The first Creativity and Cognition conference was held in 1993 [1], the second in 1996 [2]. With the third meeting, in 1999, the series matured and it is now held as an Association of Computing Machinery (ACM) Special Interest Group on Computer Human Interaction (SIGCHI) event [3]. The fourth in the series will be held in 2002 in Loughborough, England. This second special section of papers to be published in Leonardo [4] focuses upon research at the intersection of art practice, creative cognition and digital technology. The Creativity and Cognition conference series encourages and promotes research that includes the development of creative practice in relation to technology as well as to cognitive science and human-computer interaction. The articles selected for this section explore several dimensions of the intersection of human creative acts and creativity represented in computational form.

In research into creativity and cognition, we still have a limited understanding of three crucial areas and their interactions: creative cognition, creative media and technology, and the impact of the technology on practice. In order to pursue this research, we have put in place a strategy of combining scientific research and creative practice at Creativity and Cognition Research Studios (C&CRS) at Loughborough University, U.K. [5]. C&CRS is a joint venture between the university’s School of Art and Design and the Department of Computer Science. The main purpose of C&CRS is to bring together expertise and common interests deriving from prior work in both human-computer interaction and art practice using new digital media. The focus of C&CRS is case-study and experimental work developing new art forms in an environment where artists and scientists work collaborate in the exploration of digital technology in art practice, as, for example, in the COSTART Project [6].

The authors in the previous Creativity and Cognition special section were concerned with channeling the potential of digital technology into new possibilities by way of personal artistic goals: the authors in this section, by contrast, place the technology at the center of their interests, and the articles explore the potential transformational impact of digital technologies for mental states and cultural practices in a variety of domains and contexts. The common theme is how new forms of audience participation in the increasingly enriched forms of interaction with digital technologies are creating radical and exciting possibilities for creative experiences.

Greg Garvey describes a prototype design for a split-brain user interface developed for the interactive documentary *Anita und Clarence in der Hölle: An Opera for Split-Brains in Modular Parts*. Using documentary video from the 1991 Senate Judiciary Committee hearings on the nomination of Clarence Thomas to the U.S. Supreme Court, this interface delivers two independent video and audio streams in parallel to each hemisphere of the brain. The work is inspired by research into split-brain phenomena and experiments by the Surrealists. The split-brain interface uses perceptual effects in the search for a new kind of aesthetic experience.

Alain Bonardi and Francis Rousseaux have designed a computer-based interactive opera, *Virtualis*, using new tools for handling music in three-dimensional spaces. They use an inter-
action model based on physical forces rather than on the user’s intent. The interactive virtual opera’s artistic development cannot be separated from a scientific approach to multimedia computing. Ultimately, the authors’ aim is to create a new form of participatory art, in which interaction between spectators, not just musicians, is a core innovative ingredient of creativity.

Bryan Lawson has written extensively about the role of computers in architectural design. His studies of outstanding practitioners in the field of architecture and the characteristics of creative practice are well known [7]. He is well placed to make more general observations about how people use computers and their strengths and limitations in respect of creative design. He notes that there seems to be a growing body of experiential and anecdotal evidence that CAD might conspire against creative thought.

Creative media and technology research and development is also being undertaken from a human-computer interaction viewpoint. Interactive environments employing position, speech and gesture recognition and state-of-the-art graphical output are being explored in a number of laboratories. In that context, we still need to investigate how information-exchange methods condition the creativity of people working in collaborative and participatory environments. We need to nurture the development of these technological insights on how better to support the cognitive processes of creativity. It is a common mistake to suppose that the application of theory alone can lead to improvements in the usability of a technology that is dedicated to the support of situated action. It is no less a mistake to base technological development on a theoretically weak and largely descriptive account of practice. Theory, practice and technological support each contribute to the understanding and development of one another.

LINDA CANDY
Creativity and Cognition Research Studios
Loughborough University, U.K.
E-mail: <L.Candy@lboro.ac.uk>

References and Notes