Art, Research, Technology and Science Laboratory (ARTS Lab)  
Research and Demos at SC ‘12

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Overview

ARTS Lab is an interdisciplinary center exploring new and emerging media from educational, training, production and research vantage points. Co-located with The Center for Advanced Research Computing, the Lab serves as a nexus for collaborations between faculty and students from across campus and between campus and the global community. With an international reputation and reach, ARTS Lab is a catalyst for UNM’s advancement as a nationally recognized leader in interdisciplinary higher education and research relating to new and immersive media.

To this end, the Lab currently creates, connects, and supports work in the following areas:

- design, engineering and computer sciences - emerging technologies [systems and approaches]
- arts and humanities - extensions and applications [new art forms, new expressions, new forms of documentation]
- education social sciences - effects and development uses and pedagogical/social effects of emerging technologies
- natural sciences - creating new discovery space [visualization and simulation]
- business and economics - exploring new markets and products [commercialization]

ARTS Lab is a highly equipped 4,000SF new media lab consisting of a motion-capture system, controlled sound stage/performance space, a micro-electronics fabrication space, a fulldome research theatre, portable immersive media systems, a digital production room for eight people, and two administrative offices. The facility has research-class internet access, 30TB of networked RAID storage, a secure FTP server and professional quality audio and video production and presentation systems.

Beyond leading its own research endeavors, ARTS Lab offers collaborative efforts including specialized courses, advanced research support, and student/faculty/community production support; all with an emphasis on interdisciplinary endeavors that forge new connections between disciplines and bring to light new insights as a result of shared inquiry driven by diverse perspectives.

Current Research

_Fulldome Development for Interactive Immersive Training Capabilities_, David Beining, co-PI. [demo]
Collaborative education and research project to improve the realism and interactivity of emerging immersive technology for educational applications and increased training capabilities. Three-year project concludes fall 2014. DOD Research and Educational Program for HBCU’s and MI’s. Subaward with the Institute of American Indian Arts.

_DomeFest: The Global Festival for Fulldome_, David Beining, Director. [demo]
The Lab founded and runs the first and largest international festival and conference on fulldome and immersive media that brings artists, technologists, educators and producers together. The festival draws attendees from five continents and the juried programs have been screened in more than 75 international cities. It is funded through corporate sponsorships and earned revenue. (2004-present)
Digital Dialectic: Forging New Paths of Inquiry in the Humanities, David Beining, co-PI. [demo]
Development of a software application that couples gigapixel panoramic photography with layers of educational content, allowing users to explore Mundos de Mestizaje, Frederico Vigil’s 4000 sq ft fresco on the NHCC campus. The asset will deploy on two interactive platforms: a digital dome presentation and a web-based viewer. National Endowment for the Humanities, Digital Humanities Start Up Grant, Level II. Eighteen-month project concludes Fall 2013. Subaward from National Hispanic Cultural Center.

Dome Poems: Memory and Emergence, Tim Castillo, PI. [demo]
An immersive film project based on the poetry of New Mexico centennial poet Levi Romero (Chicano Studies) and photography of Distinguished Professor Miguel Gandert (C&J/IFDM). Portable immersive system by Tim Castillo (SA+P) will allow Dome Poems to travel to rural communities. National Endowment for the Arts, Art Works. Eighteen-month project concludes fall 2013.

Interactive Learning Assessment System (ILAS), Elizabeth Yakes (IFCE), PI.
ILAS will produce 1) an authoring system for instructors to customize and build counseling cases; 2) an instructional delivery system that tracks student progress and provides downloads for the instructor of how their students learned; 3) a set of example cases; and 4) research related to these activities. The intended result of ILAS is to recruit Hispanic students from high school, community colleges, and basic sciences, and to retain and graduate those in the nutrition program, connecting to the HSI program goals of increasing underrepresented groups and enhancing the quality of instruction in nutrition. National Institute of Food and Agriculture Hispanic Serving Institutions Education Grant. Two-year project concludes fall 2014.

Supporting Practice, Integrating Research in Immersive Technologies into Educational Designs (SPIRITED), Vanessa Svihla (Educ) PI.
Proposes an innovative, interdisciplinary approach involving faculty researchers from three UNM Colleges: the College of Education, Department of Teacher Education; The School of Engineering, Department of Computer Science; and the College of Fine Arts, ARTS Lab. SPIRITED brings together complementary, integrated expertise on learning, teaching, and technologies to develop understanding of how immersive technologies might be used to support inquiry teaching and learning. UNM College of Education Tier 1 Large Interdisciplinary Research Funding Program. One-year project concludes summer 2013.