About cDACT

Perhaps the only certainty about the future is that technological transformation will continue at an ever-accelerating pace. Digital technologies now undergird objects from computers and PDAs to billboards and television; computation has become ubiquitous—cell phone screens and the trailing white cords of iPods index increasingly powerful processors. These technologies are reshaping all aspects of our culture: how we work, learn, play, create, socialize and participate in civic life. At the same time, traditional boundaries - between arts and sciences, creators and observers, local and global - are dissolving, and new forms of creation, audiences, knowledge, and distribution mechanisms are proliferating.

The questions and issues raised by cultural and technological transformation demand a new model of interdisciplinary inquiry and production. Stony Brook University's consortium for Digital Arts, Culture, and Technology (cDACT) was created specifically to inhabit and explore these interstices between disciplines, based on a deeply collaborative model. cDACT programs, courses and activities emphasize critical thinking allied with hands-on experimentation and creation, while employing methodologies and tools from the arts, sciences, and humanities.

As a Provostial initiative, cDACT is able to work across departmental and college boundaries. Hired as a "cluster," the core faculty–while housed in Art, Computer Science, Cultural Studies and Music–were specifically selected for their proven interdisciplinary activities. The Founding Director and the Interim Director have over 30 years of combined experience in cross-disciplinary teaching, research and creation. This unique group of faculty meet frequently, an everyday proximity that fosters cross-disciplinary insight and innovation. Faculty research is able to thrive in an environment that is adaptive and flexible; individual projects are strengthened by shared interests and common goals.

Research and Creation

In the three years since its inception, cDACT has been a very successful "proof of concept," not only in the interdisciplinarity of activity, but also in the synergy between artistic creation, technological development, and scholarly investigation. *iWalk*, a program for movement and gesture tracking, was used in the multimedia piece *The Last Bourbakian* and documented in a paper published in the ACM conference proceedings. *Miss You*, an installation run by custom software, was created by cDACT faculty and graduate students from Computer Science, Art and Music. *Draw Commutes*, another cDACT collaboration, is an iphone app and a multimedia

installation showing the individual paths commuters take to and around Stony Brook, filtered through the grids of GPS satellite technology. The research for these projects also led to a paper, *Wireless Imagination,* being published in *Futurismo.*

In the same time span, cDACT has produced three large-scale events, each of which incorporated gallery shows, concerts, lecture series, panel discussions, and paper presentations: *Sonic Residues* (2007), *Hybrid Geographies* (09-10), and, in collaboration with the Department of Music, the *International Computer Music Conference* (2010).

Education

In all of its curricular endeavors, what makes cDACT unique is the emphasis on combining critical thought with technological information, while merging the creative and the scientific approach. Thus, students trained in this environment are agile and adaptable. They learn particular skills and methodologies, but, equally importantly, they learn to think innovatively. They approach technical problems creatively, and creative problems technically.

cDACT has already developed an innovative interdisciplinary curriculum, creating more than eight new courses in areas such as Sound Design, Digital Culture, Video Game History, and Computer Vision. While fitting into existing departmental structures, these courses operate synergistically to shape an interdisciplinary Digital Arts Minor (DIA), which has developed in less than three years from 7 students to more than 120 participants from departments as diverse as Art, Business, Cultural Studies, Computer Science, and Music. cDACT courses, including core team-taught offerings, are very popular, and fill within weeks of being posted.

cDACT is developing a new initiative with Computer Science enabling DIA students to take more effective advantage of Stony Brook's highly ranked Computer Science department, while simultaneously allowing Computer Science students to focus their path more explicitly around media production and practice. The goal is to share facilities and cross-list undergraduate courses, enabling all concerned to do more with less, while providing students with a wide-ranging, yet still rigorous, training.

Also in the planning stage is a Masters in Digital Arts program, which would have tracks in scholarship, research and production/performance. All MDA students would get a grounding in digital technology, culture and artistic creation, while specializing in many possible areas, including digital sound, digital graphics, animation, installation, interactive, virtual reality, social networks, data mining, computer culture, gaming, interfaces and context-aware computing. This program would offer an affordable option to private schools like NYU's ITP program, (which attracts more than 50 MA

students each year) and will take advantage of the Manhattan campus, in order to be able to tap into the talent pool of artists, scientists and scholars in the NYC area.

Development and Expansion:

cDACT is well placed to collaborate in ongoing SBU enterprises. There are already plans being made for artists associated with cDACT to work with CEWIT's revolutionary "RealityDeck," an immersive screen environment. cDACT faculty are also already collaborating with researchers at the Brookhaven National Laboratory to sonify x-ray scattering data, and with the arts programs at the new Simons Center for Geometry and Physics.

cDACT faculty have received small grants from FAHSS, Presidential Mini-Grants and Meet the Composer. We are actively searching for larger grants; as an interdisciplinary initiative, cDACT is in a position to secure funding from sources as varied as the NEH, NEA and NSF. Furthermore, cDACT is uniquely positioned to appeal to a large range of investors and donors, including those in industry.

In order to realize its potential, including curricular development, cDACT needs to add additional teaching faculty: 1) in tangible interaction and sensing technologies, who would be able to deal with applications ranging across media arts, entertainment and educational systems (potentially a joint appointment with Art or Computer Science); 2) in digital musicology or ethnomusicology (potentially joint with Music, to complement the creative digital musicians already on faculty); and 3) in 3-D Design/animation (potentially joint with Art).

The Future:

From its unique position between Departments and Colleges, cDACT will continue to foster collaborations, with the goal of becoming a hub for interdisciplinary activity. Immediate plans involve widening our base of Affiliated Faculty, and pursuing connections with other departments ranging from Cultural Studies to Theater to Philosophy to Mechanical Engineering. cDACT should figure centrally in furthering cohesive interactions between the fine arts and humanities, while continuing to expand to include more of CEAS, the College of Business, and the East Campus.

We envision three core areas for performance, creation and research in the near future:

1) *Integrated Media*, with an emphasis on large-scale networked collaborations. Building on faculty expertise, this would include new art and new manners of

making art, including capitalizing on Stony Brook's participation in the Internet2 consortium.

2) *Human Computer Interaction (HCI)*, concentrating on communication with machines through touch and gesture. This involves investigation into the meaning and significance of computer interfaces, as well as research into the burgeoning field of haptic (touch-based) technology, long a staple of gaming, but increasingly an object of interest in fields as widely disparate as music performance and interfaces for the disabled.
3) The *Data Sensorium Project*, for interacting with, manipulating, and transcoding large data sets. One of the problems with digital technology is the large amount of data generated. This project works with these large data sets: coding them into visual, sonic, or haptic feedback. Some aspects are already realized in CEWIT's "cave" (Virtual Reality Lab) and can be integrated into the RealityDeck. Of primary importance for the Data Sensorium is full integration of other-than-visual information. Our contention is that a trained, experienced artist – used to dealing with abstract visual or sonic information – is better equipped to design visualizations of these massive data sets. A corollary to this would be cross-disciplinary training for data "reading."

All three areas reflect the central mission of cDACT: to bring together people with complimentary métiers, and by thus doing, arrive at collaboration far greater than the sum of the parts. It is impossible to predict what horizons new technologies will open up for human investigation, and the manifold ways in which these technologies will effect our lives in the future. What is certain is that research innovation is best able to thrive in an environment that is adaptive, flexible and open to both transmutation and transformation – the kind of environment we have deliberately sought to create through the cDACT initiative. Inherently hybrid and interdisciplinary, cDACT seeks to foster the unexpected – the truly new – in the realm of digital technology inquiry and innovation.