



THE 36<sup>TH</sup> INTERNATIONAL CONFERENCE AND EXHIBITION ON COMPUTER GRAPHICS AND INTERACTIVE TECHNIQUES



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# SIGGRAPH Emerging Technologies: Breakthroughs in Haptics, Robotics, and Gaming

FOR IMMEDIATE RELEASE  
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(Chicago, IL) - SIGGRAPH 2009's Emerging Technologies presents innovative technologies and applications in many fields including alternative displays, robotics, input interfaces, gaming, audio, haptics/VR, and experimental sensory experiences.

Presented in a combination of curated demonstrations and juried

interactive installations, a minimum of 29 of the more than 100 international juried submissions were selected and will be on display and available for interaction with attendees in New Orleans this summer.

"These installations showcase how technology and computer graphics might soon be enhancing the average person's everyday work and life," stated Manabu Sakurai, SIGGRAPH 2009 Emerging Technologies Chair. "From helping those with physical challenges to improving the entertainment experience, Emerging Technologies offer a unique look into the future of how complex technologies can have a major impact."

Following are only some of the highlights of this popular venue [high resolution images and video are available].

### Sound Scope Headphones

Masatoshi Hamanaka, SeungHee Lee - University of Tsukuba

The Sound Scope Headphones let users control an audio mixer through natural movements, and thus enable a musical novice to separately listen to each musical instrument independently during a group concert.

Potential Future Use:

The Sound Scope Headphones will allow a novice user to control different levels of musical pieces in a way that until now has only been available using state-of-the-art commercial equipment. For example, when listening to jazz, one might want to clearly hear the guitar while also eliminating or reducing the sound of the sax.

### The UnMousePad - The Future of Touch Sensing

Ilya Rosenberg, Ken Perlin, Charles Hendee, Alexander Grau, Nadim Awad, Adrian Secord, Merve Keles - New York University; Christian Miller - University of Texas at Austin; Julien

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#### Beguín - Gotham Wave Games

The UnMousePad is based on a flexible and inexpensive sensor technology called IFSR that enables the acquisition of high-quality multi-touch pressure images. The core advantage of this revolutionary sensor technology is that by interpolating pressure, it allows tracking at high resolutions, using a fairly coarse grid of electrodes.

##### Potential Future Use:

Multi-touch input has been an active area of research for over two decades and has appeared on CNN, but not on everyone's desk, computer screens, table-tops, walls and floors. This technology allows for more commercial and mainstream use of inexpensive, flexible, and sensitive touch imaging technology

#### **HeadSPIN: A One-to-Many 3D Video Teleconferencing System**

Andrew Jones, Magnus Lang, Graham Fyffe, Xueming Yu, Jay Busch - University of Southern California Institute for Creative Technologies; Ian McDowall - Fakespace Labs; Mark Bolas - University of Southern California Institute for Creative Technologies & School of Cinematic Arts; Paul Debevec - University of Southern California Institute for Creative Technologies

This installation presents a 3D teleconferencing system that enables true eye contact between a three-dimensionally transmitted subject and multiple participants in an audience. The system is able to reproduce the effects of gaze, attention, and eye contact not available in traditional teleconferencing systems.

##### Potential Future Use:

This device will take teleconferencing to a much more personal level, allowing participants to make eye contact as if they were interacting face-to-face.

#### **Graphical Instruction for a Garment-Folding Robot**

Yuta Sugiura - Graduate School of Media Design, Keio University / JST, ERATO, Tokyo; Takeo Igarashi - The University of Tokyo / JST, ERATO, Tokyo; Hiroki Takahashi - Waseda University / JST, ERATO, Tokyo; Tabare Akim Gowon - Harvard University / JST, ERATO, Tokyo; Charith Lasantha Fernando, Maki Sugimoto, Masahiko Inami - Graduate School of Media Design, Keio University/ JST, ERATO, Tokyo

This project proposes the use of an interactive graphical editor to give instructions to robots for folding garments in a household environment. This editor allows the user to specify instructions by performing simple editing operations (clicking and dragging) in order to teach the robot how to uniquely fold clothes.

##### Potential Future Use:

This technology provides a glimpse into the future for improving the living conditions of consumer users, or greatly improving the efficiency of industrial users.

#### **Pull-Navi**

Yuichiro Kojima, Yuki Hashimoto, Shogo Fukushima, Hiroyuki Kajimoto - The University of Electro-Communications

While many tactile navigation systems have used hands or arms, we developed a novel, intuitive, instinctive and energy-efficient walk navigation interface that "pulls the ears" and confirmed that users were inevitably tempted to move in the pulled direction without experiencing pain or force. The device simply is worn on the ears and leads or lightly pulls the user in a desired direction.

##### Potential Future Use:

As the world becomes more and more computer-based, there is a growing need for assistive technologies to help those individuals with sight and hearing disabilities engage in an electronic world. The Pull-Navi navigation system can be used as a directional device to assist those with sight and hearing impairments or to enhance a virtual gaming experience.

#### **Touchable Holography**

Takayuki Hoshi, Masafumi Takahashi, Kei Nakatsuma, Hiroyuki Shinoda - The University of Tokyo

Mid-air displays are attracting a lot of attention as promising technologies in the field of digital signage and home TV, and many types of holographic displays are proposed and

developed. Although we can "see" the projected images as if they are really floating in front of us, we cannot "touch" them, because they are nothing but light. The objective here is adding tactile feedback to the hovering image in 3D free space.

Potential Future Use:

Tactile holograms have the potential to create a whole new environment for video games, education, or advertising with the ability to add the element of touch to graphical displays in a real environment.

**Virtualization Gate**

Benjamin Petit, Thomas Dupeux, - INRIA; Jean-Denis Lesage - Grenoble Universities; Hervé Mathieu - INRIA; Edmond Boyer - Grenoble Universities; Bruno Raffin - INRIA; François Faure - Grenoble Universities; Clément Ménéier, Florian Geffray - 4D View Solutions; Laurence Boissieux, Michaël Adam, Florent Falipou - INRIA; Richard Broadbridge - 4D View Solutions

Virtualization Gate uses a multi-camera acquisition space coupled with the wearing of a head mounted display to immerse users in a virtual world. Your full body will be virtualized to enforce your presence in the ever-expanding world of social networking and allow intuitive interactions with virtual objects.

Potential Future Use:

With the ever increasing technology surrounding interactive and social networking, Virtualization Gate is a revolutionary technology that allows users to experience dynamic social networking in a virtual world.

**[Complete information on the dynamically evolving SIGGRAPH 2009 program or to download a copy of the SIGGRAPH 2009 Preview Video](#)**

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**About SIGGRAPH**

SIGGRAPH 2009 brings thousands of computer graphics and interactive technology professionals from six continents to New Orleans, Louisiana, USA for the industry's most respected technical and creative programs focusing on research, science, art, animation, music, gaming, interactivity, education, and the web from Monday, 3 August through Friday, 7 August 2009 at the Ernest N. Morial Convention Center. SIGGRAPH 2009 includes a three-day exhibition of products and services from the computer graphics and interactive marketplace from 4-6 August 2009. More than 200 international exhibiting companies are expected. **[More details](#)**

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