The HASTAC Vision:

Humanities, Arts, Science, and Technology Advanced Collaboratory

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HASTAC: Humanities, Arts, Science, and Technology Advanced Collaboratory

Executive Summary

HASTAC ("Haystack") is a consortium of humanists, artists, scientists, and engineers from the nation’s leading institutions dedicated to working together to develop innovative computing and information systems that support interdisciplinary research and teaching in the humanities and arts.

HASTAC’s vision of the humanities is problem- or issue-based and collaborative in nature. It extends the specialized knowledge produced by the traditional humanistic fields across disciplines, historical periods, and regions. The questions researchers are asking are increasingly complex and intertwine issues of biology, geography, the environment, technology, the arts, humanities, and social sciences. Legal, ethical, social, historical, and aesthetic issues must also be carefully considered as we expand our capacities for accumulating and analyzing data and as we push the boundaries of science and what it means to be human. To these ends we seek visionary information and communications tools and methods.

As a flexible and dedicated consortium, HASTAC fosters and supports projects of the broadest scale and the timeliest impact. HASTAC projects:

(1) are driven by intellectual merit and create new knowledge with wide-ranging consequences for the fields involved as well as for the larger society;

(2) devise useful and creative searching, management, visualization, and communications tools that make new information available to specialist researchers, earlier levels of formal education, and informal public education resources such as the Internet, television, libraries;

(3) establish and ensure synchronous, multi-user access to large, complex, and dynamic cross-disciplinary and multi-media data sets;

(4) create new networks of interdisciplinary researchers capable of collaborating, from inception to implementation, across the barriers of our respective institutional differences, technical languages, and varied domains of expert knowledge;

(5) use these high-visibility projects to transform teaching and research in the humanities, arts, sciences, and technology.

HASTAC propels collaboration to a new multi-institutional level. Headed by the leaders in humanities-technology collaboration, HASTAC commands academic attention, and harnesses the prestige and existing infrastructure of top universities, industry, foundations, and government. This leadership team is expert in managing and facilitating interdisciplinary collaboration, and several illustrative projects are already underway.

By generating new funding opportunities and reward systems for multi-author and multi-disciplinary projects, HASTAC will compel universities and funders to take note of this new model of scholarship. As an integral part of this process, the HASTAC collaborative will develop, test, and disseminate a new set of best practices in humanities, arts, science, and technology research and teaching.

This new vision of the humanities has been elaborated by two of HASTAC’s founders, Cathy N. Davidson (Vice Provost for Interdisciplinary Studies at Duke University, co-founder of the John Hope Franklin Humanities Institute, and Ruth F. DeVarney Professor of English at Duke University) and David Theo Goldberg (Director of the University of California Humanities Research Institute and Professor of African-American Studies and of Criminology, Law, and Society at the University of California at Irvine). Cf. “Why We Need the Humanities Now: A Manifesto for the Humanities in a Technological Age” (Chronicle of Higher Education Review, Feb. 13, 2004).
THE CHALLENGES

The first wave of the IT revolution has transformed the production, gathering, and circulation of information in all academic fields. The questions researchers are asking are increasingly complex and intertwine issues of biology, geography, the environment, technology, the arts, humanities, and social sciences. Legal, ethical, social, historical, and aesthetic issues must also be carefully considered as we expand our capacities for accumulating and analyzing data and as we push the boundaries of science and what it means to be human. On the technology side, new challenges arise as developers deal with the unpredictable uses to which tools end up being put by actual communities of users. The success of subsequent waves of the information revolution will depend upon technology’s ability to grapple with the fundamental complexity and ambiguity of culture, communication, and social interaction.

No single academic discipline or point of view is sufficient to comprehend all the implications of this evolution. Yet in order to bring together the relevant perspectives, these critical needs must be addressed:

- more and better **collaboration** with colleagues **across distance, time, and discipline**;
- **better technological tools** in order to facilitate this collaboration;
- **a rethinking of the traditional insular, craft-based models** that have prevailed in humanities disciplines; and
- **a new generation of scholars**: humanities scholars who value and are expert in dialogue with the most advanced work in technology development, and scientists and technologists who value and are expert in dialogue with the content-rich environment provided by advanced humanities research.

An example is useful here to illustrate the computational challenges presented by humanists and artists. The charge to the American Council of Learned Society’s 2004 commission, “Cyberinfrastructure and the Humanities,” notes that the Sloan Digital Sky Survey (SDSS)—which includes millions of x-ray, infrared, and visible light images of over a hundred million celestial objects—entails over 40 terabytes of information. The SDSS is the most ambitious astronomical survey project ever undertaken. It maps one-quarter of the entire sky and measures the distances to more than a million galaxies and quasars. Yet that scale is small relative to many posed by the next phase of humanities digitization. By point of comparison, we note that the Survivors of the Shoah Project is a compilation of 52,000 video interviews of Holocaust survivors, representing thirty-two languages and fifty-six countries. This project uses over 180 terabytes of memory.

A comparison of these two projects underscores other challenges presented by the nature of humanistic and artistic content. Both the SDSS and the Survivors of the Shoah projects require innovative science in order to index, sort, analyze, and preserve these datasets in their most subtle and useful ways for future researchers. In the case of the Shoah project, a public education component requires reliable, easy, user-friendly applications that also pose disturbing questions ranging from the exposure of children to violent and horrifying testimony to the potential for these archives to be used for unethical purposes. Privacy, identity, and intellectual property also need to be considered. As more and more of our lives are digitized, these are exactly the complex human problems—moral, psychological, and social—that arise. These questions are the interactive domains of the humanities and of next-generation science.

Politicians have recently complained about the demise of knowledge among American citizens of the country’s history. In response, Congress has funded the “We the People” project through the National Endowment of the Humanities. Visualization and innovative efforts that go beyond the current text-based
knowledge distribution system in the humanities will likely do more for making historical knowledge broadly and excitingly accessible to large groups of people from younger ages than texts alone have been able to do to date.

THE SOLUTIONS

HASTAC’s vision of the humanities is problem- or issue-based and collaborative in nature. This is an expansive, interdisciplinary version of the humanities which demands the incorporation of goals of “knowledge for its own sake” with the goals of “knowledge with a purpose.” HASTAC (“Haystack”) insists that we understand not only the product but also the process of collaborative invention, its applications and environmental impact. For we believe that by analyzing social and environmental impacts of past and present technologies, we can help create better technologies for the future, and better users of those technologies.

This vision seeks to extend the specialized knowledge produced by the traditional humanistic fields across disciplines, historical periods, and regions. It demands innovative information and communications tools and analytical methods. Under the guidance of leading researchers, HASTAC collaborations will identify major research projects that have broad impact and draw on key issues and cutting-edge knowledge in literature, history, art, music, archeology, classics, languages, philosophy, anthropology, sociology, and political science as well as the interdisciplinary formations of religious, ethnic, gender, and cultural studies.

Inspired by the questions that humanists and artists ask, projects will be structured to design new, innovative automated data acquisition, synchronization, registration, retrieval, and communication tools and integration portals. These new tools will allow the integration of data never before brought together, extending far beyond traditional texts and images to include buildings, caves, landscapes and archeological sites, sculptures and other representations of three-dimensional objects, paintings, recordings, movies and oral history videos, as well as all other forms of human creativity. The sheer volume of materials being produced and archived since the rise of media such as photography, film, television, recorded sound, video, and the like renders untenable the traditional, purely “accumulative” approaches to conservation and study. The media in question are themselves often volatile and not everything can be saved at the same level of conservation. Well-informed and farsighted judgments regarding such challenges must be made and will be an integral part of the work on each project.

Researchers will be able to fuse information about the environment (climate, topography, watersheds, vegetation) to archeological, linguistic, and sociological evidence of migration patterns and trade routes (whether by camel, ship, or internet). Military and social histories could also be overlaid onto the emerging picture, as well as achievements, and artifacts, the development and dispersion of religions, and literary, philosophical, and artist productions. These new technological developments will enable both pinpoint specificity and overviews that could be generalized to parallel or contrasting circumstances with profound implications and in ways not even imaginable to previous generations of scholars. Whether

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studying Machu Picchu or ancient Hyderabad, the Old Silk Road or Middle Passage, Renaissance Florence or contemporary L.A., the biblical Near East or the modern Middle East, researchers will be able to make new inferences about how cultures have evolved, test theories of why certain cultures, regions, or religions have flourished and others fallen throughout time, and to determine the consequences of this historical understanding for the geopolitics of the way people live and behave today.

The next phase of cyber-humanities we envision here will change how we know and teach the humanities, how we create and preserve artistic works and all our cultural heritage, how we conceive of the next generation of computational science, and most crucially how we understand the nation’s relations to the complex world and its regions in which we are embedded. It will also see fundamental transformations in the ways in which knowledge is produced. Whereas humanities research and training have long been based upon and individualized model of scholarship, the digital present and future call for new models of collaboration, multiple authorship, and hands-on training that will contribute to a closing of the gap between disciplinary practices in the humanities, sciences, and social sciences.

HASTAC is thus, appropriately, committed to cultural and technological discovery across the disciplines, but it is also committed to cultural change within the humanities in particular. Scientists have long worked together on interdisciplinary research teams that bring together varied expertise for a collective good. The problems of the humanities are at least as complex as those in the sciences and require the same integration of highly specialized knowledge. Most humanists work on both individual, monographic projects of a highly specialized nature and, simultaneously, on complex, multi-authored, multi-disciplinary collaborative work. But the humanities do not yet have reward systems for the latter kinds of work nor are there sufficient funding mechanisms to support these massive products. HASTAC is dedicated to supporting a cultural change within the humanities by creating examples and guidelines for how collaboration can be accomplished, judged, and rewarded.

Like the Survivors of the Shoah project, the new humanities projects require massive technological and scientific support to realize their full potential. To accomplish this massive task of visualizing and sonifying, accessing and communicating the foundational archives of the humanities and arts requires the joint effort and support of academe, industry, and government agencies. Within funding agencies and corporations, HASTAC seeks to engender recognition of the vast potential of the new humanities to address problems with a scope barely imagined to this point. It is worth our investment.

Finally, given the distinctively human character of data in the humanities and arts, HASTAC seeks not just intelligent technological tools but ethical ones as well, which factor in crucial social understandings and sensitivities. Ultimately, such projects will bring an up-to-date humanities perspective and state-of-the-art technological solutions to bear on the most pressing debates of our era regarding such matters as the environment, bioethics, social justice, poverty, security and peace, and globalization.

LEADERSHIP

After only a year in existence, HASTAC already commands academic attention. HASTAC has been functioning as a virtual collaboration since early 2003, headed by the leaders in humanities-technology collaboration. These are internationally renowned scholars who have proven themselves in the traditional sense of scholarship. They are experts as well at managing complex, multi-faceted, overlapping and simultaneous collaborations, and have devoted considerable effort to developing this new model of scholarship and demonstrating that it can work. In fact, several illustrative projects are already underway. The leadership team and projects are described in the appendices.
HASTAC'S AMBITIONS

HASTAC seeks to make significant contributions to new knowledge generation. Driven by intellectual merit and the potential for wide-ranging consequences for the fields involved as well as the larger society, project-oriented collaborations will create, collect, analyze, and communicate data and new knowledge. Projects will adapt or develop technological instruments of data production, gathering, dissemination, and certification. We are convinced the contributions of these interdisciplinary interactions between scientists, humanists, artists, and technologists will transform knowledge creation with broad impact as much on science and technology as on the humanities and arts. We foresee these broad impacts both at the level of research and pedagogy.

In line with its vision of distributed, technology-enabled collaborative research, HASTAC prefers a virtual organization model in lieu of a central physical structure. While HASTAC partners have and will continue to contribute available resources at each of their home institutions, HASTAC is seeking significant project-oriented external funding. It also seeks financial support for a few important centralized services, such as a main Internet portal, a web-cast seminar series open to HASTAC members as well as the general public, annual meetings, a national fellowship competition to aid in promoting prestige and recognition for this new model of scholarship, and assessment and dissemination of best practices.

HASTAC has four concrete goals: creating and communicating new knowledge and technologies, educating the next generation of scholars and the general public, and transforming institutions.

I. Creating

First and foremost, HASTAC is dedicated to creating new knowledge in humanities domains and fields based on vigorous interactive interdisciplinary scholarship, both within the humanities and between the humanities, sciences, arts, and technology. Working in such collaborative teams, for example, UCLA archaeologists have created a virtual 3D, historically accurate interactive reenactment of the heart of imperial Rome, using historical descriptions, contemporary texts, and images on Roman coins. The model has already facilitated the discovery that the building interior Julius Caesar commissioned for the Senate was unusually and consistently dark. This will likely also lead to revised interpretations of some historical texts previously thought settled, thus dramatically reinvigorating fields of study. The model, designed primarily for pedagogical purposes, can also enable visualization of historical periods for knowledge gathering as well as for writing accurate historical novels. HASTAC projects will also use new information technologies to open up dynamic objects of study in the humanities.

Appendix A showcases ten research projects that exemplify the diversity of the research HASTAC proposes. Several of these projects are already under way at HASTAC institutions. Some have already been pursued on the humanities and arts side but seek funding for scientific and technical applications that will have transformative impact on both the projects and the ways in which they will be communicated to other researchers and to the public. Other projects were chosen to illustrate how the melding of science, humanities, and the arts might be applied in intriguing ways that will tantalize the imagination of potential collaborators, funders, and other partners and reveal what we mean by “next generation” HASTAC thinking. (Please read Appendix A.)

Simultaneously, HASTAC is committed to advancing the creation of innovative information technology solutions in the service of humanities and the arts. In particular:

• We envisage interactive search engines for textual, visual, and sonic materials.
• We see a need for accurate and speedy, even simultaneous transcription programs from voice to text, and text to audio.
• We are committed to sophisticated translation programs between multiple languages, sensitive to cultural nuance, metaphor, and linguistic emphasis.
• We are at work designing and refining user-sensitive software applications for multi-collaborators to work simultaneously in creating interactive products consisting of text, visuals, and sound either from scratch or by using already existing materials.
• We are examining self-defining platforms to host interactive virtual working groups and research seminars, the members of which are located at distributed sites across the world,
• And we are in the process of fashioning virtual museums of significant cultural collections of materials.

II. Communicating

In order for any of HASTAC’s projects to be successful, we need to develop not only state of the art computational and information gathering technologies but also next-generation communication technologies. We need to arrive at standardized procedures for data sharing. All of these projects require daily, synchronous and asynchronous multi-site and multi-user communication. The primary HASTAC sites already have some access to high-speed broadband channels such as the Internet2, TeraGrid, AccessGrid, etc., but most need better hardware and software applications of visualization technologies such as “The Cave” or “ImmersaDesk,” as well as infrastructure for videoconferencing, web streaming, and grid communication.

HASTAC will also develop better communication software that can be used on existing Internet platforms. For example, at Stanford University’s Humanities Lab, a HASTAC institution, faculty and students are developing Traumwerk, a web-based collaborative authoring environment for exploring classical issues in the humanities. Traumwerk (in reference to Freud’s notion of dream-work) is a browser-based authoring tool that allows single and multiple users collaboratively and quickly to compose hypermedia with minimal advanced technical expertise. Developed to address the needs of archeologists, utilizing Traumwerk enables researchers more easily to visualize hypothetical situations and developments, test reconstructions of partial, fragmentary, and even decayed remains, and compare different viewpoints and knowledge bases. The implications of this new technology for archeological documentation and teaching include the ability to combine and link digital images of primary texts and artifacts, maps, datasets, text, audio and image-based narrative. In effect, Traumwerk introduces more rigorously empirical methods into archeological and historical research.

Additionally, in order to measure explicit and implicit benefits and burdens of these new communications systems, HASTAC participants are expected to keep detailed logs of their use of these technologies, accountings of all of the costs (human, hardware, software, licensing, administrative) of using the technology, and public tabulations of these expenditures.

One of HASTAC’s founding members is the editor of Vectors: Journal of Culture and Technology in a Dynamic Vernacular, hosted by the Institute for Multimedia Literacy at the University of Southern California. HASTAC projects will be published in creative and innovative ways in this refereed electronic journal dedicated to expanding the potentials of academic publication via emergent and transitional media. The journal brings together visionary thinkers with cutting-edge designers and media artists to propose a thorough rethinking of the dynamic relationship of form to content, focusing on the ways technology shapes, transforms or reconfigures social and cultural relations.
HASTAC will develop a central portal, likely called www.HASTAC.net, which will connect to the web sites of member institutions and projects. The portal will also serve to showcase projects and programs, best practices, and other HASTAC events and activities to HASTAC members, other scholars, and the public.

To share the products of its activities, HASTAC will develop web-cast seminar series for its participant members and interested members of the public on cyber-humanities and new technologies. Also in support of the network of member organizations, HASTAC will hold an annual conference demonstrating the progress on its projects: offering panels on their content and progress, the computational science, and the administration (collaboration) required to create the projects.

III. Educating

In all it does, HASTAC ultimately seeks to pave the way for new scholarship and a new generation of scholars—today’s school children, college undergraduates, graduate students, and recent PhDs. The Woodrow Wilson National Fellowship Foundation, a HASTAC member, is exploring a HASTAC initiative to create a new fellowship model for graduate and postdoctoral students in the humanities and social sciences—working with peers in the sciences—whose work is impacted by and has significant impact on information and computing systems.

Graduate fellowships would be multi-year programs at principal HASTAC sites. Graduate fellows would develop a plan of study culminating in their dissertation, and which would include collaborative, multi-disciplinary, technology-rich work under the guidance of a two senior faculty leads, one in the fellow’s discipline, and one in science/technology. As part of the fellowship, students would spend two summers at partner HASTAC institutions, working with peers and faculty in different disciplines. The fellowship would also require that the development of new technologies, essential for the work, would count toward the degree.

Postdoctoral fellowships would be multi-year, multi-site programs that place young researchers with specific ongoing projects under the direction of two senior faculty principle investigators, one in the fellow’s discipline, and one in science/technology. Both programs will also bring fellows together occasionally, with their mentors, either virtually on in person, to share ideas. The postdoc model, familiar from the sciences, is almost non-existent in the humanities. Postdoc positions in the humanities have generally functioned as a fallback for recent PhDs who were unsuccessful on the job market, and have failed to develop into a distinctive model of prestigious early career development. The proposed models would not only support younger scholars who are working along the edges of the humanities-technology divide, but would provide a context for work that is rarely supported by traditional departmental structures. A separate paper will be circulated by mid-April and will be available by request.

HASTAC projects will aim to have a pedagogical component applicable for K-12 as well as multimedia education products for the general public. Interactive syllabi, downloadable lesson plans adaptable to K-12, and other features will be created in collaboration with K-12 educators in order to make our work, and the work of each more or less discrete project associated with HASTAC, available to the largest number of possible users. We will also seek educational innovators to work with our content (both at the design and at the implementation stage) to explore the most novel and exciting forms of education that can arise from this knowledge and application of the tools associated with the HASTAC community. Using gaming, virtual environments, and other technological interfaces, we believe we can transform both the classroom and the sites of life-long learning.
IV. Transforming Institutions

In contrast to the sciences, the dominant model of knowledge production and its reward structure in the humanities is individually driven, hermetic, and monographic. Namely, the single-author, peer-reviewed scholarly book is still the gold standard of the humanities reputation. Yet, a good deal of the actual work performed by humanists is collaborative and increasingly it is “published” in non-print forms. Typically, this work is counted as “service” rather than “scholarship” by evaluating committees. The rewards system of the humanities has not kept pace with the changing modes of humanities knowledge production.

HASTAC is thus dedicated to creating guidelines for participating in and evaluating new forms of collaborative, interdisciplinary scholarship and advocating for the adoption of these guidelines. We believe that changing institutional culture in this regard will have a transformative effect on the kind of scholarship humanists engage in, especially those younger humanists for whom scholarly research is already electronically-enhanced and collaborative in design.

HASTAC will create guidelines on the evaluating of collaborative, interdisciplinary, and electronic communication. Guidelines for administrators will recommend how such work should be evaluated. Guidelines for scholars will suggest how best to accomplish this kind of work without jeopardizing one’s career.

HASTAC will survey other artists, social scientists, and scientists in order to create an archive of the best practices in different fields and recommend ways that these practices can be adapted for the humanities. As HASTAC projects evolve, they too will be evaluated in this light.

In partnership with university presses, we will also sponsor a book series to produce book versions of projects that come out of our electronic projects to exemplify several convictions:

(1) Electronic information displays are not an end in themselves but facilitate new forms of knowledge; and

(2) Electronic communication complements rather than replaces traditional paper-based books. In many circumstances, both scholarly and popular, the book remains (and will remain) the best, most flexible, and accessible method of communication. HASTAC takes a particular interest in finding the best form of publication while also supporting those who do not have tenure in publishing scholarly monographs in addition to more hybrid, collaborative electronic forms of scholarly publication. This approach couples professional realism (especially for the untenured) with HASTAC’s ambition to work toward cultural change in our institutions.
APPENDIX A: TEN ILLUSTRATIVE HASTAC PROJECTS

The Sikh 3-D Virtual Museum: “THE FUTURES OF OUR PASTS: Three-Dimensional Representations of Culturally Significant Objects and their Humanistic Implications—the Case of Sikh Cultural Artifacts” (NSF application pending).

This project resolves two significant sets of challenges: the technological difficulties in creating accurate three-dimensional representations of physical objects; and the social-ethical-legal dilemmas facing the fair use of three-dimensional representations of significant art and cultural objects. Focusing on the relatively finite and contained historical collection of Sikh art and culture, we will collect, collate, and display the materials in a Virtual Museum for the purposes of advancing art, historical, cultural, and social research and education on particular cultures, and diasporic communities in general. We will be able to assess comparative studies of similar objects (their geometries, materials, and functionalities) and their evolution over time. In turn this will enable better explanations of the evolution of societies (their technologies, organization) that produced these artifacts. We will likewise be in possession of the technological expertise and materials as well as the social guidelines to apply readily to other collections of cultural materials for similar purposes. We thus see this project as constituting the cutting edge of the relation between IT and humanities research, to vigorous mutual and social benefit.

This is a highly collaborative effort between The Sikh Foundation, The Center for Information Technology Research in the Interest of Society (CITRIS) at UC Berkeley and the UC system-wide University of California Humanities Research Institute (UCHRI), located at UC Irvine, both HASTAC founding members. In addition, the Worldwide University Network (WUN) located in London will enable participation of scientists from the United Kingdom.

The Educational outreach will materialize through all the UC campuses, but also through California State University at Los Angeles, Division of Education Foundations, and the Illinois Network of Charter Schools which will serve as test-beds of integration of this material into undergraduate curricula.
The Global Body and the Virtual Cyborg. “The Global Body and the Virtual Cyborg” attaches culturally specific meanings to the universal body and relies on advanced computer technologies to move beyond the “robot” to a variable representation of the human body with enormous educational functions. The Virtual Cyborg will embody an innovative, complex rendering of the cultural determinants of human medicine.

Core ideas about the human body are foundational for research and practices in numerous fields ranging from the medical and biological sciences and cognitive neuroscience and brain imaging to artificial intelligence, human computer interaction, medical visualization, virtual surgery, cybernetics, epidemiology, genomics, gender and critical race studies, and many areas of the social sciences. The implications of this work range from the theoretical to the life saving:

- **Organ donation:** It is well known that every culture and subculture has a different idea about the importance or morality of organ donation. The Global Body would provide specificity: Is a kidney transplant the same thing in each culture? What are the varied functions kidneys are thought to have in the entire body system in Western and in Chinese medicine, for example? How are the treatments for kidney transplants currently geared to these larger medical understandings?

- **Taboo:** We know that every culture has its taboos. In the same Super Bowl with Viagra ads and scantily clad cheerleaders, we all know the national "crisis" that occurred when Janet Jackson's entire breast was briefly revealed. In other cultures and religious traditions, the bottoms of the feet or the top of the head are similarly loaded with (sometimes contradictory) significance. How do social issues and inequalities inform and generate local taboos?

- **Cognitive Neuroscience:** The brain/mind/culture continuum. In both popular Western culture and in medical practice, ideas of what functions we assign to the "left" and "right" brain are essential. Yet in cultures where language is acquired calligraphically (Japan for example), stroke victims lose different language functions compared to victims in cultures where language is learned through oral/aural repetition and memorization. Our Global Body would map these different brain-area assignments and operate our Virtual Cyborg accordingly, allowing new insights into the relationship between physiology and environment that is currently at the center of medical as well as theoretical debates and innovations.

- **Disease:** How diseases spread and how they are treated are not only questions of central concern for immunologists and epidemiologists but also for cultural theorists. For example, the lack of success in stopping the world-wide AIDS crisis has tragically and poignantly shown us that disease prevention and cure is cultural as much as it is genetic or viral. Crucial factors are fears, taboos, superstitions about transmission, political and policy obstacles, legal proscriptions, etc.

The Virtual Cyborg will function as an educational tool for researchers, medical students, pharmaceutical companies, physician practitioners, museumgoers, and school children. A multi-authored scholarly monograph will also be produced, and course plans in several fields, scientific databases, and public displays.

The initial discovery portion of this project is already underway in programs like Duke University’s Genome Ethics, Law, and Policy and at several other HASTAC institutions. We are now seeking significantly higher levels of funding for this project in order that, in 2006-2007, we can carry out a multi-site residency where humanists, artists, social scientists, and physical and natural scientists will combine their conceptualizations and create the virtual cyborg.
Mapping Virtual and Real Diasporic Communities. Long before most scholars were using the Internet, Nigerian exiles were using email to communicate, to track one another’s relocations, and to maintain a virtual community. Email, websites, list serves, and other “born digital” correspondence is the only historical record we have of these movements, of the ways the internet preserved community across distance, poverty, political oppression, and secrecy. More to the point, almost no work has been done tying virtual communities to actual movements of humans. This project would build on the datasets of minority populations at the University of Maryland and the massive data gathering and manipulation possibilities of the Shoah Project. It would involve community-based participants working together, identifying community members, and creating virtual maps and virtual genealogies based on both electronic and actual communities. It could be expanded to include as many national groups as possible. The outreach potential of this project is vast as HASTAC will create an interactive site with templates that would allow communities to conduct their own oral history investigations and contribute to the Project.

African American World Music: The Genome Project of African American Music. Indisputably, African American music has had the single greatest impact on the development of popular and classical world music in the long twentieth century. What, exactly, does that mean? This project would include the sonification of the vast archive of African American music and its worldwide influence—through Cuba, Africa, Latin America, Europe, and even Asia. It would also require creating electronic notation systems in order to study such matters as improvisation. Current attempts at using conventional notation systems to transcribe improvisation fail from lack of flexibility. Musicians working with AI scientists, game theorists, and others can create a far more useful system that could interface with the musical data base to understand the impact of improvisation as well as rhythm, beats, musical patterns, tones, and other features.

The New Ancient World. One of the most exciting developments in scholarship of the pre-modern world is the creation of an entirely new map of ancient trade, missionary, artistic, military, and commercial routes and a different understanding of the hybridity of the ancient and medieval worlds. This project would create new maps of these worlds, coupled with environmental data of the era, to understand the conditions that prompted migration, the cultural products of that migration, the concept of extended nationhood (empire), the permutations of religious practice (Indian Christianity versus Irish Catholicism), and the multi-dimensional influence of art, music, literature, theater, and other forms of cultural production. Of crucial importance would be the synchronization of specialized learning of ancient worlds as practiced by those in the particular nation under study. Indian scholarship on ancient India, for example, has different founding assumptions than Western scholarship on the West’s “influence on” South Asia. This would be a truly global collaboration whose purpose would be the creation of a new cultural map of the ancient world and, as well, a new map of the intellectual terrain, theories, and nationalist assumptions by which the ancient world is studied.

We note, for illustrative purposes, that HASTAC will prompt and encourage project leaders to design data- and user-interfaces into these three projects, for example, making possible a subsequent integration of various aspects from each project.
Hemispheric Institute of Performance and Politics. At NYU, scholars of anthropology, the performing arts, and cultural studies use web-based networks across the Americas to create team-taught courses and collaborative research projects with professors in Latin America. Their scholarship and classes explore the role of expressive behavior (performance) in social and political life. Whether studying parades or rituals, spirots or theater, in the pre-Columbian era or the present, the Hemispheric Institute is dedicated to using technology to preserve complex forms of intangible cultural heritage. Small fellowships fund student and faculty researchers who can study and also digitally capture customs, performances, and rituals and preserve those in digital archives that become the resources for other students, teachers, and scholars. The archives serve also as a living museum of performative practices across the Americas, an interactive syllabus, and as a record for future generations. The Hemispheric Institute hosts on-line, curatorial spaces that are multi-media, multi-lingual, and multi-national. What is still required, however, are search and browsing tools that will make the enormous quantity of performance data more useful, structured so that it can be integrated into other databases, and contiguous with object-based and text-based archives covering the same or complementary research topics.

Historical Geography in Action: Linking Information Technology to Urban Planning Policies. The collaboration brings together visual artists, librarians, historians, urban planners, with research scientists and engineers At the San Diego Supercomputing Center to analyze the lingering impact of historical policies on urban housing. The practice of “redlining” (institutionalized racial zoning, devised in the 1930s under various FDR New Deal initiatives) is visualized across time using GIS mapping, interactive 3D models, and data grid environments to support persistent archives and distributed repositories. The project dramatically illustrates the benefits from drawing visually enhanced relations between the past and present, with important policy implications. The San Diego Supercomputing Center is a founding member of HASTAC.

Cultural California. Various regional projects in the US map state or regional culture (see, e.g., The Handbook of Texas). Almost all are archival projects collecting available information into a digital library of more or less vigorous proportion. “Cultural California” is an ambitious online project bringing together as comprehensively as possible a mapping of the history of cultural developments and contributions throughout the state of California, including visual and environmental arts, literature, music, performance, theater, film, architecture, digital art including video games, cuisine, and sports. The project also covers cultural tourism and the various cultural entertainment and recreation sites for which California is justifiably famous. The multimedia and interactive material will be collected, displayed, or accessed through a dynamic, easily accessible and user-friendly website. The materials will inform K-12 as well as undergraduate education, and be available for broad public information.

The effort involves a network of institutional collaborators including the state’s University systems, some private educational institutions, cultural agencies and institutions, major libraries, computing facilities and designers, and corporate entities.

Both the coordination of the project and development of resources and website development will be overseen by the University of California Humanities Research Institute, the system-wide UC facility devoted to research in these matters. The technological development will be overseen by CITRIS, the UC Berkeley center devoted to application of information technology in the interest of society. Both are founding members of the HASTAC collaboratory.
**Multimedia Humanities Communications & Displays in a Smart House.** A number of institutions, including Duke University, Sixth College at UC San Diego, UC Berkeley, Georgia Tech, MIT, and Carnegie Mellon, have brought together electrical engineering, computer science in "smart house" residences for students to offer creative and communicative possibilities for their learning environments. HASTAC seeks to incorporate the network of students building Smart Houses into our multi-site humanities seminars.

Smart houses are designed to link information databases cultural environments and productive technologies without turning the living environments either into intrusive high tech workspaces or into overbearing museums. Students at Duke, for instance, are designing displays of information about the various house systems. In one instance they label each of the systems with radio frequency identification tags, and equip visitors or residents with a palm pilot that is capable of recognizing and reading the tags. As people walk around the house, the palm pilot would explain, through graphics, video, and voice, how a particular system worked. In another instance, LCD screens function as interactive ways of displaying information on smart house engineering systems during tour hours, and revert to digital artwork and/or home control panels during non-tour hours. The system will be used to provide the residents in the house with an exciting aesthetic environment as well as to be an interactive site for digital humanities projects that residents can access and use for their research projects, for their own self-education, and for entertainment. Finally, there will be an interactive Blog for Smart House residents so they can find creative ways to "journal" their experiences living in the house, ranging from poetry to rap to graffiti.

**How they got game: cultural implications of interactive simulations and video games.** At Stanford’s Humanities Lab—a founding member of HASTAC—this project explores how video games shape local and global culture. Once the late-night amusement of nerds and hackers, video games and interactive media have emerged as one of the most vibrant elements of today’s entertainment and military industries. Massively multiplayer games bring into contact players from many countries, cultures, and age groups, challenging players to individually and collaboratively contemplate and manipulate the history and future of virtual worlds. Militaries are using similar platforms to develop strategy and train troops and ultimately create change in the real world. Despite the growing popularity and legitimacy of these games, the importance of the medium has all but eluded notice by most scholars. This project explores and documents the development and impact of such networked, interactive, massively multiplayer virtual worlds.

This HASTAC vision paper is a collaborative effort of the core leadership of HASTAC, with the input and ideas of numerous other HASTAC institutional representatives and individual members, many of whom attended the original HASTAC meeting in Irvine, CA, in June 2003 and the second meeting in Washington, DC, in January of 2004.

——March 16, 2004
APPENDIX B: HASTAC Core Leadership

Cathy N. Davidson, Vice Provost for Interdisciplinary Studies at Duke University, co-founder of the John Hope Franklin Humanities Institute, and Ruth F. DeVarney Professor of English at Duke University

David Theo Goldberg, Director of the University of California Humanities Research Institute (UCHRI) and Professor of African-American Studies and of Criminology, Law, and Society at the University of California at Irvine

Jeffrey Schnapp, Director of the Stanford University Humanities Lab and Rosina Pierotti Chair in Italian Literature, Stanford University

Ruzena Bajcsy, Director of the Center for Information Technology Research in the Interest of Society (CITRIS) at the University of California, Berkeley

Hadass Sheffer, Director of Fellowship Programs, The Woodrow Wilson National Fellowship Foundation

HASTAC member institutions and representatives (alphabetically ordered by institution)

Steve Wheatley, Vice President, American Council of Learned Societies
Roscoe Giles, Director of Electrical and Computer Engineering, Boston University
James Boyle, co-founder, and Co-Director of the Center for the Study of the Public Domain, Duke Law School, and member of the Board of Directors of Creative Commons
Ann Redelfs, Associate Director of the Ornithology Laboratory, Cornell University
Carol Terrizzi, Department of Computer Science, Cornell University, and Director of Communications for the National Science Digital Library
Dan Greenstein, University Librarian and Executive Director of the California Digital Library at the University of California

Lawrence Grossman, Co-Chairman of the Digital Opportunity Investment Trust (DO IT)
Ken Wissoker, Editor in Chief, Duke University Press
Roy Rosenzweig, Director of the Center for History and New Media, George Mason University
Bob Stein, Institute for the Future of the Book, Founder and CEO of Night Kitchen
Stephen Beck, Director of the Music Department, Louisiana State University
Mark Kornbluh, Director of MATRIX, the Center for Humane Arts, Letters, and Social Sciences Online at the Michigan State University
Larry McDaniel, Software Engineer and Programmer at the National Center for Atmospheric Research
Geoffrey Harpham, President and Director of the National Humanities Center
Tom McCulla, Executive Director, National University
Diana Taylor, Chair of the Department of Performance Studies, New York University
Anne Balsamo, President, Onomy Labs
Celia Pearce, Research and External Relations Manager, New Media Arts Layer, Cal (IT)2 at the University of California, Irvine
Alan Blatecky, Executive Director of the San Diego Super Computing Center, The University of California, San Diego
Vernon Burton, Associate Director of the Humanities and Social Sciences National Center for Supercomputing Applications (NCSA) at the University of Illinois, Urbana-Champaign, and Professor of History

Allison Clark, Assistant Director, Digital Equity Initiatives, the National Center for Supercomputing Applications at the University of Illinois, Urbana-Champaign

Martha Nell Smith, Director of the Maryland Institute for Technology in the Humanities at University of Maryland, and Professor of English at the University of Maryland, College Park

Dan Reed, Director of the Renaissance Computing Center at the University of North Carolina

Tara McPherson, Professor of Communication Studies at the Annenberg School of the University of Southern California

Worthy Martin, Director of the Institute for Advanced Technology in the Humanities at the University of Virginia

David Pilsbury, Executive Director, Worldwide Universities Network