



Performances with Electroacoustic Clothes:

## **Solar Ballerinas**

Benoît Maubrey / Die Audio Gruppe

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Audio Tutu.  
Duo with clarinette player.  
Les Arts au Soleil / Aeronef, 1989  
Solar-powered electroacoustic Tutu and (256K) digital sampler

Since 1982 I have been creating "sounding" clothes: basically these are electro-acoustic clothes and dresses (equipped with amplifiers and loudspeakers) that make sounds by interacting with their environment.

Towards the end of 1988 I had been experimenting with **solar cells** as a power source for the Uniforms (usually we use rechargeable 12-volt batteries) and came to the conclusion that they had to be mounted on a horizontal surface in order to catch as much of the sun's rays as possible. The artist Susken Rosenthal helped me build a transparent disc-like skirt out of plexiglass that could hang loosely on a belt from the waist. On this surface we placed the solar cells and electronics. A visiting dancer friend who saw the prototype explained that we had created a "tutu" -- the skirt-like piece of clothing that dancers wear in classical ballet pieces such as Swan Lake. This is how Audio Tutus came into existence. We also discovered that the hard but flexible tutus (made out of polycarbonat) were ideal for mounting speakers, microphone jacks and amplifiers, not unlike a disc-jockey's mixing board. Under the guiding impulse of our new chief engineer, Manfred Thiem, we started experimenting with new equipment -- for example, a digital chip (256K) for sampling sounds, an electronic metronome, a photovoltaic resistor (to be used as a light sensor), and a miniature radio receiver. With their photovoltaic sensors the Audio Ballerinas can react to light, not unlike a Geiger counter responding to radioactive substances. The pitch of the sound could change according to the intensity of the light. This occurred when either their own shadows or the shadows from their surroundings (tree, clouds) interfered with the direct light as they danced. In effect, they could thus translate their body movements into sound. With their receivers, the tutus rendered audible the radio (electroacoustic) waves traveling through the air (my favorite sound is actually the "white noise" between the radio stations). In the end, we had a plexiglass dress that could spontaneously pick up sounds, record them digitally, play them back, amplify them, repeat them (via an electronic repetitive "loop"), and alter their pitch. For example, the tutus could record five seconds of the sound of a bell tower ringing nearby and instantaneously play back the sound. The additional electronic features allowed the wearers to change the speed of the loop or the tenor of the pitch (like a rudimentary sampler) to make the bell sound like a heavy brass gong or, in the other direction, a jingling bell. A piece based on this idea, called **Digital Memory**, is at the core of an Audio Ballerina performance. In each place where they perform, the first task of the group was to find a particular local sound -- a sound indigenous to that site or country -- that could be borrowed for this piece. These new technical additions allowed us to do away with the Walkman players and tapes that we had been using previously. In fact, equipped with these "digital memories" (samplers) the Audio Ballerinas had metamorphosized into a sort of mobile ensemble that, instead of playing regular instruments, went around "stealing" (i.e. recording) sounds from around them, altering and re-arranging them into multi-acoustic compositions.





Photos: PEEPERS choreography in which light-to-frequency sensors enable the Ballerinas to produce sounds through the interaction of their movements and the surrounding light.



THE LINE performance, NTT-ICC Tokyo, 1998  
Rakes with contact microphones and  
Walkman sound (H.P.Kuhn)



The Line. INTERFERENZ Exhibition, St. Petersburg 1991.  
Performance in Catherine the Great's Marble Palace (Lenin Museum)  
Rakes with contact microphones and Walkman sound (HP Kuhn).



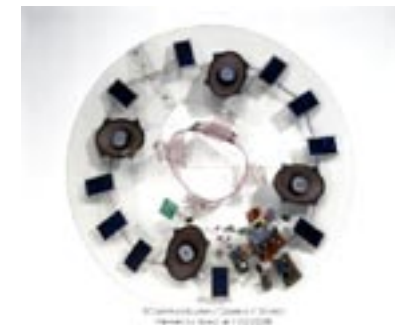
The Audio Ballerinas also use Piezo contact microphones in their performances. They fastened them onto other “instruments”, such as umbrellas or a simple metal rods, which function like giant phonograph needles being dragged on the ground and amplified via their electroacoustic tutus. Hence the original title of the piece: The Earth as a Record Player.



Solar Ballerinas/ Coney Island.  
Solar-powered Audio Tutu with light-to-frequency controller and radio.  
CANARY Projects 40°, 73° / NYC 2008



Photos courtesy of the London Science and Society Picture Library: Audio tutu, 1989.  
Details of a solar-powered Audio Tutu.  
*"Invented by Benoit Maubrey as part of his concept in Electroacoustic or Audio clothes. Dancers wear tutus like this to record the sound patterns of their movements. After the electronics in the tutu have digitally doctored the sound it becomes the music for the dance. The tutu is solar-powered and made of plexi-glass and has microphones and speakers. Many of the ideas and designs of Maubrey and his colleagues (at Die Audio Gruppe in Germany) form the basis of public performances in specific spaces, eg the Audio Bicyclists for the Arts Festival at Rennes..."*





In 1991 the Audio Ballerinas were invited to perform at the European Land Art Biennale in an open coal mining area near Cottbus. In this situation we demonstrated alternative energy forms in a performance context.

Photo below right: solar-powered electroacoustic Tutu amplifying a piezo microphone scraping along the abandoned train tracks.

Photo below left: seven East German volunteer Ballerinas with solar-powered electroacoustic Tutus and "apple" radio receivers. The radios are sold as electronic kits and can be powered by electrodes inserted into apples. Instead of apples we used solar cells: in the course of this dark-to-dawn performance (5 to 8 AM) the Audio Tutus gradually reacted to the increasing daylight: playing at first white noise and later -- when the sun has fully risen -- amplifying a cacophony of local radio stations.



Benoit Maubrey : CV

1952 born in Washington, D.C.

1975 Bachelor of Arts Diploma from Georgetown University

since 1979 in Berlin

lives and works since 1990 in Baitz (near Brandenburg/ Germany)

Performances, Festivals and Installations (a selection):

2008 MOSTRA DES ARTES SESC/ Sao Paolo, Brazil.

-- Hohenrausch Festival/ Rostock.

-- MUSICA EX MACHINA/ Bilbao.

2007 IM AUGES DES KLANGS , Schloss Moyland/ Joseph Beuys Archive.

-- INGENUITY, Cleveland Festival for Arts and Technology.

-- Digital Arts Week, Zurich.

2006 ROBODOK Festival, Amsterdam.

-- Taipei Digital Arts Festival, Taiwan.

-- Sitelines Festival, NYC.

-- Lange Mozart Nacht, Augsburg.

-- SIGGRAPH, Boston.

-- Digital Arts Week, Zurich.

2005 CORPUS Festival, Brugge, Belgien.

-- The ELECTRONIC GUY solo Tour, Vancouver (Video In), NYC (Location 1).

-- Die Blaue Nacht, Numberg.

2004 "Sonoric Atmospheres/Ostseebiennale der Klangkunst.

-- AUDIO IGLOO, sound sculpture in the Singuhr-Hörgalerie, Parochial Church/Berlin.

-- Thailand New Media Art Festival/Bangkok.

-- „Soundscape & Shadow“ Musikfestival ‚Denkmalschmiede Höfgen.

-- Lowlands Festival., Holland.

-- Schweriner Kultursommer.

-- LEM Festival (Gracia Territoria Sonora), Barcelona.

-- BUGA Park Potsdam, AUDIO PEACOCKS, gARTen event.

2002 AUDIO BALLERINAS, Location One, NYC.

-- HIGH FIDELITY production, Musiktheater im Revier, Gelsenkirchen (co-production mit Berndt Schindowski).

-- AUDIO PEACOCKS, Artist in Residence at Lieux Publics, Marseille.

-- Hamburger Bahnhof, Museum fuer Gegenwartskunst, Berlin.

-- Potsdamer Festspiele.

2001 KunstMuseum / Wolfsburg

-- New Haven Festival for Arts and Ideas.

-- Seoul Performing Arts Festival.

-- Medi@terra, Athens.

-- Musee des Arts et Industrie, Saint-Etienne.

-- FETA Festival, Gdansk.

2000 Monaco Dance Danses Forum, Montecarlo.

-- Tollwood Festival, Munich.

-- Postdamer Musikfestspiele, Potsdam.

1999 IDAT (International Dance and Technology Conference),Phoenix, Arizona.

-- Danztag, Kulturhus Aarhus, Denmark.

--"Audio Ballerinas and Electronic Guys" , Theatre am Hallesches Ufer / Berlin.

-- AUDIO IGLOO, commissioned electro-acoustic sculpture at Hull Time Based Arts, UK.

-- Les Nuits Savoureuses de Belfort, France.

1998 MALTA Festival , Poznan, Poland.

-- Stockton Riverside Festival, UK.

-- International Symposium for Electronic Arts, Chicago.

-- „Audio Ballerinas and Electronic Guys“ USA tour, The Kitchen (NYC).

-- Stockton Riverside Festival, UK.

-- Stedelijk Museum, Amsterdam

1997 AUDIO GEISHAS, ICC-NTT Tokyo City Opera House.

-- ISEA, Chicago.

-- Ostranenie Festival, Stiftung Bauhaus / Dessau.

-- XIX International Triennale Exhibition of Milan.

-- SONAMBIENTE Sound Art Festival, Academy of Arts, Berlin.

-- International Street Theatre Festival, Holzminden (1st Prize for „Mobility and Flexibility“).

-- „Audio Ballerinas and Electronic Guys“ Tour/ USA, The KITCHEN (NYC), Scena Theatre (Washington, D.C.),

Buskers Fare (NYC).

-- KRYPTONAL Festival, Berlin.

-- 38eme Rugissants, Grenoble.

1995 Krakow (THE KRAKOVIAN MEETINGS ).

-- Sound Art Festival, Hannover.

1994 „Audio Drama“, Theatre zum Westlichen Staathirschen, Berlin.

-- International Symposium for Electronic Art, Helsinki.

--"Audio Drama", co-production with Theatre zum Westlichen Staathirschen, Berlin.

1993 MEDIALE, Hamburg.

-- Art and Computers, University of Moscow.

1996 Sound Art Festival, Krakow.

-- „Augenlied“, Schloß Pluschow, Mecklenburgische Künstlerhaus.

-- ULTIMA Festival, Oslo.

1992 Cleveland Performance Festival, Ohio.

-- The Night of Electricity, Rotterdam.

-- TISEA, Sydney.

1991 European Land Art Biennale, Cottbus, Germany.

1990 Festival les Arts au Soleil., Aeronef Lille, France.

-- Sound Symposium, St. John's, Newfoundland.

-- „Urbane Aboriginale“, Berlin.

1989 Festival PERSPECTIVES, Saarbrücken.

1988 Festival des Arts Electroniques, Rennes, France.

--"Parcours Sonores“, Musée de La Villette, Paris.

-- Festival of European Street Theatre, Aurillac, France.

1996 STEIRISCHE HERBST, Graz, Austria.

-- Galerie Giannozzo. Berlin.

1986 ARS ELECTRONICA, Linz, Austria.

- The Mattress Factory, Pittsburgh, Pa.

-- Berlin Atonal Festival.

1985 Bundesgartenschau 85, Berlin.

-- „Berlin in the Gasteig Art Center“, Munich.

Workshops / Guest artist lectures:

Oberlin College, Concordia University, Johns Hopkins University, Virginia Commonwealth University, Dresden

Academy of Arts , Academy of Arts Enschede, Simon Fraser University, George Washington University. MIT

Media Lab, IDEA Center Colorado College.

Awards: Prix Ars Electronica 1991 Anerkennung , European Award for Street Theatre/Holzminden 1995,

Franklin Furnace Fund for Performance NYC 2006, Palmarès du 35e Concours Internationaux de Musique et

d'Art Sonore Electroacoustiques de Bourges 2004 (the LINE) and 2009 (CyberBirds), Grand Prix International

Video Danse 2002 (Mention Speciale).

Grants: 1999 Hull Time Based Arts, UK.

2006 Composer-in-Residence, Schloss Wiepersdorf, Brandenburg, Germany.

Bibliography:

-- LEONARDO, Vol.28, No.2, pp.93-97, 1995, Audio Jackets and Other Electroacoustic Clothes.

-- BENOIT MAUBREY/ DIE AUDIO GRUPPE, catalog 1985.

-- Die Audio Gruppe 1982-1998, catalog 1989.

-- KLANG und BEWEGUNG, Berichte aus der Musikwissenschaft, Shaker Verlag ISBN 3-8322-2270-7