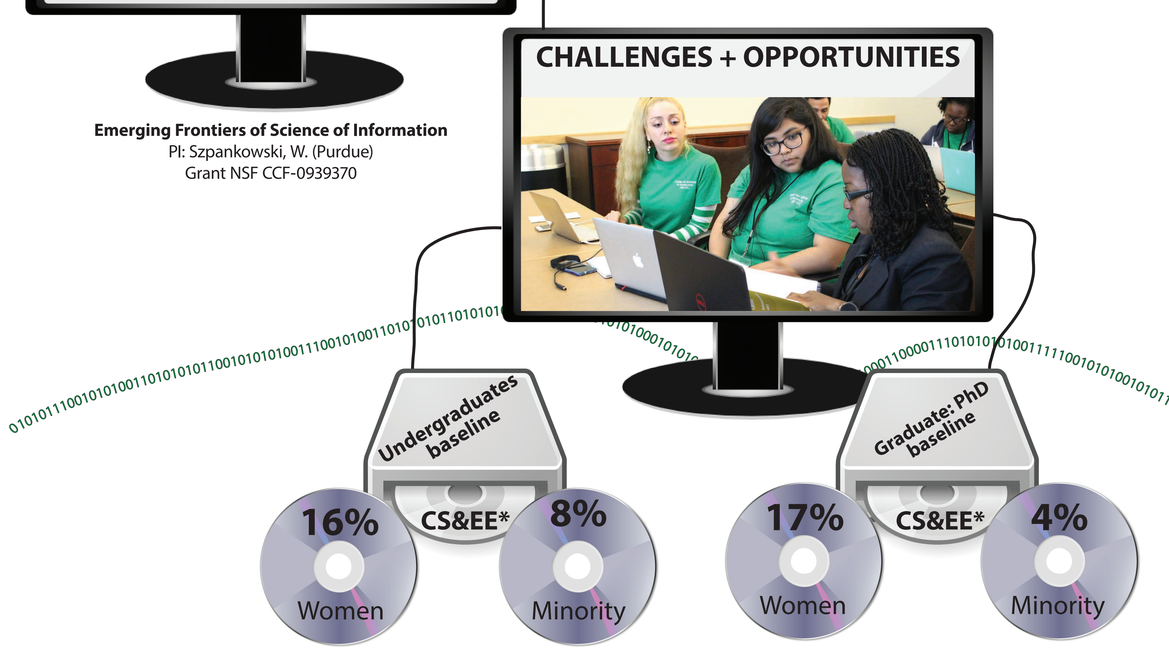
Our academic partners: Bryn Mawr, Hawaii, Howard, MIT, Princeton, Purdue, Stanford, Texas A&M, UC Berkeley, UC San Diego, UIUC

Emerging Frontiers of Science of Information
PI: Szpankowski, W. (Purdue)
Grant NSF CCF-0939370

Develop Educational Initiatives

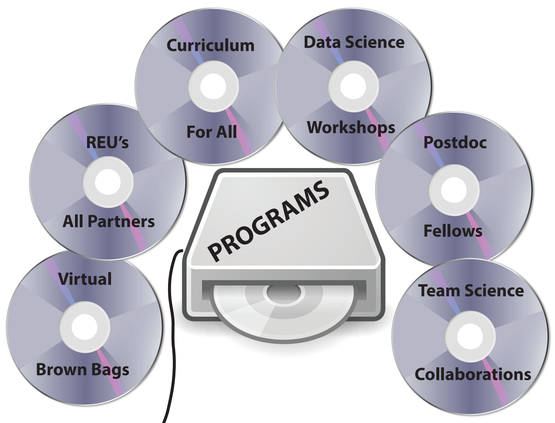


CHALLENGES + OPPORTUNITIES



*The core disciplines of our center are Computer Science and Electrical Engineering.

SOURCES: NCSES: https://nces.ed.gov/ipeds/, NSF WMPD REPORT: https://www.nsf.gov/statistics/2017/nsf17310/, ASEE Report: https://www.asee.org/papers-and-publications/publications/college-profiles/15EngineeringbytheNumbersPart1.pdf



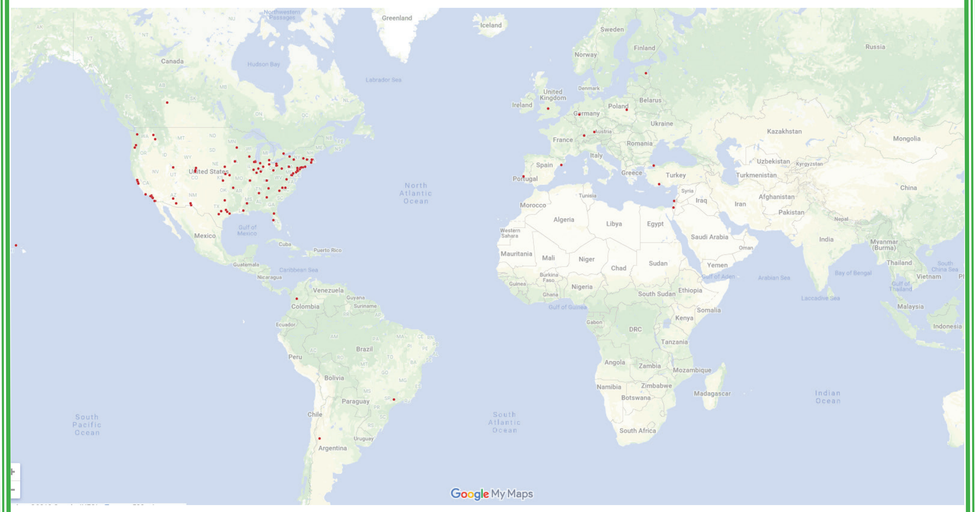
ACTIVITIES

- Mentoring
- Leadership Roles
- Team Science Collaborations
- Unconscious Bias Training
- Networking
- STEM Outreach
- Recruitment Strategy

Ten Successful Characteristics of Broadening Participation of our Integrated Program

- Integrated education and diversity programs
- Broad definition of diversity - moving beyond traditional categories
- Promoting leadership roles for underserved participants
- Recruiting participants from diverse range of programs and domains
- Center-wide participation - relieving MSI's of full burden for recruitment
- Top down messaging - frequent reminders from admin on diversity
- Effective online presence - curriculum for all, social media, networking
- "Getting in the habit" - training participants to ask the diversity Q
- Conduct annual demographic and diversity census
- Faculty involvement - charging with small tasks advancing diversity

BROADER PARTICIPATION - UNIVERSITIES REPRESENTED



3,700 attendees at CSoI events from 125 universities

Additional Partners

Diversity Resource Office (Purdue)
Computer Science Department Diversity Office (Purdue)
EAFIT University (Colombia)
Engineering Education Department (Purdue)
IDEA Engineering Student Center (UCSD)
IEEE Information Theory Society
National Alliance for Doctoral Studies in the Mathematical Sciences
University Libraries and School of Information Studies (Purdue)

Related Communications

"Case Study of Interdisciplinary Student Research Teams: Factors, Outcomes, and Lessons Learned." (Ladd) 2018. Science of Team Science National Conference, Galveston, TX

"Broadening Participation in the Science of Information." (Ladd & Andronicos) 2018. NSF INCLUDES Summit, Washington D.C.

"Best Practices in Education and Diversity at NSF Science and Technology Centers" (NSF STC Education and Diversity Directors) 2014 Available on the CSoI Website: http://soihub.org

"Charting a Course into the Science of Information" (Redington & Andronicos) 2015 Available on the CSoI website: http://soihub.org

"How to Grow Researchers: A Fresh Perspective on Graduate Student Collaboration" (Redington & Ladd) 2016 Available on the CSoI website: http://soihub.org

"The Underrepresentation of Women in Computing Fields: A Synthesis of Literature Using a Life Course Perspective" (Main & Schimpf) 2017 IEEE Transactions on Education

"Using Life Course Theory to Frame Women and Girls' Trajectories Toward (Or Away) from Computing" (Schimpf, Andronicos, & Main) 2015 Frontiers in Education Conference Proceedings

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