The Living In the KnowlEdge Society (LIKES) Community Building Project: Building Collaboration between Computing and Non-Computing Disciplines

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INTRODUCTION

Widespread use of Information and communications technologies (ICT) created a trend:
- ICT perceived as part of daily life
- New areas embrace ICT (selected)
  - Bioinformatics
  - Computational economics
- Computing still faces challenges (selected)
  - Declining student enrollment
  - Lack of diversity

The Living In the KnowlEdge Society (LIKES) Community Building Project launched in 2007
- Part of NSF’s CPATH program
- Aims to revitalize undergraduate computing education

Build a community to make systematic changes in:
- Teaching of computing concepts
- Application of computing concepts
  in both computing and non-computing disciplines

• Goal 1: Transform computing education so graduates can help build systems, services, tools, or new paradigms for the Knowledge Society
• Goal 2: Establish collaboration between computing educators and all other disciplines to support educating the next-generation of knowledge society builders
• Objective 1: Ensure that all interested undergraduates are prepared for living in the emerging Knowledge Society of the 21st Century
• Objective 2: Spread computational thinking, fundamental CS/IT paradigms, key computing concepts, and ICT paradigms across the Knowledge Society

VISION

WORKSHOPS

• SCU Workshop, Dec. 2007
• Understanding the knowledge society
• VT Workshop, Nov. 2008
• LIKES pedagogy
• NCAT Workshop, Apr. 2008
• Testing LIKES vision
• Villanova Workshop, Mar. 2009
• LIKES in practice

SUCCESSES, GRAND CHALLENGES

Successes: New courses created in four sites
- VT: Introduction to LIKES, LIKES capstone
- SCU: Information Technology, Business and Society
- NC A&T: Introduction of Web Science
- Villanova: The Laptop Instrument (CS + Music)

Grand challenges: Identified from the workshops
- Preparing students for scholarship and work in collaborative environments
- Information literacy and critical thinking regarding the technology
- Enticing faculty to incorporate computational thinking and collaborate with each other
- Limitations in software tools and their use
  - Visualization/simulation for large classes
  - Lack of tools for specific purposes
  - Disconnect between humanity’s needs and the developers of the tools (making usable tools)
- Archiving limitations
- Lack of research support (e.g., funding, etc.)
- Deep understanding and ability to match abstractions with problems in various contexts through modeling/using
- Moving from massive amount of data to hypothesis generation to testing
- Spreading LIKES to other disciplines and implementing the LIKES process in terms of maintainability (e.g., incorporation of new computing concepts dynamically – supercomputing/grid computing/cloud computing)

FUTURE PLANS

- LIKES Workshop at Villanova (Mar. 20-21, 2009)
  Areas include:
  - Archaeology
  - Ethics
  - Political Science
  - Sociology
  - Environmental Science
  - Global Science
- Faculty Development Institute at Virginia Tech (Jul. 21-23, 2009)
  - Discussion of computational thinking
  - Introduction of visualization
  - Development of interactive educational resources
  - Forming a LIKES community at Virginia Tech campus
- Identifying more LIKES-Designated courses at Virginia Tech. Current areas include:
  - Computer Science
  - Economics
  - English
  - Mathematics
  - Philosophy
  - Statistics

ONLINE COMMUNITIES

We invite you to join our community
- LinkedIn.com: LIKES Educators
- Facebook.com: LIKES, LIKESVT (for VT students)
- Second Life Group: LIKES
- Virginia Tech’s site scholar.vt.edu: LIKES Team, LIKES Development and LIKES students

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