

# UIF-3 Proposal DRAFT 4/19/01

## Center for Digital Arts

### 1. INTRODUCTION

Artists working with digital technologies are redefining art, music, theater, film, and architecture, often dissolving the boundaries between these traditional forms. For example, composers are creating digital sound art and *aural cinema*, using complex signal processing techniques to invent sounds of extraordinary intricacy which are virtually located and moved through space. Video artists and computer animators are creating previously unimaginable digital spaces immersed in poetic sensory illusion. Digital Art goes far beyond merely affecting how artists work, and beyond simply using computers to simulate pre-digital forms of art. Artists, engineers, designers, and scientists collaborate and exchange roles to create digitally-realized images, sounds, performances, and installations that have never before been heard, seen, and experienced.

The explosion in Digital Art arises from advances in information technologies. Although Digital Art dates back to the late 1950s, the advent of the personal digital computer has given individual artists and scientists access to powerful and versatile digital tools capable of handling enormous amounts of data. This access to a “general purpose machine” has collapsed the traditional separation of disciplines. As a result, powerful new hybrid art forms have emerged along with a new corpus of knowledge and a forward-looking core of practice and theory that is only now reaching a critical mass as we enter the 21st century.

We propose a Center for Digital Arts at the University of Washington that will strengthen and foster the collaboration between artists, engineers, designers and scientists. Building on the UW’s existing strengths, a program of international preeminence can be developed with the addition of a few faculty and staff, the construction of computer-compatible studios, and the offering of collaborative opportunities to students and faculty. The University of Washington is strategically placed to create this Digital Arts Center given its long tradition in both the arts and engineering. Other universities have centers for Digital Arts, but few with the strength of the faculty already at the UW and in a technologically and artistically dynamic community such as our region. A Digital Arts program of the highest caliber makes sense in this place and at this time.

The achievements already made by UW faculty through individual and collaborative faculty initiatives have laid the foundation for a strong interdisciplinary program in Digital Arts. Computer Music, Computer Animation, Spatial and Temporal Digital Art, Design Computing, and Theater Sound Design are the disciplines central to this proposal which will bring together Music, Art, Drama, Computer Science and Engineering, Electrical Engineering, and Architecture as integral partners in a far-reaching Digital Arts program.

#### 1.1 CURRENT LANDSCAPE – THE FOUNDATION FOR THE CENTER FOR DIGITAL ARTS

Outstanding success has already been demonstrated in core areas of the Digital Arts at the UW. Excellence in research, creative work, and educational opportunity has been attained through interdisciplinary initiatives such as: the Center for Advanced Research Technology in the Arts and Humanities, Advanced Technology Initiative (Animation Research Lab), Design Machine Group, and Tools for Transformation (Digital Arts Technology).

**1.1.1 CARTAH** - The Center for Advanced Research Technology in the Arts and Humanities has been at the forefront of digital-technology-based arts research and practice at the University of Washington since the early 1990’s. Award-winning works of Digital Art and Music have been created at CARTAH by faculty and students and exhibited worldwide. CARTAH has a deep reservoir of experience in bringing together diverse areas of the Arts and Humanities while fostering cross-divisional collaborations with Engineering, Libraries, Architecture, and other campus units. Besides its studios and laboratories that contain and develop state-of-the-art technology, the Center has become an arts technology convergence zone where artists and researchers from many disciplines cross paths. The proposed Digital Arts Center is, to a large degree, an outgrowth of the path-breaking role CARTAH has played at the UW. Continuing its broadly-defined mission, CARTAH will serve as a core component of the Digital Arts Center. Its facilities and technologies will be profoundly enhanced through its connection with the new Center and it will play the important role of reaching beyond those faculty and students who are directly involved in the Digital Arts to provide advanced technologies across the University.

Experiential learning has become increasingly important to CARTAH’s mission. Undergraduate and graduate courses in Computer Music, Digital Video Art, and New Media Art are supported by the Center. It provides students with an environment to pursue their own individual and collaborative research projects working side-by-side with faculty.

An example of the educational model being developed at CARTAH is the recent *Terraform* project at the Henry Art Gallery. Faculty, post-docs, students, and staff, working together developed a real-time computer-controlled audio/visual environment inside the Henry's New Media Gallery. For 10 weeks during autumn quarter 2000, the project brought together art and music students, faculty and technical staff to wrestle with the technological and aesthetic issues which make up artists' creative processes. The installation ran from December, 2000 through April, 2001.

CARTAH also attracts visiting scholars and artists from around the world. Recent visitors have come from Spain, Morocco, the United Kingdom, Canada, Norway, Finland, Argentina, and from around the US. Three CARTAH graduate students have received Fulbright Fellowships for study abroad during the last two years.

### **1.1.2 The Animation Research Labs**

The Animation Research Labs, supported by the Washington State-funded Advanced Technology Initiative (ATI), is one of the cornerstones upon which the Digital Arts program will be built. Faculty from Computer Science & Engineering, Art, and Music formed a partnership several years ago to work towards the goal of integrating the Engineering and Arts components of Computer Animation. Initially administered jointly by CSE and CARTAH as the Laboratory for Animation Arts, the project achieved enormous success, generating great excitement across the campus. CSE was subsequently awarded ATI funding, making possible the launching of a comprehensive program in Computer Animation.

The mission of the Animation Research Labs is *to advance the state of the art in animation*. Computer scientists, animators, artists, musicians, architects, storywriters, and user-interface designers work together to create new algorithms, systems, and tools for computer animation – and use these advances to create innovative animated productions, including interactive forms such as web-based animation and games. The research thrusts of the ARL are broad, and include all areas of computer graphics, computer vision, and human-computer interface design that are critical for animation.

Education is an integral part of the ARL, focusing on the fundamentals of computer animation, rather than on learning to use any particular set of tools. The curriculum includes courses and seminars at both the undergraduate and graduate levels. Many of the classes are interdisciplinary, with students from different departments collaborating to create short animations, games, and web designs. The presence of professional animators as production consultants, and distinguished visitors who give workshops and public lectures is a hallmark of the ARL. As an already-established pillar of the proposed Digital Arts Center, the ARL is a vibrant demonstration of the transforming potential of interdisciplinary collaboration in education and research in the Digital Arts as a whole.

### **1.1.3 Design Machine Group**

The Department of Architecture moved decisively in 1998/9, hiring three faculty members to build the Department's strength in design computing. These hires are recognized internationally as established and emerging leaders in architectural design computing. With assistance from the Provost's office and the College of Architecture and Urban Planning, the Department created a new "digital design studio" where students integrate the traditional architectural design process with digital media, "Design Machine Group", a laboratory for research in design computing, and office and meeting space. The Department subsequently received Tools for Transformation funding to upgrade networks in the rest of Architecture Hall studios, which will enable students to "plug-and-play" personal machines to take advantage of shared software and input-output services. In addition, the Department has proposed a Master of Science program in Design Computing. This proposal has been reviewed externally and is now being considered by the Graduate School. Discussions are underway in the College regarding possible reconfiguration of an existing PhD program in Urban Design and Planning (or establishment of a new PhD degree elsewhere within the College); "Digital Design" in some form is likely to emerge as an area within the new or reconfigured PhD program. These developments suggest new *Renaissance*-like synergies between Architecture and the Arts.

**1.1.4 Tools for Transformation in Digital Arts Technology** – A Tools for Transformation grant for Advanced Arts Technology, awarded in 1999 to faculty in Art, Music, and Computer Science and Engineering and administered by CARTAH, supported the temporary addition of post-doctoral artists, staff, and teaching assistants for a two-year period. This *pilot* project has furthered the accomplishments and reputation of the UW as an emerging leader in the Digital Arts. Some of the activities made possible through the addition of Tools-funded faculty, staff, and operations include:

- new undergraduate and graduate courses in Digital Arts. Students from Art, Music, CSE, EE, and other areas enrolled in these courses which focus on the development of new technologies and the creation of new artwork using those technologies.
- an interdisciplinary graduate course led by Arts and Engineering faculty with over 30 students from these disciplines. The course included a series of public lectures by leading digital artists and engineers from around the

country. As their final project the students broke into interdisciplinary groups to speculatively design public art projects that would use digital media in innovative ways.

- TA support for courses that require intensive lab work making it possible to increase access Digital Arts courses; provided important teaching experience for interdisciplinary arts graduate students.
- an enhanced research environment with post-docs and RA's leading explorations into new technologies and new art genres.
- more public exposure for digital art produced at the UW including Computer Music/Digital Video shows in Meany Hall and participation in the newly launched UW Summer Arts Festival (the Digital Arts show was among the most successful events of the first festival in 2000. A similar event will take place in 2001 on the opening night of the Festival).
- national and international research and arts partnerships. We have furthered some existing relationships and begun some new ones with artists and engineers working at Stanford, Berkeley, MIT, and those in Argentina, Britain, France, Germany, India and Spain. These relationships involve collaborating on research, sharing newly developed computer applications, and the programming of one another's works on concerts and in galleries.

## **2. SPECIFIC GOALS OF THE DIGITAL ARTS CENTER**

The processes of imagination, exploration, discovery, and reflection constitute the core of artists' work. Artists— like scholars, scientists, and engineers— seek to make discoveries that will improve our lives and our understanding of the world. Art as research is not a new phenomenon. The search for and communication of artistic discoveries cross cultures and spans time. The digital era brings with it new technologies, artistic techniques, and adventurous thinking. We envision the following symbiotic interplay between technology, imagination, and expression:

- artistic vision will inspire the development of new technologies
- visionary technologies will reveal unimagined new artistic directions
- art and technology will converge, resulting in new forms of human expression

To accomplish these goals and take Digital Arts from its beginning to a fully developed academic Center we envision a number of steps.

1. Bring together faculty and students from the Colleges of Arts and Sciences, Engineering, and Architecture and Urban Planning in a program that fosters research and creative work crossing traditional disciplines; develop new paradigms for cross-disciplinary teaching and learning; educate artists in advanced technology research practices; educate scientists, engineers, and design professionals in experimental art practices and aesthetics.
2. Create an array of state-of-the-art experimental laboratories and studios in a unified space suitable for advanced arts technology research and application where students and faculty can work and interact. The new labs and studios will be a magnet for a broadly diverse faculty and students from across the UW, as well as visiting artists and scholars from the region, the nation, and the world.
3. Establish new degree programs (BA, MFA., and PhD) in Digital Arts along with a body of new discipline-specific and interdisciplinary courses.
4. Establish innovative senior capstone and new foundations courses that focus and unify a broad range of undergraduate backgrounds within the digital domain.
5. Annually serve *approximately* 80 majors in the undergraduate program and 20 graduate Digital Arts students, along with 300 non-major students.
6. Establish a "glass-box" program where leading figures in the arts, science, and industry will be invited as guests to work on innovative projects in conjunction with a wide range of UW departments and students. These guests will carry out some of their work in open forums where students can observe and interact with them.
7. Create opportunities for audiences within the UW and in the regional community to experience the digital arts through new exhibitions, concerts, installations, public seminars, and conferences.
8. Build upon and amplify existing partnerships between the arts and the digital technology industry through mutual research interests, student internships, and other joint activities

### 3. EDUCATION AND RESEARCH

The education and research missions of the Digital Arts Center will be seamlessly interconnected with one another. New degree programs will be developed at the undergraduate and graduate levels with opportunities and curricula that involve students directly in the research and creative missions of the program. Research and education will promote wide-ranging knowledge of arts and technology subjects, cultivating partnerships that bring together the visual, aural, theatrical, and architectural arts with engineering, sciences, and other areas. Students involved in this program will themselves be important contributors to the invention of new technologies and creation of new forms of artistic discovery and expression.

#### 3.1 INTERSECTING DISCIPLINES – Initial Core of the Digital Arts Center

- Visual Arts: New Digital Genres
- Computer Music and Digital Sound Art
- Computer Animation
- Theater and Film Sound Design
- Architectural Design Computing

##### 3.1.1 Visual Arts: New Digital Genres

The influence and integration of digital processes in the fine arts has a complex and ongoing history. Art, with centuries long traditions in two and three-dimensional works (painting, drawing, sculpture, ceramics, metals), as well as more recent histories in explicitly technological forms from the 19th-century onward (printmaking, photography, cinema), has always had a profound relationship to technology. However, the later half of the 20th-century brought forth increasingly cross-media oriented fields such as installation, video, performance and time-based arts that drew from previous rich traditions as well as ushering in challenging new ways of considering both the nature and site of artwork. Digitization and computer-aided processing has augmented and extended some of these traditional forms in their own traditional terms. However, the Digital Arts program seeks to concentrate on those areas that involve computational devices and processes where new works in new forms and formats can evolve, and to do so in an interdisciplinary context in which artist and scientist/engineer can create in new working relationships. We envision art works involving animation, video, sound, the internet, and interactive and virtual spatial and temporal environments. During Spring quarter 2001 a visiting artist funded through the Digital Arts Tools for Transformation grant and a member of the UW Sculpture faculty are team teaching a course involving computer programming, robotics, and sculpture. Students in this class have previously studied digital video and animation techniques so a next step, for example could be to create works that combine sculpture, video, robotics, and sound.

New Digital Genres can be considered the keystone of the Digital Arts Center, a *stage* on which all of the diverse areas converge. It is also where the proposed degree programs, especially the Ph.D. will most dramatically change the nature of Arts research and education, not just at the UW, but in the international arena.

##### 3.1.2 Computer Music and Sound Art

Computer Music is a highly interdisciplinary field of research and practice with many examples of the symbiotic interplay between vision, technology, and creation expressed above. The central focus of the art and science of Computer Music goes beyond effecting how we make music, and well beyond trying to make computers simulate or imitate physical or *acoustic* instruments and the music composed for them. The most profound effect of Computer Music has been broadening of our concepts of what is actually defined as music. Using complex signal processing techniques and treating parameters such as the location and movement of sound in space composers are inventing powerful new modes of expression. In order to bring about this revolution in the use of sound as an art medium, Computer Music composers and researchers have had to acquire a unique combination of knowledge and skills in Music (Composition, Theory, Performance), Electrical Engineering (Digital Signal Processing, Interface Design), Computer Science (Computer Programming, Algorithmic Processes, Applications Design, Artificial Intelligence), Physics (Acoustics, Mathematical Physical Modeling), Psychology (Cognition, Perception, Psychoacoustics), and other areas. While this is a relatively mature field, there are still many new discoveries to be made requiring intense experimentation. New digital signal processing theory has come out of UW's EE department which, given appropriate translation into tools for musicians and sound artists, has the potential to give dramatic new controllability to sound generation. For example, the concept of morphing different natural sounds together, a previously unsolved problem, is likely to be solved by EE's recent research. This UIF will support the partnership needed to put these theoretical breakthroughs into practice and make UW a leader in developing both the next generation of Computer Music tools and new genres of Computer Music and Digital Sound Art. An *ad hoc* program in Computer Music has already placed the UW on the map internationally.

### **3.1.3 Computer Animation**

The research thrusts of Computer Animation are broad, and include all areas of computer graphics, computer vision, and human-computer interface design that are critical for animation, as well as the artistic and storytelling aspects of animated production. Modeling, Animation, and Rendering are central areas and these are already being advanced in the ATI-funded Animation Research Lab. Modeling includes methods for acquiring and representing geometric, reflective, and refractive properties of 3D objects (“3D photography”); methods for modeling the physical, dynamic properties of objects such as skin or clay; methods for adding animation controls to hierarchical models; methods for modeling realistic human figures. Animation includes methods for motion capture, re-use, and editing; methods for rigid- and non-rigid-body physical dynamics simulations; methods for combining physically-plausible animation with directorial control; integrating selected classical animation principles and processes into digital tools for animators. Rendering includes methods for creating abstract, as well as photorealistic, styles of rendering; methods for accurate color reproduction; methods for texture synthesis, scratch & wire removal, methods for digital special effects; methods for seamlessly combining synthetic and captured imagery. Other important areas of research and practice include experiments in lighting, cinematography, composition, and character design for computer-animated production; developing new styles of interactive computer-augmented performance or immersive environments; experiments in telepresence, dance and interactivity; active space and movement, gesture-based interfaces, and technologically-mediated spaces; methods for storyboarding and interactive story design; methods for integrating innovative abstract or representational visual and auditory cues for narrative moving imagery; design, development, and use of animation tools that enhance the process of creating new forms of sculpture and painting. Music and Sound Design are also key areas in Computer Animation. Anyone who has closely watched and listened to the best works of traditional or computer animation is deeply aware of the synergy between image and sound, picture and time. Computer Animation is one of those areas that bring together art, science, and engineering to create more than any one area could on its own.

### **3.1.4 Sound Design**

Sound Design is a rapidly evolving interdisciplinary field integrating the aesthetic and technology of art forms and scientific disciplines. Over the past 30 years, its importance in theatre design has grown to such an extent that Sound Design now occupies a position of prominence equal to the other design areas—costume, lighting and scenery. The impact of Sound Design on live performance has been groundbreaking in broadening the integration of sound and music with movement and spoken text. Research in theatrical Sound Design is effecting developments in digital sound reproduction, interactive audio and psychoacoustics. Again, as in the other fields described above, the focus in this area will be on practical invention and innovation. Sound Design in the Digital Arts program will pioneer new ways of developing multi-dimensional applications of sound in theatre as well as film, video and animation. Through the Digital Arts program, Sound Design will be closely linked to Computer Music, a field with deep ties to Computer Science and Electrical Engineering. This close relationship between Sound Design and Computer Music will be unique among Drama and Music programs nationwide and it will make both disciplines stronger and more innovative than the two would be as separate entities. Linking Digital Video and Animation components will bring similar benefits to all of these areas.

### **3.1.5 Design Computing**

Design Computing identifies a revolution in architectural and other design disciplines. Personal computer hardware and software have enabled architects to represent and visualize new spatial and material forms (witness Gehry’s Experience Music Project and the Guggenheim Museum in Bilbao) and new processes of manufacture are transforming building construction as well. Emerging technologies in freehand drawing, gesture, and speech recognition promise to transcend the mouse-menu interfaces that have dominated computer-aided design for the past two decades. New models for computer-based collaboration and communication in design are enabling designers to work more closely with colleagues and clients across the world. Advances in simulating non-visual aspects of building performance, and methods for storing, organizing, and accessing this information enable designers to more accurately predict the character of designs before they are built. Bridging the virtual-physical gap, too, architects are designing buildings for institutions (education, government, commerce, play) that call for a cyberspace component as well. The materials and means of building construction are changing, as it becomes possible to embed large numbers of networked microprocessors, sensors, and actuators in materials and components of buildings. Design computing embraces these dramatic changes in the forms and processes of architectural design. Through common ideals and technologies, this area will be an important and path-breaking bridge between the Arts and Architecture.

### **3.1.6 The whole is greater than the sum of its parts**

The areas described above will act as the kernel of the Digital Arts Center. They already have many intersecting points technologically and intellectually and continue create new challenges for artists, students, and audiences. In other

institutions where these areas have evolved, they often are initiated and maintained in isolation from one another. We believe that our vision of a fertile interaction among these fields that fosters broad and deep understanding will strengthen each of these separate disciplines. At the same time our emphasis on interplay and convergence opens opportunities for new forms of art to grow in a synergistic environment.

### **3.2 EDUCATION**

The Center will provide a challenging curriculum of courses, seminars, and colloquia. Students will be immersed as primary creators and researchers of new artwork and pioneering technologies.

#### **3.2.1 Graduate Education**

Our goal is to develop Masters and PhD tracks in Digital Arts while also providing new courses and research opportunities to students who are pursuing degrees in existing areas across the UW. Initially, the students entering the graduate degree programs will mostly come from undergraduate backgrounds in existing areas of Art, Music, Drama, Engineering, and Architecture. This will be a highly competitive graduate program and we will expect incoming students to have a foundation of training in digital arts technologies. Eventually graduate students will also come to us via undergraduate Digital Arts programs as these proliferate nationally. Students in this program will themselves be pioneers, raising the bar of innovation and excellence along with faculty in the program. Students may concentrate in a specific area of the Digital Arts, but the program and its courses will be designed so that all will participate in cross-disciplinary study and research. By the end of the Master's program they will have knowledge and expertise in a wide area of art practice and thought as well as an understanding of new technologies. At the PhD level, our students will be making important contributions to art and technology in the international arena.

The development of a PhD is especially important to the Fine Arts and Architecture where the terminal degrees are now the Master of Fine Arts and the Master of Arts respectively. It will give students the opportunity to immerse themselves in a complex subject area that requires a more lengthy term of experiential learning in order to achieve excellence. In Music the terminal degree for composers is the Doctor of Musical Arts and those who primarily focus on Computer Music usually spend 4-6 years in masters and doctoral programs combined. Compared with the highly esteemed Engineering PhD and Music DMA, the 2-year MFA that exists at the UW School of Art and most other arts institutions nationally, it is clear that fine artists are not spending the equivalent amount of time as students gaining expertise in areas that involve advanced technologies. The PhD program will make possible an educational environment made up of students from all areas who are on an equal basis in terms of their level of graduate study. Thus the PhD is an essential component in the collaboration between Arts and Engineering that is a key part of the Digital Arts Center. The program will be comprised of advanced students across the spectrum of disciplines and this will deeply strengthen the collaboration. We envision a close and powerful community of doctoral students putting their talents together to create new genres while creating strong relationships that will last long after the completion of their degrees. We expect that these students will be able to attain national reputations for their original research and creative work while still in school enhancing their own career prospects as well as the reputation of the UW.

#### **3.2.2 Undergraduate Education**

A Bachelor's Degree in Digital Arts will also be developed as an important component of the program. The need for such a program can be well documented. Increasing numbers of students who want to pursue studies in the Arts find that the traditional disciplines do not allow them to develop the breadth and depth with regard to technology-based art. Some of these students now decide upon an existing degree track, some do not pursue an arts degree; some opt for the UW's General Studies program. A BA in Digital Arts will allow students to concentrate on subjects such as Computer Animation, Digital Video, Computer Music, Interactive Environments or combination of these.

Digital Arts courses at the undergraduate level will serve not only undergraduate majors in the new degree program but equally students from across the arts and engineering. Models of this are already in place and producing wonderful results. The CSE series of Computer Animations courses have students from CSE, Art, Music, and Architecture, producing theater quality animated films. A year-long series of courses in Computer Music regularly attracts students from diverse parts of the campus. These courses have arts students learning to program computers and engineering students learning about the abstractions of contemporary art-music. Both these sets of courses have heavy amounts of lab work which brings together students outside of class-time to work and learn from one another.

We expect that both the Digital Arts program and the courses it will offer will be extremely popular. The Computer Animation and Computer Music courses are already evidence of this, as are digital media based courses offered in Art and Architecture. By combining current faculty with new hires, post-docs, and graduate students made possible through the UIF and the ATI, we will be able to offer a comprehensive curriculum for majors as well as access to students majoring in other areas, especially, though not limited to the Arts, Engineering, and Architecture.

### **3.2.3 Senior Capstone Courses**

The diversity of expertise represented by the faculty in the Digital Arts Center lends itself to a unique undergraduate possibility – the Senior Capstone seminar. This course, which would be populated by graduating seniors would be team-taught by one or more Digital Arts faculty (or faculty from other areas) and graduate TA's. The course content would be centered on an actual ongoing project/research initiative represented by the teaching faculty, and would expose undergraduates to advanced research methodology in the arts. Since the research project taken as the object of study would still be “live” (ongoing), undergraduates would be directly exposed to interdisciplinary research and the process creative decision making in action. For undergraduate seniors about to embark on their careers or further graduate work, this open-ended case study would provide an invaluable and dynamic example of applied interdisciplinary research.

## **4. PERSONNEL AND ADMINISTRATION**

We have a team of individual leaders in the Arts, Engineering, and Architecture who have begun working to create a unified multidisciplinary program. There is a shared sense of urgency among this group that now is the time to take the next step.

The proposed program will have a Director, an Associate Director and an Advisory Committee. The Director will be Richard Karpen, Professor of Music Composition and Computer Music and Director of CARTAH. The Associate Director will be identified from either the Advisory Committee or one of the new hires.

The Advisory Committee is comprised of artists, engineers, and designers: Professor Les Atlas (Electrical Engineering, Associate Chair for Research), Professor Paul Berger (Art: Photography), Professor Mark Gross (Architecture: Design Computing), Mark Harrison (Drama: Directing), Professor Edward Lazowska, (Chair, Computer Science and Engineering), Barbara Mones, (CSE: Computer Animation), Professor Diane Thome (Music: Composition).

UIF support will add four new faculty in key areas of the Arts as well as two post-doctoral research associates, and a Visiting Professor position. Perhaps as important as the faculty is the Center's technical and administrative support staff. The UIF will support at least one technician to keep the facility running and the technology up to the high standards needed for this enterprise. One administrator will be needed to process budgets, grants, gifts, and personnel. The new staff will join together with the current staff of CARTAH to create an excellent backbone of technical support. In addition, a number of TA/GSA positions, will join the post-doctoral researchers/artists, visiting professors, and permanent faculty to enrich the collaborative and creative environment of the Digital Arts Center.

Newly hired faculty will have their appointments in existing academic units, with commitments of at least 50% their time to the Center. The search committees for these positions will be comprised of members of the Digital Arts Advisory Committee and members of the faculty of the home departments.

### **4.1.1 Specifications for new positions**

#### **Faculty:**

- Computer Music Composition and Sound Art – expertise as a creator of innovative new works of computer music and sound art; a research record in Digital Signal Processing and Computer Applications design and programming with knowledge of Psychoacoustics and Physical Acoustics.
- Digital Video and Computer Animation – expertise as a creator of innovative new works that feature digital video and computer animation in different settings such as fixed theatrical projection, installations, website and internet telepresence.
- Theater Sound Design – expertise in all aspects of sound in a live theater setting, museum and gallery installations, and film sound foley. In addition, knowledge of sound spatialization in real and virtual spaces.
- Interdisciplinary Digital Artist/Designer (an individual who is already forging new genres that fuse several disciplines at high levels of expertise in each).

#### • **Visiting positions:**

- Two Postdoctoral teaching/research appointments – these will rotate between the various areas cited above.
- Visiting Professor – visiting senior artists and researchers from Digital Arts disciplines.

#### • **Staff:**

- 1 FTE Technical Coordinator – An individual with specific knowledge of audio/visual digital and analog technologies. Computers are the main hardware used in the Digital Arts, but peripheral and non-digital electronic devices are an important part of the technologies employed in the creation of new works and in our cutting-edge research. One additional technical position will be needed in time.
- 1 FTE Program Coordinator.

#### **TA's/GSA's (6):**

These graduate student positions are extremely important to the success of the Center and its degree programs. Graduate students will play a major role in the research and educational missions. The courses we teach in the Digital Arts are intensive and challenging, requiring significant amounts of laboratory work. TA's are an essential part of the equation in these kinds of courses. They significantly improve the learning curve of complex technologies in arts settings. Being a TA in these kinds of courses is also one of the best ways for advanced graduate students to more fully learn their disciplines. Some graduate students will also be appointed as GSA's and they will help run the laboratories by helping to maintain and run the hardware and software used in the Center. An important part of all Digital Artists' education is to learn how to manage a digital studio or laboratory. GSA's who have worked at CARTAH over the past years in this capacity have landed some of the best jobs as professors nationally as well as garnering fellowships for work abroad. Their successes can be tied directly to their work as Digital Arts TA/GSA's under our current *ad hoc* programs. The success of these programs is also tied directly to having graduate students employed in TA and GSA roles.

### **5. SPACE – RESEARCH FACILITIES AND OFFICES**

New space will house experimental laboratories and studios as well as faculty and staff offices. Digital Arts studios and labs have unique requirements. The UIF will make it possible to design the state-of-the-art labs and small studios that will be the foundation of the Center. The College of Arts and Sciences is making available approximately 4800SqFt in Raitt Hall (see attached letter and blueprints).

### **6. LEVERAGING OTHER SOURCES OF FUNDING**

The Digital Arts Center will be in an excellent position to gain access to funding sources usually not available in the Arts. The strong base provided through UIF will be excellent leverage in our efforts to attract funding from government agencies, private foundations, corporations, and individuals. Integral to this proposal is the recognition that the Digital Arts Center and its degree programs will need to grow over the coming years to meet our own and other's expectations for the future and we expect to do much of this with external funding.

We already have had success in garnering support from the digital technologies industry. The ARL and CARTAH have both been the recipient of significant equipment and software donations from SGI, Intel, Apple, Mackie Designs, and other companies. Our current connections with important companies with natural affinities to the Digital Arts bode well for the future.

EE and CSE faculty have relationships with potential industry digital media partners like Dolby Labs, Real Networks, and Microsoft. The Digital Arts Center would provide the faculty from those departments testbeds and demonstrations to enhance their relation with these industry partners.

The College of Arts and Sciences already has a Campaign for the Arts in progress with Arts Technology as one of its targeted areas. The Digital Arts Center will become a natural focus of development in this campaign.

### **7. PHASING IN OF THE CENTER AND THE DEGREE PROGRAMS**

We plan to take quick action towards realizing our goals. In some areas we are ready to hit the ground running. For example, the Tools for Transformation pilot project has worked so well that we foresee a seamless continuation of the activities it has enabled as that source of funding ends and the new UIF resources are made available. The outstanding post-docs and staff we have been able to bring to the UW under the Tools project have made significant positive contributions to the Digital Arts at the UW. Some of them will stay while we set the stage for international faculty searches, application for the degree programs, detailed development of curricula, and preparation of the new facilities. The Tools project has given us much momentum and we want to maintain this level during the initial period of the new Center. We will also immediately engage in outreach to the community and industry to spread the word that the UW is headed towards center stage in the international arena of Digital Arts. Again, our current momentum will allow us to do this right away. We see the entire enterprise as being very public and it is important to us that this is part of our profile from the outset.

## **7.1 SPECIFIC STEPS**

### **Academic year 2001-2002**

- International faculty searches will begin in Autumn 2001 with the expectation of having new faculty members join us in Autumn 2002. Current activities and courses, now being supported by ATI and Tools funds will continue during this transitional period.
- Plans for renovation of space will be completed by Winter 2002 with work beginning in Summer 2002.
- Proposals for new degree programs will be developed and formally submitted (we have already taken the initial step of officially declaring to the Regents our intentions to develop BA, MA, and PhD programs in Digital Arts).
- A Visiting Committee will be assembled comprised of individuals from industry and the local arts community.
- First applications to public and private foundations for program support will be submitted.

### **Academic year 2002-2003**

- New faculty arrive. In their first year much of their time will be spent working with the entire team to further develop the research and educational missions of the Center. They will play a major role in developing curricula as well as in other important aspects creating the Center.
- New course proposals submitted formally as Digital Arts courses.
- First Post-docs and Visiting Professors come to the UW. All will participate in research as well as teaching.
- New courses offered in each of the core areas at undergraduate and graduate levels as well as interdisciplinary courses, team-taught by two or more of the core team by Spring 2003.
- Renovation of the space completed by Spring 2003 with move-in during Summer 2003.
- Approval of degree programs by Spring 2003.

### **Academic year 2003-2004**

- Applications by prospective graduate students for the MA and PhD solicited beginning in Fall 2003.
- Applications to public and private foundations to support specific research projects.

### **Academic year 2004-2005**

- First group of new Digital Arts MA and PhD students arrive.
- First declaration as Digital Arts Majors by undergraduate students.

## **7.2 Beyond 2005**

By 2005 we expect the Digital Arts Center to be an outstanding success. It will be established as one of the leading centers for Digital Arts internationally. Our accomplishments will enable us to garner new outside funding to keep up with the growing popularity of the Digital Arts. Not far into the future, artists of international stature both in and out of academia will have graduated from one of our degree programs in the Digital Arts. Impact upon UW students and faculty beyond the Center will also be of increasing significance as more arts disciplines embrace new technologies and more areas seek interactions with the arts based on the excellence of our programs and the convergence of ideals and expanding possibilities for collaboration. For example, areas in the Arts such as Dance, Creative Writing, and New Digital Performance Arts and areas of the sciences such as Physics, Mathematics, Genetics, and Psychology could be more directly involved in the research and educational missions of the Center. Promising connections between some of these areas have already begun to take place and these will become more viable and exciting.

## **8. CONCLUSION: OUTLOOK FOR THE FUTURE**

With an eye towards past and current experience, we feel that we have created a vision that will bring to the UW one of the preeminent programs in a future-oriented area of human expression. We are confident that we can realize that vision if this proposal is funded. Accomplished and entrepreneurial faculty and students have laid the foundation. UIF support will build on this to construct a world-class Center for Digital Arts at the University of Washington, one that powerfully integrates the participating colleges and departments, expands their scope and depth, and defines a new era in the arts.