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# DIGITAL ART

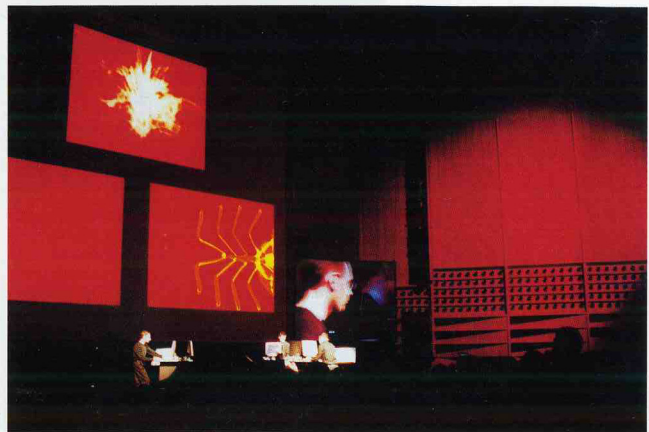


Thames & Hudson **world of art**

Besides technological developments, the evolution of digital sound and music was shaped by a multitude of earlier musical experiments that pointed to the possibilities of the new medium. John Cage's work with found sounds and rules, or Pierre Schaeffer's *musique concrète* – a term Schaeffer coined in 1948 for composing with materials from an existing collection of experimental sounds – are highly relevant to the digital medium's possibilities of copying and remixing existing music files. Brian Eno's sound environments and Laurie Anderson's audio-visual installations/performances also had a profound influence on developments in digital sound and music. Apart from remix and DJ culture, artistic digital sound and music projects are a large territory that includes pure sound art (without any visual component), audio-visual installation environments and software, Internet-based projects that allow for real-time, multi-user compositions and remixes, as well as networked projects that involve public places or nomadic devices. Many digital artworks, from installation to Internet art, involve sound components without being specifically focused on musical aspects. The projects described below are just a few examples of the use of digital technologies in the field of sound and music.

Among the artists who have explored communication protocols in the simultaneous creation and interconnection of image and sound is Golan Levin (b. 1972), an artist, composer, performer, and engineer who received his degrees from the MIT Media Lab, where he studied with John Maeda in the Aesthetics and Computation Group. Levin's *Audiovisual Environment Suite* (1998–2000), an interactive software that allows for the creation and manipulation of simultaneous visuals and sound in real time,

115. **Golan Levin**, *Audiovisual Environment Suite*, 1998–2000. Levin's *Scribble* (2000), a concert performed live with the *Audiovisual Environment Suite* software, created an interplay of scored and improvised composition, and examined the possibilities of experimental interfaces for a multimedia performance. The *Suite* software consists of five interfaces for audio-visual composition that allow performers to create abstract visual forms accompanied by sounds. Each of the interfaces differs in its relationships between visuals, the pitch and tone of sounds, and the performer's movement of the mouse.

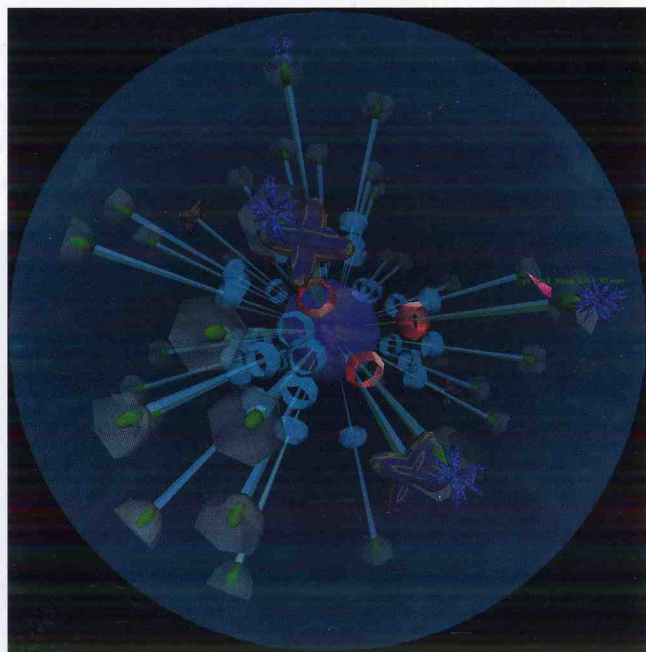




strives to establish inherent, 'organic', and fluid connections between the unfolding of musical and visual form. Many of the digital media projects focusing on the combination of visuals and sound stand in the tradition of kinetic light performance or the 'visual music' of the German abstract animator and painter Oskar Fischinger (b. 1900).

The concepts of multi-user environments, gaming, and file-sharing are central to John Klima's (b. 1965) software *Glasbead*, (1999), a multi-user collaborative musical interface, instrument and 'toy' that allows players to import sound files and create a myriad of soundscapes. The interface consists of a rotating, circular structure with stems that resemble hammers and bells. Sound files can be imported into the bells and are triggered by flinging the hammers into the bells. While *Glasbead* creates a contained world where sounds and visuals enhance each other, it allows up to twenty players to remotely 'jam' with each other. The project was inspired by Hermann Hesse's novel *Das Glasperlenspiel* (*The Glassbead Game*, published in English under the title *Magister Ludi*), which applies the geometries of music to the construction of synaesthetic microworlds.

The participatory, networked creation of soundscapes is also increasingly explored through the use of portable 'instruments'.



116. John Klima, *Glasbead*,  
1999



117. **Golan Levin**, *Telesymphony*, 2001. When an audience member's phone was 'played', a spotlight above them was switched on. The resulting grid of lights illuminating the audience was visible as a 'score' on projection screens at the sides of the stage. The performers dialled the phones by means of custom-software, and at times, nearly two hundred mobile phones were ringing simultaneously.

Expanding his musical work into the realm of nomadic devices, Golan Levin (with nine collaborators) created *Telesymphony* (2001), a performance where sounds were generated by the choreographed ringing of the audience's mobile phones. The concert took place at the Ars Electronica Festival in Linz in 2001. Audience members were asked to register their phone number at a webkiosk before the event and in return received a ticket which assigned them a seat in the concert hall. New ring tones were automatically downloaded to their mobile phones. Since each spectator at the concert had a registered phone number, seat, and ring tone, the performance itself could be precisely choreographed by the musicians/performers. The audience thus became a distributed melody in a 'cellular' space, while the disruption often induced by the ring of a phone was unified into a symphony. An installation-based project of a similar kind, *Telephony* (2001) by Thomson & Craighead, allowed visitors to a gallery and remote participants to dial up forty-two mobile phones that were installed as a grid on a wall. The phones would in turn start to also call each other, creating a layered audio environment. Works such as *Telesymphony* and *Telephony* continue the



explorations of pioneers such as Max Neuhaus, who defined new arenas for music performance by staging sound works in public arenas and experimenting with networked sound as a form of 'virtual architecture'. In the first instalment of his project *Public Supply* (1966), he established a connection between the WBAI radio station in New York and the telephone network, implementing a twenty-mile aural space around New York City, where participants could intervene in the performance by making a phone call.

Sound and music projects also commonly take the form of interactive installations or 'sculptures' that respond to different kinds of user input or translate data into sounds and visuals. The sound 'sculpture' *Ping* (2001) by American Chris Chafe (b. 1952) and Swiss-born Greg Niemeyer (b. 1967) is an audio-networking project driven by data travelling over the Internet. The sound created by the installation is created by ping commands, which contact servers to see if a connection can be established and thus provide a form of measuring time and distance. *Ping* translates the time lag of the data flow into audible information. Through the installation, users can pick instruments and scales or influence speaker configurations, as well as add to or change the list of

118. Chris Chafe and  
Greg Niemeyer, *Ping*, 2001

