



## Ken Goldberg/MATRIX 186 Ouija 2000

January 16 - March 26, 2000

**University of California  
Berkeley Art Museum**

Ken Goldberg/MATRIX 186

*“Media technology generally facilitates the suspension of disbelief; I am trying to facilitate the resumption of disbelief.” Ken Goldberg<sup>1</sup>*

Conceptual artist Ken Goldberg combines robotics with cultural criticism to create art for and about the Internet. Goldberg, Associate Professor of Industrial Engineering at UC Berkeley, works collaboratively with students and other colleagues to make net art that investigates age-old questions of epistemology: “How do we know what we know, and how do we know it is true?” His particular interest is in what he terms “telepistemology”—knowledge mediated through technology, a particular conundrum as more and more information is disseminated both “officially” and “unofficially” on the Internet.

Net art will be canonized in the year 2000. *Artforum*, a monthly art journal, has instituted a regular column entitled “Gadget Love” dedicated to covering the “hot.list” of technology. For the first time, the Whitney Biennial, a barometer of contemporary art trends, will feature “web-related and digital art,” including Goldberg’s MATRIX project.<sup>2</sup> John G. Hanhardt, former curator of film and video at the Whitney and currently senior curator for film and media arts at the Solomon R. Guggenheim Museum, is quoted in *The New York Times* as saying that Internet-based work has taken about half as long as video art to be included in a Whitney Biennial.<sup>3</sup> The lineage from video art to net art is widely embraced within the theoretical discourse. In our increasingly tech-savvy society, the acceptance of net art as art has been remarkably rapid. This contrasts the early histories of video, film, and photography that were characterized by the conflict between their status as art and as technology.<sup>4</sup>

Synthesizing art and technology, Ken Goldberg’s work encourages participation. Visitors to his projects can keep a garden alive, experiment with United States currency, or move a pointer. He also takes his work into actual space creating complex installations such as *Mori* (1999), much as Bill Viola and Gary Hill brought video out of the box and into the realm of installation.<sup>5</sup> Goldberg’s work reflects a skepticism about technology and contains a sharp sense of humor. Rather than asking his viewer/user to trust him and what he presents (to suspend disbelief), Goldberg encourages, perhaps even taunts them into a resumption of disbelief to counteract the overwhelmingly enthusiastic and uncritical embrace of technology. Comprehending the limits of technology and engineering, he propagates the underlying anxiety regarding science that has always plagued progress. Goldberg intends not to impede progress but rather to encourage skepticism because, as philosopher Michael Idinopulos writes in Goldberg’s upcoming book, “Skepticism is often treated as a...‘philosophical’ issue with no real consequences for everyday life...this view is deeply and importantly mistaken.”



All of Goldberg’s projects involve “telerobotics”—mechanical operations that are activated by remote viewers through commands over the Internet. *Ouija 2000* ([www.bampfa.berkeley.edu/matrix/ouija](http://www.bampfa.berkeley.edu/matrix/ouija)) is an on-line Ouija board with its planchette (the spade-shaped pointer that moves to indicate the answers) mounted on a robotic arm. A digital video camera broadcasts an image of the board over the Internet. Participants logging on to the Web site are given instructions for using the computer mouse as a planchette to interact with *Ouija 2000*. The program randomly answers a selected slate of questions pertaining to each user’s life in the next millennium, such as, “Will [user name] achieve great wealth in 2000?” *Ouija 2000* is available twenty-four hours a day, and viewers/users come together to “play” with up to twenty others at a time. The computer aggregates the motions players make with the mouse to move the planchette on the robotic arm. Thus, the answers to questions will appear as if by “magic” or “mystical intervention” as no single user can control what the answers will be. In contrast to most teleoperation systems where a single user controls a single robot, here, for the first time, multiple users come together to collaboratively control a single industrial robot arm. As such, *Ouija 2000* reflects the Central Limit Theorem. This statistical theorem describes how independent random variables can be combined to yield an estimate that becomes more accurate as the number of variables increases.

In this project, Goldberg couples epistemology with another esoteric pursuit: mysticism. *Ouija 2000*, however, is intended as a critique of conventional notions of contemporary spirituality, technology, and the corporate application of science. Thus, in his introductory text for the project, Goldberg presents a pseudo history of the Ouija board, claiming that, “although their workings and origins remain shrouded in mystery, ‘talking boards’ are the world’s oldest telecommunications devices.”

In the previously mentioned net art installation *Mori* (1999), the viewer/user enters a large, free-standing, constructed room past several active, “computing” computers. A computer monitor flickering with the pulsating, rhythmic lines that are familiar from a hospital heart monitor is imbedded in the center of the floor. The lines correspond to seismometer readings from the Hayward fault in the Berkeley hills. Movements deep inside the core of the earth rise to the surface in *Mori*.<sup>6</sup> Goldberg collaborated with media artist Randall Packer to set these rumblings to sound. The “sound” of the moving earth increases the believability of the transmission.

*Ouija 2000*, 1999, detail of Internet interface



Goldberg is perhaps most well known for his ongoing *Telegarden* project (1995). Currently located at the ARS Electronica Museum in Linz, Austria, the *Telegarden* is a community garden filled with living plants that also includes a virtual village square. The digging, planting, and watering is controlled by user commands of an industrial robotic arm. A camera held in the hand of the robot proves that the viewer/user’s commands are being executed. Or does it? The project poses questions regarding utopianism. Many enthusiasts have identified the telegarden as part of a “natural,” logical continuum of technology. For example, telerobotic technology can be used for positive or good (pro-community, or pro-nature) as opposed to negative or evil (military defense strategy, or mass production) purposes. Goldberg’s perspective, if not opposing, is more critical. He designed the telegarden as a dystopia and asks why one would want or need to meditate interaction with the earth through a robotic arm. Ironically, as is potentially the case with any art work, there is often a wide divergence between that intention of the artist and the reaction of the viewer. Since 1995, 20,000 members have collaborated on the care and maintenance of the garden.<sup>7</sup>

*Dislocation of Intimacy* (1998) is a conceptual sculpture informed by Marcel Duchamp’s *Ball of Twine (With Hidden Noise)* (1916) in which Duchamp wrapped several items in a ball of twine and gave the resulting object to a patron. Any attempt to know what the ball contained would require the destruction of the piece. Such is the case with Goldberg’s large steel box. The box is filled with unidentified objects, six light sources, and a fan. In the gallery space, the viewer encounters a minimalist form from which an electrical cord snakes into a wall electrical socket and is given a white business card on which the URL is printed. In order to view the interior of the box, the viewer must log on from somewhere else because a computer station is not included in the installation. By activating six different switches in various combinations, thirty-two different perspectives can be achieved. Viewer choices are relayed to the gallery via the Internet and visitors there hear the effects of the choice made in some (or many) remote location(s). True or false? Is one seeing the effects of their efforts or has it all been pre-programmed and recorded? How many people actually have the chance to see the exterior of the piece to know that the physical presence does indeed exist? And if they do, that the noises they hear are live? The work is full of art historical references from Robert Morris’ *Box with the Sound of Its Own Making* (1961), Tony Smith’s *Die* (1962),

*Ouija 2000*, 1999, detail of mouse as planchette; Illustration: Dave Garvey



and Charles Ray's *32x33x35=34x33x35* (1989), to the photograms of Man Ray and Lazlo Moholy-Nagy, and the utilitarian-seeming but totally nonfunctional sculptural objects of Jessica Stockholder. Like much of Goldberg's work, *Dislocation of Intimacy* poses questions regarding notions of truth and relativity as well as the cause and effect of one's actions.

Such questions have potentially criminal ramifications in *Legal Tender* (1996) in which visitors are invited to deface (observe, puncture, heat, abrade, stain) two \$100 bills, but only after registering their names, of course. If participants choose incorrectly, disavowing the tangibility of the currency and the effects of their actions, the results could be severe. Perhaps. As critic Kenneth Baker wrote, "The main point [of *Legal Tender*] is to heighten the uncertainties built into interactivity on the Web... On what does anyone's credulity toward images and other information on the Internet rest?"<sup>8</sup>

Goldberg ponders the "aura" of the art object as defined by Walter Benjamin in his pivotal essay, "The Work of Art in the Age of Mechanical Reproduction." Decrying reproducibility as the death of authenticity, Benjamin argues for the maintenance of originality in works of art through their inherent uniqueness. Thus, one could argue that the question of aura is mute in net art where nothing is unique and everything is mediated. This seeming impossibility is what intrigues Goldberg. Through the attempt to capture the unknowable, the inherent core that disappears in translation, the original object becomes sacred. As technology continues to impact experience and communication, Goldberg's net art installations explore the remnants of authenticity, knowledge, and truth in our digital experience.<sup>9</sup>

Heidi Zuckerman Jacobson  
Phyllis Wattis MATRIX Curator

1 Ken Goldberg conversation with author, UC Berkeley Art Museum, Berkeley, California, December 3, 1999.  
2 "Looking Ahead: 2000 Biennial Exhibition," *Whitney Magazine*, Fall 1999-Winter 2000, p. 48.  
3 Matthew Mirapaul, "Whitney Plans to Include Internet Art in Biennial," *The New York Times on the Web*, November 25, 1999, Technology/Cybertimes.  
4 The debate regarding video was finally resolved by the mid-1980s. For a representative example of an early video text see David Antin, "Video: The Distinctive Features of the Medium," in *Video Art*, eds. Ira Schneider and Beryl Korot, (New York: Harcourt Brace Jovanovich, 1976).  
5 Reena Jana, "Fault Vault," *Artforum*, October 1999, p. 35.  
6 This description is informed by one written by Steve Deitz, Director, New Media Initiatives, Walker Art Center, Minneapolis, Minnesota.  
7 Over 100,000 people have visited the site.  
8 Kenneth Baker, "Lost in Cyber Space Translation There is Something Missing in On-line 'Art,'" *San Francisco Chronicle*, July 14, 1996, p. 28.

*Mori*, 1999, wood, fiber optics, 5-channel sound system, custom software, live data feed from the Berkeley Seismological Laboratory, sound enclosure, approx. 25 x 25 x 12 feet  
Project Team: Ken Goldberg, Randall Packer, Wojciech Matusik, and Gregory Kuhn; Photo: Takashi Otaka



Ken Goldberg was born October 6, 1961, in Ibadan, Nigeria. He has an undergraduate degree in Engineering from the University of Pennsylvania (1984), and a Ph.D. in Computer Science from Carnegie Mellon University (1990). Dr. Goldberg is Associate Professor of Engineering at UC Berkeley and founder of the Art, Technology, and Culture Colloquium. Ken Golberg/MATRIX 186 *Ouija 2000* is his first one-person museum exhibition. Commissioned by the UC Berkeley Art Museum, *Ouija 2000* will travel to the 2000 Whitney Biennial.

**Selected Solo Exhibitions**

1999  
"The Telegarden," The Globe Online Gallery, New York, NY

1995

**Selected Group Exhibitions**

"The Telegarden," ARS Electronica Center, Linz, Austria (ongoing)  
2000  
"The 2000 Whitney Biennial," Whitney Museum of American Art, New York, NY  
1999  
"Mori," ICC Biennale, Tokyo, Japan  
School of Visual Arts: Digital Salon, New York, NY  
"The Net Condition," ZKM, Karlsruhe, Germany  
Rhizome Artbase (ongoing)  
1998  
"Interiors," Catharine Clark Gallery, San Francisco, CA  
"Shock of the View," Walker Art Museum, Minneapolis, MN ([www.walkerart.org/salons/shockoftheview](http://www.walkerart.org/salons/shockoftheview))  
Ninth International Symposium on Electronic Art, Liverpool and Manchester, UK ([www.fact.co.uk/ISEA98/websites.html](http://www.fact.co.uk/ISEA98/websites.html))  
"Beyond Interface," curated by Steve Dietz of the Walker Art Museum, at the International Conference on Museums and the Web, Toronto, Canada ([www.walkerart.org/gallery9/beyondinterface](http://www.walkerart.org/gallery9/beyondinterface))  
"Interface: Art + Tech in the Bay Area," Duke University Art Museum, Raleigh, NC  
"CyberAtlas: Intelligent Life," Guggenheim Art Museum Online, (<http://cyberatlas.guggenheim.org>)  
1997  
"Beyond Architecture," The Art Institute of Chicago, Chicago, IL

*The Telegarden*, 1995, ongoing Internet installation: industrial robot arm, custom aluminum frame, grow lamps, irrigation system, digital cameras, custom software, Internet interface, 18 inches of potting soil, and plants, 72 x 72 x 72 in.  
Project Directors: Ken Goldberg and Joseph Santarromana; Project Team: George Bekey, Steven Gentner, Rosemary Morris, Carl Sutter, Jeff Wiegley, and Erich Berger; Photo: Robert Wedemeyer



"Real World," New Langton Arts, San Francisco, CA  
"Review Virtuelle" (CD-ROM), Centre Georges Pompidou, Paris, France

1996  
"Artifices 4," La Villette, Paris, France  
"Dutch Electronic Art Festival '96," Rotterdam, Holland  
Contemporary Art Center, New Orleans, LA  
Blasthaus Gallery, San Francisco, CA

1995  
Festival for Visual Arts (FIVA) Online '95, Montreal, Canada  
Siggraph '95, Los Angeles, CA  
Site Gallery, Los Angeles, CA  
Interactive Media Festival, Los Angeles, CA

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Buread, Annick. "Shadowserver," *Leonardo Journal*, 1998, p. 31.  
Burt, Jillian. "Shadows and Dirt: Telerobotic Art on the Net by Ken Goldberg" in *Ars Telematica*, edited by Claudia Giannetti. Barcelona: L'Angelot, Association of Contemporary Art and Culture, 1998.  
Gladstone, Malcolm. "The Science of the Sleeper," *The New Yorker*, October 4, 1999, p. 53.  
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Jana, Reena. "Ken Goldberg: Keeping Technology Grounded," *ArtByte*, Nov-Dec 1999, pp. 37.  
Jana, Reena. "Fault Vault," *Artforum*, October 1999, p. 38.  
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McCullagh, Declan. "The Festival of Digital Delights," *WiReD News*, May 21, 1999.  
McLaughlin, Margaret; Kerry Osborne, and Nicole Ellison. "Virtual Community in a Telepresence Environment" in *Virtual Culture: Identity and Communication in Cybersociety*, edited by Steven Jones. Los Angeles: Sage Press, June 1997.  
Mirapaul, Matthew. "Made in the Shade," *The New York Times Online*, October 30, 1997.  
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Mitchell, William. "Replacing Place" in *The Digital Dialectic*, edited by Peter Lunenfeld. Cambridge: MIT Press, 1999.  
Pescovitz, David. "Be There Now: Telepresence Art Online," *Flash Art*, March-April, 1999, pp. 51-52.  
Schumacher, Donna. "Interiors," *Flash Art*, January-February 1999, p. 57.  
Shears, Jenny. "SuperNatural," *Surface*, June 1999, no. 18, p. 36.

*Dislocation of Intimacy*, 1998, detail of interior, ongoing Internet installation: steel treated with black powder coating, lightbox, custom software, Internet interface, cable, 38 x 48 x 58 in. Courtesy Catharine Clark Gallery, San Francisco  
Project Directors: Ken Goldberg and Bob Farzin; Image enhancement: Paulina Wallenberg Olsson



Winters, Rebecca. "Planting Seeds of Doubt," *Time Magazine*, March 8, 1999.  
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**Selected Bibliography by Ken Goldberg**  
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"Tim Hawkinson: Handmade Automation in Los Angeles," *Visions Art Quarterly*, Summer 1994.  
"Rationalizing the Irrational," *Framework: The Journal of Images and Cultures*, vol. 6, no. 2, July 1993.

**PLEASE NOTE**

Ken Goldberg will give an artist's talk on Sunday, January 16, 2000, at 3 p.m.  
Heidi Zuckerman Jacobson will give a curator's tour of the exhibition on Wednesday, January 26, 2000, at noon.  
Phil Fisher will present a lecture, "Walking Past Works of Art: Aesthetic Distraction in a Culture of Engulfment," on Thursday, March 2, 2000, at 8 p.m.

**Work in MATRIX**  
*Ouija 2000*, 1999  
Telerobotic Internet installation  
Graphic Design: Gil Gershoni  
Flash Design: Paulina Wallenberg Olsson  
Illustration: Dave Garvey  
Project Team: Billy Chen, Rory Solomon, Steve Bui, Sujit Chakravarthy, Bobak Farzin, Jacob Heitler, Derek Poon, and Gordon Smith

Special thanks to: Heidi Zuckerman Jacobson, Phyllis Wattis MATRIX Curator

All Internet projects mentioned in this brochure are accessible through [www.ken.goldberg.net](http://www.ken.goldberg.net).

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cover: *Ouija 2000*, 1999, detail of splash page, ongoing Internet installation: industrial robot arm, digital cameras, custom software, Internet interface, Ouija board, and planchette, dimensions variable  
above: *Legal Tender*, 1997, detail, Internet installation: industrial robot arm, custom Internet interface, counterfeit \$100 bills, dimensions variable  
Project Team: Eric Paulos, Ken Goldberg, John Canny, Judith Donath, Will Linn, and Mark Pauline; Photo: Ben Blackwell