

Federation of American Scientists and SRI International

Harnessing Virtual Worlds for Arts and Humanities Research

Request for Letters of Intent

GENERAL INFORMATION

Program Title: Harnessing Virtual Worlds for Arts and Humanities Research

Synopsis of Program: Scholars and researchers from many disciplines within the humanities are on the verge of a profound change in the way they search for, construct, and present knowledge to colleagues. Virtual Worlds, in addition to an array of other digital tools, will bring about significant changes within the humanities by facilitating multi-institutional, cross-disciplinary research and collaboration as well as providing new ways to recreate and contextualize evidence that heretofore was impossible to study or publish.

At a time when other foundations are investing in Virtual Worlds as a medium for teaching and learning, The Andrew W. Mellon Foundation's Program in Research in Information Technology¹ has supported a project, led by Michelle Lucey-Roper from the Federation of American Scientists and Edward Dieterle from SRI International, to investigate the potential Virtual Worlds hold as a legitimate tool to undertake new forms of arts and humanities research. As part of that project, the project leaders have committed to develop a Collaborative Proposal Submission. The Collaborative Proposal Submission is a potentially fundable proposal prepared in concert with humanities researchers and scholars, for submission to Mellon and potentially to other funders, for a project to demonstrate the potential of Virtual Worlds for supporting state-of-the-art research of significant importance to one or more arts and humanities disciplines.

The present request for Letters of Intent seeks ideas for short-term, medium-term, or long-term research projects that demonstrate how existing Virtual World platforms, such as *Cobalt*² and *Wonderland*³, can support the generation of new research questions and enable scholars to undertake new forms of arts and humanities research.

Contact Information for Project Leaders:

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Both project leaders will be happy to work with applicants and review Letters of Intent up to the day of submission.

¹ For more information about the Mellon Foundation, see <http://www.mellon.org>; for more information about the Program in Research in Information Technology, see <http://rit.mellon.org>.

² For more information about Cobalt, see <http://www.duke.edu/~julian/Cobalt/Home.html>.

³ For more information about Wonderland, see <https://lg3d-wonderland.dev.java.net>.

COLLABORATIVE PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

Proposal Preparation Instructions: All potential principal investigators (PIs) wishing to collaborate with project leaders on the Collaborative Proposal Submission are required to submit a Letter of Intent to project leaders, the purview of which is described in greater detail below. A panel of distinguished senior humanists, technologists, and researchers in 3-D visualization environments will meet to review Letters of Intent and invite some groups to submit full proposals. Accompanying each invitation will be *a one-time award to develop the proposal*. A capstone Integration Workshop will be held in Washington, DC for applicants in August 2009. Travel and lodging funds will be provided. During the workshop, individual proposals will be woven into the Collaborative Proposal Submission, a cohesive narrative ready for submission to the Mellon Foundation, other funding agencies, or both.

Budgetary Information: The Mellon Foundation requires a cost share on its awards (the amount to be negotiated), and does not support any overhead costs. Other funding agencies may set different expectations.

Due Dates and Timeline:

- Letter of Intent Deadline: Friday, April 3, 2009.
- Full Proposal Deadline: Tuesday, June 30, 2009.
- Collaborative Proposal Submission to the Andrew W. Mellon Foundation: Friday, October 2, 2009.

AWARD INFORMATION

Anticipated Type of Award for the Collaborative Proposal Submission: The Mellon Foundation's Program in Research in Information Technology makes grants of up to three years and as much as several million dollars to support the collaborative development of technology that benefits Mellon's constituencies in the arts and humanities. Projects must demonstrate significant and widespread benefit, meet the Foundation's goal of supporting the advancement of cutting-edge scholarship, exist as products under open source and open content (e.g., Creative Commons) licenses, and endure in a form that is easily re-usable or adoptable by large numbers of constituents. However, the terms of the current Mellon grant do not restrict the project leaders and collaborators to applying only for Mellon funding; depending on the proposal developed, leaders and collaborators are free to seek additional or alternative funding as well.

Estimated Number of Awards: 0 to 3 total (*anticipated*)

Anticipated Funding Amount: Funding levels will be determined by the funding agency to which the proposal is submitted, and are expected to be commensurate with scope of the project (i.e., short-term, medium-term, or long-term research projects) and the principal investigator's (PI) years of experience of humanities research and funding history.

Eligibility Information: Individuals must apply as representatives of their respective organizations. Organizations that may apply include institutions of higher education and non-

profit organizations such as museums and libraries. Any number of Letters of Intent may be submitted by each organization or collection of organizations. The PI must hold a terminal degree and be a recognized expert in his or her field or discipline. There are no limitations on the number of Letters of Intent that each PI may submit.

COLLABORATIVE PROPOSAL SUBMISSION REVIEW INFORMATION CRITERIA

INTRODUCTION

The first use of computers, when introduced to a new area, is always to automate what has been done in the past manually. With low-level tasks—such as arranging, listing, recalling, and reproducing data—transferred to computers, humans are freed up to focus on higher-order cognitive responsibilities such as constructing, creating, designing, defending, and developing analytical arguments and new research themes. A Virtual World is a computer program that generates a dynamic representation of a real or imagined world and embodies the essential qualities required to support higher-order cognitive activities.

Virtual Worlds are characterized by their ability to facilitate active immersion, which is more than a visual process of seeing what is on the screen, an auditory process of decoding sounds, or a haptic or kinesthetic process of moving a mouse and performing keystrokes. Instead, Virtual Worlds evoke a sense of “being there” by stimulating a combination of the senses and higher order cognitive processes, such as imagination and visualization.

Participants in Virtual Worlds may (a) access virtual contexts, (b) share virtual experiences, (c) see what cannot be seen by the unaided eye because it is too small, too large, too slow, or too fast, (d) visualize what is improbable or impossible, (e) hear what cannot be heard without amplification or filtration, (f) interact with and create digital artifacts, (g) represent themselves through “avatars,” which can be graphical or text-based, or (h) communicate with other participants synchronously, asynchronously, or both via text, audio, video, or a combination thereof. Through Virtual Worlds, researchers and scholars from varying disciplines—who each draw upon scholarly precedence, favored research methods, and preferred units of analysis that may or may not be consistent with other disciplines—are brought together and allowed to share common experiences.

Virtual Worlds, among other things, have the potential to bring together collections of objects and activities separated by time and distances, to restore objects affected by the elements and mistreatment, or to contextualize artifacts in different historical dimensions. This technology can be used to recreate events described in historical records, model and test hypotheses, or draw together a community of researchers to participate in the co-creation and evaluation of an idea. These 3-D representations visually encapsulate assumptions that can be scrutinized by a broad community. Bringing together previously disconnected knowledge sources and research techniques in the Virtual World to understand specific phenomena and artifacts can generate “conceptual collisions” (Bransford et al., 2006). Through such collisions, new insights can be generated from previously disconnected disciplines and inconsistencies in interpretation are forced into the open, inviting discussion about how to justify representations of, for example, ancient buildings and the activities that took place within them. This provides an innovative and

potentially fruitful way of assembling the knowledge of the community for joint exploration and critique. With thoughtful management and some additional tool development, Virtual Worlds could begin to serve as a new publication medium.

Given the complexity of humanistic research, these disciplines are going to demand more computing power, more storage, and more bandwidth than those from other scholarly areas (e.g., the physical sciences) ever have or ever will. Advances in computing power, storage capacity, and bandwidth have made possible Virtual Worlds, in addition to an array of other digital tools, which have crucial relevance to humanities researchers and scholars. By modeling elements from both the real and imagined worlds, including physically and historically accurate topography, and natural phenomena such as gravity, motion, and climate, Virtual Worlds catalogue our cultural heritage. “Digital cultural heritage resources are a fundamental dataset for the humanities,” Unsworth and colleagues (2006) argue in a recent report of the American Council of Learned Societies Commission on cyberinfrastructure for the humanities and social sciences. “These resources,” they go on, “combined with computer networks and software tools, now shape the way that scholars discover and make sense of the human record, while also shaping the way their findings are communicated to students, colleagues, and the general public.”

Virtual Worlds have the potential to bring about profound, far-reaching, and thoroughgoing changes within the humanities in the near future and the long term by allowing scholars and researchers to investigate and publish multi-disciplinary humanistic themes and areas that before or otherwise were impossible to study or publish. Conceptual collisions, and the sustained research and learning opportunities in them, hold great promise for advancing scholarly work in the arts and humanities. The development and implementation of research and scholarship undertaken in Virtual Worlds, however, must be carefully guided by humanists and scholars who see its potential and can identify the appropriate tools and services that may yet need to be developed for Virtual Worlds to support humanistic research more fully.

PROGRAM DESCRIPTION

The present solicitation seeks to develop a fundable proposal based on short-term, medium-term, or long-term research projects that investigate how existing virtual world platforms can support and generate original humanistic research and collaboration. Collaborative technologies, such as virtual worlds, enable scholars and researchers profoundly new ways to search for, construct, and present knowledge to colleagues.

The goals of the Virtual World project are to encourage:

- Use of an open source platform to develop and produce a Virtual World that supports the exploration of one or more humanistic research questions that could not be answered without the use of this technology.
- Dissemination of all technology and content constructed during the project as open source software.
- Publications on the findings from this project, which may include but are not limited to journal articles, book chapters, books, and conference papers.

- Development, implementation, study, and evaluation of strategies that build knowledge about the approaches taken and encourage further adoption of Virtual World technologies for humanities research.
- Participation in an evaluation study that will help to determine the research potential of Virtual World technologies in comparison to other interactive and immersive technologies.

LETTER OF INTENT PREPARATION INSTRUCTIONS

The Letter of Intent should contain a brief narrative that describes the project and provides the following information:

1. A project title.
2. The focus of research that will be undertaken by using Virtual World technology. The following are elements suggested for inclusion for this section:
 - What is your goal?
 - What are your research questions?
 - What is it that you hope to learn, uncover, or discover?
 - What is the potential impact of your proposed research project?
 - Who is the audience for your research project?
3. The proposed research team including Principal Investigator, co-investigators, and other colleagues, including organizational affiliations and departments. The following are elements suggested for inclusion for this section:
 - Who is involved?
 - Who are the colleagues you work with to meet your goal?
 - What group of colleagues do you work with to meet your goal?
4. A list of collaborating institutions, if applicable.
5. Roles and responsibilities of all involved. The following elements may also be included:
 - What resources are currently available?
 - What resources do you need?
 - What methods or procedures do you plan to use or follow to meet your goal and address your research question?
6. A preliminary budget and timeline.

Letters of Intent are limited to 1000 words (approximately 3 pages) and must be emailed to fas.virtualworlds.sri@gmail.com with “Mellon Virtual World Proposal LOI” in the subject line.

ABOUT THE FEDERATION OF AMERICAN SCIENTISTS

The Federation of American Scientists (FAS) is a 503(c) non-profit, founded in 1945. FAS addresses a broad spectrum of issues in carrying out its mission to promote humanitarian uses of science and technology. The FAS Board of Sponsors includes 70 Nobel Laureates in chemistry, economics, medicine and physics. FAS' Learning Technologies Program works on strategies to harness the potential of emerging information technologies to improve how we teach and learn.

The FAS Learning Technologies Program builds coalitions who work in concert to educate members of the congress, media & the public in support of a comprehensive program for Learning Science and Technology and to identify opportunities for collaborations that will build research capacity and infrastructure. FAS employs a variety of approaches to do this: design and create prototype games and learning tools; undertake and publish major studies; write policy analyses; hold workshops and conferences; present briefings for members of Congress or Administration officials; and assemble design teams and community leaders to form research partnerships.

ABOUT SRI INTERNATIONAL

SRI is a nonprofit corporation founded in 1946 and chartered by the state of California. As an institute dedicated to diversified scientific and engineering research and development, SRI performs client-sponsored research for industry, government, and foundations in the United States and abroad. Research is conducted in engineering technologies and systems, pharmaceuticals and biotechnology, chemistry and physics, advanced materials, computing and information sciences, environmental and atmospheric sciences, education, health sciences, and economic development. SRI does not engage in production or manufacturing. Project teams are organized to solve specific problems and often represent a diversity of skills. The current full-time staff of 1,400 includes 400 with Ph.D. or equivalent degrees and more than 300 with master's degrees.

REFERENCES

- Bransford, J., Stevens, R., Schwartz, D., Meltzoff, A., Pea, R., Roschelle, J., et al. (2006). Learning theories and education: Toward a decade of synergy. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2 ed., pp. 209–244). Mahwah, NJ: Lawrence Erlbaum.
- Unsworth, J. (2006). *Our cultural commonwealth: The report of the American Council of Learned Societies Commission on cyberinfrastructure for the humanities and social sciences*. New York, NY: The Andrew W. Mellon Foundation.