Scientists work to save 'fragile' digital media artworks

Without intervention works can be unplayable just a few years after their creation

New technology is under development to conserve "extremely fragile" works created by computer for viewing through digital media or on the internet — one of the fastest growing fields of contemporary art. "Conservators are facing new challenges as artists use current technology as media for their works," Deena Engel, professor of computer science at New York University, told the American Association for the Advancement of Science annual meeting. The "extreme fragility" of computer-generated art comes from the rapid evolution of operating systems and programming languages, which often make works unplayable just a few years after their creation. Even if they can be viewed, their colours and appearance may be distorted. "Software-based art can be very complex," said Professor Engel, who directs NYU's digital humanities programme. "If you think of a word processing document you wrote 10 years ago, can you still open it and read or print it?" To develop new digital conservation techniques, she is working with New York's Guggenheim Museum on an initiative called Conserving Computer-Based Art. Its first three restorations are online works in the Guggenheim Collection: Shu Lea Cheang's Brandon (1998), Mark Napier's net.flag (2002) and John Simon's Unfolding Object (2002). In Brandon — about the murder of a transgender man — many text and image animations no longer displayed properly and links were broken. All now work again. Unfolding Object enables online visitors to create their own artwork by opening the pages of a rectangular form to make fresh multi-faceted shapes. The Java technology used to create this early internet work is obsolete, so the conservation team worked with the artist to revise the code into contemporary JavaScript. But the ethics of contemporary art conservation must be taken into account too, Prof Engel said. These require conservators to preserve as much as possible of the original work and to distinguish the reconstructed material from the original. "If we migrate a work of software-based art from an obsolete programming environment to a current one, our selection and programming decisions in the new language and environment are informed in part by evaluating the artistic goals of the medium first used," she said. "We strive to maintain respect for the artist's coding style and approach in our restoration." To conserve the Unfolding Object, a complete rewrite of the computer code was regarded as being too "invasive". Instead the team used the more time-consuming process of "code resituation", which preserved as much as possible of the original Java code. Looking to avoiding future problems, Prof Engel said digital artists should provide the museum or collector with the source code for the work of art. "If the 'colour space' is different in 20 years' time, for example, the museum will be able to understand the variability that the work has undergone." – Clive Cookson