**Abstract for Association of Interdisciplinary Studies 41st Annual Conference**
**Location: University van Amsterdam, October 23-26, 2019**

**Title:**
**The Information Frontiers Program: Expanding Student Capacity for Crossing Domain and Institutional Borders**

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**Abstract**:
An international community of practice of young scholars has developed as a result of longitudinal efforts emphasizing multi-institutional interdisciplinarity. Results demonstrate significant impacts on student capacity for interdisciplinary engagement. The Information Frontiers program is offered as a model for establishing similar education and research programs.

With a goal of training the next generation of scholars in the emerging topic of the science of information, a national level Information Frontiers program was designed to introduce diverse cohorts of students to data and information science processes while fostering research team best practices crossing domains and institutions. In eight years of the program, student-led teams represent 24 universities and 22 distinct domains. Supporting educational efforts from the program have involved 4,000 students from 125 universities internationally. A community of practice (Wenger et. al., 2002) has emerged.

Results show significant and positive relationships between community-based research collaborations and scholarly outputs. Multi-year student team collaborations have resulted, several with generational impacts further multiplying the results. Given careful consideration of support and training, with viable pathways for crossing domains and institutions, our results demonstrate that students can achieve collaboration success typically shown only at the faculty level (Leahey, 2016). Student members of the community report significant impacts on their capacity for engaging in interdisciplinary discussions and research. As such, the Information Frontiers program can be offered as a model for establishing similar education and research programs.

# Key Lessons Learned:
## Information Frontiers Program
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- We have found that diverse cohorts of advanced undergraduates, graduate students and postdocs are absolutely capable of successful interdisciplinary science co-producing solutions and findings to challenging problems/questions and sharing results through conferences and journal publications.

- The space created for team-based-learning should emphasize the creative wisdom that each student brings to the process. Creating a learning environment where students are fully supported and encouraged to ask new and difficult questions, and test risky hypotheses, while bridging across disciplines leads to knowledge and skill attainment and exchange not otherwise possible.

- Small amounts of funding encourage students to apply their knowledge to real world problems across disciplines and institutions and engage in long-term research collaborations.

- Training students in data science within the context of interdisciplinary teams working with real world data and problems is a powerful and effective engaged learning model incorporating team-based-learning philosophy.

- Infused diversity at the combined levels of disciplines, institutions, academics, and student demographics coalesce to foster broad insights and exchanges among participants