CreativeIT

Synergies Between Creativity and IT

Focus on research that improves our understanding of creativity while producing simultaneous advances in computer science and information technologies with digital arts, cognitive science, engineering design, and physical and life science.

Goals of CreativeIT
Synergies Between Creativity and IT

- Understand creativity as cognitive and computational processes

- Understand information technology as a means for enhancing human creative thinking and vice versa

- Understand how design (creative) thinking develops new products, methods, organizations in the context of a perceived need or problem

Transforming Research

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- Establish creativity-based research as rigorous research.

- Examine how new value and reward systems can be implemented to extend and complement research objectives in traditional research domains.

- Identify and create shared semantics between new and traditional forms of research.

- Identify and sustain collaboration between new forms of research, such as creative design, and traditional forms of research.

- Identify and recognize value and reward systems that govern each domain. What are the accepted deliverables? How are they evaluated? How are they used as seeds for further research inquiries?

CreativeIT Research Advances

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New theoretical models: computational and cognitive models of creativity in the context of problems and solutions.

New modes of research: focus on understanding the roles of creative processes or creative professionals in research in computer science and information systems, for example, including artists in research groups.

Innovative educational approaches: learning environments in computer science that reward creative thinking.

Creativity enhancing tools: information technology tools and infrastructure that support and enhance creativity in problem finding as well as problem solving.

Links with other NSF Programs

Synergies Between Creativity and IT

- International Office
- SBIR/SBTT - Errol Arkilic
- CPATH - Anita La Salle
- Science of Design - Alan Hevner
- Engineering Design - Judy Vance
- Cyberinfrastructure - Diana Rhoten
- Behavior and Cognitive Science - Chris Kello

NSF CreativeIT Initiative

Synergies Between Creativity and IT

- FY07: Exploratory projects and workshops funded to define scope and potential

- FY08: Solicitation for pilot and major project proposals

  – Letter of intent due July

  – Proposals due September

Suggestions for workshops

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- Community building workshops
  - Networks of people
  - Defining new areas of research

- Defining the state of the art workshops
  - Studying design creativity
  - Role of creative arts in robotics, software design, HCI
  - Evaluation of new technologies for creative uses

- "Solving a problem" workshops
  - Interactivity in ubiquitous computing
  - Situated reasoning
  - Creative search

Examples of Exploratory Projects

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- Similarities between poetry and coding

- Simulations of creativity and conflict in open source software development

- Artists working with scientists on cyberinfrastructure research

- Role of creative performance in defining specifications for collaborative immersive environments

- Designing technologies to encourage creative collaborations in public spaces

- Designing the next generation wiki for creative community building

- Computational models of creativity in search algorithms

Soliciting Two Kinds of Projects

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Pilot Projects identify a synergistic group of people or ideas that have the potential to lead to innovative and creative advances in one or more disciplines. These projects will start with a set of objectives that are consistent with the CreativeIT program and will pursue a methodology for achieving those objectives recognizing that the objectives may change as the specific context of the problem being addressed is better understood. The outcomes of a Pilot Project may be an innovative solution or area of research that will benefit from further development. Up to $200,000

Major Projects bring together a significant group of people to focus on specific synergies that can transform our understanding of models, tools, or education relevant to CreativeIT. While the research may use a design approach in which the specifics of the problem and solution may change during the life of the project, the overall objectives and methods are well defined. This type of project is well founded on previous research in the individual or combined disciplines involved in the project. Up to $800,000

CreativeIT Research Areas

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Understanding Creative Cognition and Computation. The development of new models of cognition and computation that explain or simulate creativity.

Creativity to Stimulate Breakthroughs in Science and Engineering. Understanding the role and performance of artists in developing new technologies, discovering new patterns in information, and in finding new ways of seeing, knowing, and doing computer and information science and engineering.

Educational Approaches that Encourage Creativity. Approaches to teaching that encourage creativity: multi-disciplinary teaching and learning, design studio teaching, and open-ended problem-based learning.

Supporting Creativity with Information Technology. Develops new software and user interfaces to support users in being more creative and evaluates their performance.

Creating a common language

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Artist and Scientists – Similarities

- Exploration of the unknown
- Experimentation
- Observation
- Openness
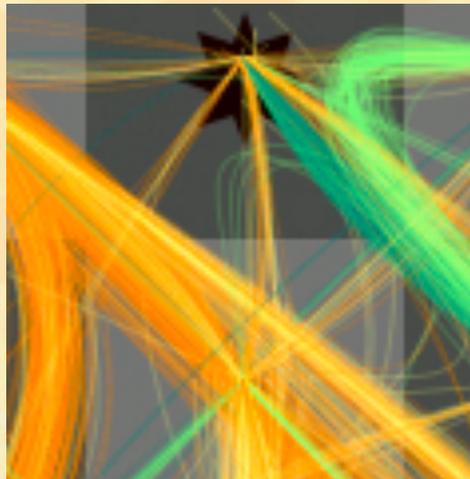- Analysis
- Process of discovery

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Jeffrey Shaw
Legible City 89

Martin Wattenberg
Thinking Machine 03-04

Ken Goldberg
Telegarden 95-04

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Open Work Group
Pedestrian 02

Techla Schiphorst
Susan Kozel
Whisper current

Christa Sommerer
Laurent Mignonneau
Life Writer 2006

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Rafael Lozano-Hemmer
Amodal 2003

Jonah Brucker-Cohen
Umbrella.Net current

David Rokeby
Very Nervous System 1990

NSF Contacts for CreativeIT
Synergies Between Creativity and IT

Mary Lou Maher, CreativeIT, mmaher@nsf.gov

Cognizant Program Directors

- **Errol Arkilic**   Small Business Innovation and Technology Transfer, earkilic@nsf.gov
- **Alan Hevner**   Science of Design, ahevner@nsf.gov
- **Chris Kello**   Behavioral and Cognitive Sciences , ckello@nsf.gov
- **Anthony Kelly**   Research and Evaluation on Education in Science and Engineering, akelly@nsf.gov
- **Anita La Salle**   CISE Pathways to Revitalize Undergraduate Computing Educations, alasalle@nsf.gov
- **Umesh Thakkar**   Graduate Education, uthakkar@nsf.gov
- **Diana Rhoten**   Cyberinfrastructure, drhoten@nsf.gov
- **Judy Vance**   Engineering Design and Innovation, jmvance@nsf.gov