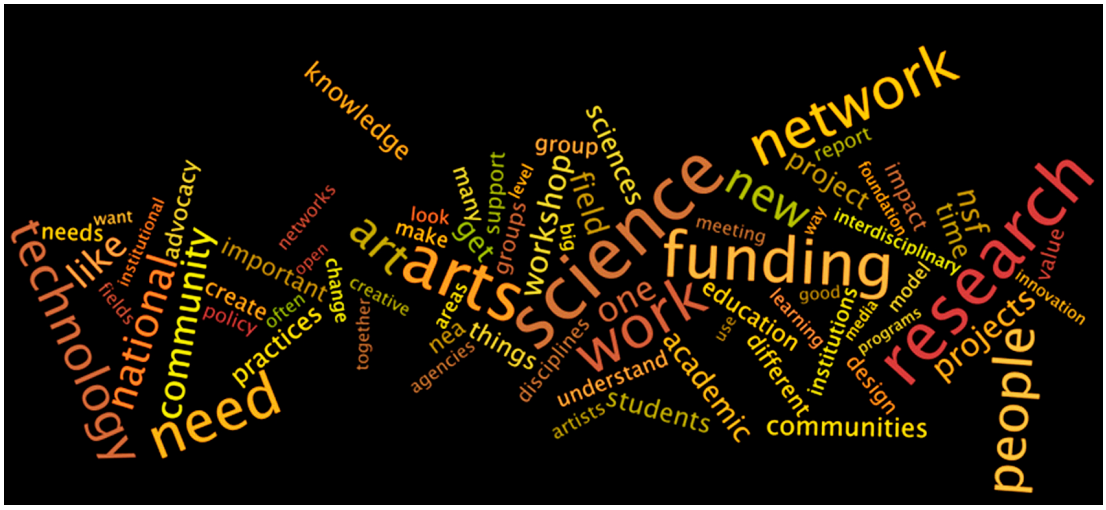
Network for Sciences, Engineering, Arts and Design

[*]Carol LaFayette, MFA, Texas A&M University; [†]Thanassis Rikakis, Ph.D., Arizona State University; [‡]Donna J. Cox, Ph.D., University of Illinois Urbana Champaign; [§]Gunalan Nadarajan, University of Michigan; [¶]Carol Strohecker, Ph.D., University of North Carolina Center for Design Innovation; ∞Pamela Jennings, Ph.D., The School of the Art Instutute of Chicago. Contributors: Noah Wardrip-Fruin, Ph.D., University of California, Santa Cruz; Roger F. Malina, Ph.D., University of Texas, Dallas; Sheldon Brown, University of California, San Diego; Alicia Gibb, BugLabs, New York



Top 75 words in meetings about a network, from Alexandria to Baltimore (2010-2011), via wordle.com

1. Introduction

Innovations emerging from the intersection of the sciences, engineering, arts and design are transforming our economy, culture, and learning contexts. This transformation is emerging through development of products, methods, and questions that are fundamentally hybrid, such as software developed for human play, hardware designed for aesthetic elegance, or the plethora of scientific and cultural information requiring new means of interpretation and expression in order to enable greater understanding of complex dynamics.

As our world undergoes rapid change, we need new ways to create and engage knowledge, drawing from multiple disciplines as we seek to understand the ever-increasing complexity. By working together, interdisciplinary collaborators can provide insights into dilemmas that elude understanding through any singular inquiry. Global economic interests are at stake: we anticipate that most types of employment that will come to dominate our economies in twenty years are being spawned now. New forms of partnership among political, academic and civil sectors of society are required if we are to bring about the needed changes intelligently and humanely. Innovation stemming from interdisciplinary creativity is a major contributor to the development of new, sustainable economies and harmonious, cooperating societies.

2. Impact

The National Science Foundation Computer and Information Science and Engineering (CISE) Information & Intelligent Systems (IIS) program sponsored five workshops in 2010-2011, bringing together artists and scientists from across the United States, to address needs of the burgeoning community of groups and individuals engaged in transdisciplinary practice. This effort resulted in the genesis of a new network focusing on advocacy and dissemination of innovative methods for connecting and supporting a distributed community across academia, non-profit organizations, civil society, industry, and funding entities. The network facilitates research community development; collaboration and project matchmaking; expertise referrals; large-scale collaborative teaching; forums to share best practices in STE[A]M learning; and philanthropic opportunities for funding organizations. The growing interdisciplinary community continues to face challenges in its efforts to self-organize among constraints imposed by academic systems and historical biases; the community continues to seek a dynamic and synergizing research and outreach exchange. We recognize an urgent need for a paradigm shift that can overcome such biases and fully address, in an integrated manner, the documentation needs of the science-art community. Therefore, the SEAD network is undertaking the development of a dissemination portal (XSEAD) that will provide a centralized view of this emergent field; fast dissemination of multimodal research outcomes; extensive databases of prior and current research, an informed record of science-art curricula; support structures for science-art careers; and evidence of societal impact of interdisciplinary integration.

The network addresses fundamental challenges including the need to align academic pedagogies with 21st-century thinking skills; to promote diversity of perspectives, approaches, and people in the creative economy; and to benchmark best practices that create critical thinkers and leaders for the ever-changing job market. We are providing a platform to generate and disseminate public dialogue about the intellectual, cultural, and economic potential of creative intersections of art, science and technology.

For more information: sead.viz.tamu.edu

This material is based upon work supported by the National Science Foundation under Grant No. 1142510, Collaborative Research: EAGER: Network for Science, Engineering, Arts and Design (NSEAD) IIS, Human Centered Computing; and Grant 1141631 Collaborative Research: EAGER: virtual exchange for Science, Engineering, Arts and Design (XSEAD) IIS, Human Centered Computing. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

e-mail: [*] lurleen@viz.tamu.edu; [†] thanassis.rikakis@asu.edu
[‡] cox@ncsa.uiuc.edu; [§] guna@umich.edu;
[¶]cs@centerfordesigninnovation.org; ∞ pjennings@saic.edu

Network for Sciences, Engineering, Arts, and Design

Vision

We will become the leading advocate for collaboration among the sciences, engineering, arts and design, fostering innovation and learning that impact community sustainability and economic growth

Mission

We operate in entrepreneurial, sustainable ways to identify and promote broader impacts for communities and individuals in new areas of practice, research and critical discourse achieving creative excellence and intellectual merit.

Goals

Advocacy for research and creative work

The network facilitates experimentation with new methods, materials, and modes of creative inquiry and understanding in order to spawn groundbreaking discoveries and inventions.

Advocacy for learning and education

The network promotes life-long learning by supporting topics, pedagogies, and evaluation methods that integrate the sciences, engineering, arts and design.

Advocacy for partnership

The network is a nexus for strategic partnerships among individuals and organizations including government, industry, civic and academic institutions fostering initiatives that bring together diverse disciplines and domains.

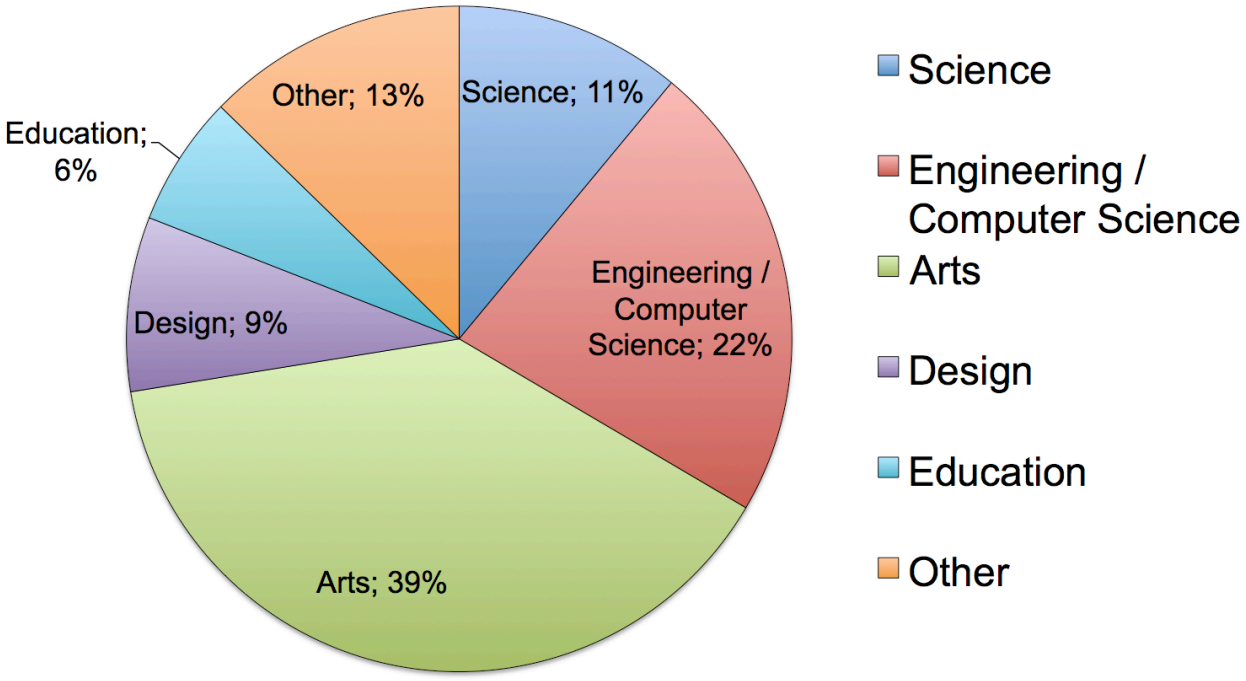
Advocacy for culture and economic development

The network champions partnerships that value sustainability, community development and social entrepreneurship, in order to spur economic growth.

This material is based upon work supported by the National Science Foundation under Grant No. 1142510, Collaborative Research: EAGER: Network for Science, Engineering, Arts and Design (NSEAD) IIS, Human Centered Computing; and Grant 1141631 Collaborative Research: EAGER: virtual exchange for Science, Engineering, Arts and Design (XSEAD) IIS, Human Centered Computing. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

Network for Sciences, Engineering, Arts and Design
Demographics

This chart shows the demographic makeup of all those attending meetings from Alexandria, 2010, to Baltimore, 2012.



Total attending: 151

Highest degrees earned:

Science
Biology
Cognitive Science
Ecology
Immunology
Integrative Biology
Maritime Systems
Marine Science
Mathematics
Medicine
Medical Illustration
Physics
Zoology

Engineering
Aerospace Engineering
Applied Mathematics
Computational Design and Interactive systems
Computer Applications
Computer Science
Computer Science and Engineering
Computer and Information Science
Cybernetic Systems
Electrical Engineering
Engineering
Engineering Physics
Human Centered Systems Design

Arts
Advanced Visual Studies
Art and Technology
Art History
Cinema-Television Production
Computer Art
Computer-Based Music
Electronic Arts
Experimental Media
Film and Art History
Film/Animation/Video
Fine Arts
Music
Liberal Arts
Media
Media Arts and Sciences
Music Composition
Music Composition for Screen
Music and Technology
Musicology
New Forms and Concepts
Performance, and Musicology
Philosophy of Art
Psychoacoustics
Radio, Television, and Film
Sculpture
Studio Art
Theater Arts
Visual Studies
Visual Studies and Environmental Art

Design
Apparel Design
Architecture
Architecture, Art, and Planning
Computer Graphics Arts
Industrial Design
Interior Architecture
Interventions and Adaptive Reuse
Landscape Design
Design Science
Graphic Design
Industrial Design

Education
Computing and Education
Communications
Education in Mathematics, Science and Technology
Learning Sciences
Museum Education
Music Education
Teaching in Science
Teaching in Biology
Special Education

Other
Communications
Cultural Studies
Developmental Psychology
Human factors
Information Science
International Politics
Library science
Linguistics
Literature and Technology
Philosophy
Psycholinguistics
Political Science
Science Journalism
Sociology
Urban Studies and Planning