

Since 1993, **Chris Ziegler** has worked as a freelance media artist at ZKM Karlsruhe, where he has done projects with Ballett Frankfurt, the Goethe Institute and the National Gallery of Canada. Since 2000, he has produced installations and interactive dance performances, that are shown at many festivals. He has been invited internationally, to teach and give workshops in dance and new media. In this project he is responsible as designer and programmer for the interactive DVD-ROM and Installation. www.chrisziegler.de

Electronic memory design

From archiving to rehearsal software

As an interactive media artist and designer, **Chris Ziegler** has been engaged since 1993 on several projects involving the creation of choreographic and dance information interfaces. In the following account, he gives a short description of those projects he worked on before the *Double Skin/Double Mind* Installation and DVD-ROM. In each, the distinctness of the questions related to different dancing bodies, ideas and intentions is explored; along with their design solutions. Ziegler closes with a description of the state of the research on the *DS/DM* project just following the Amsterdam Preview of the Installation 29-30 June 2007.

In the early 1990s, the World Wide Web, as a 'public digital memory', and the CD-ROM were emerging as promising new approaches to documenting and archiving artistic knowledge. This was when I began my work, in 1993, at the Center for Art and Media (ZKM), Karlsruhe in the Department of Visual Media. The aim of the Department was to build up a MediaLab dedicated to developing interactive media installations for museum exhibitions and CD-ROMs for publishing. In addition to publishing content on CD-ROM, such as for ZKM art-catalogues, we also gave artists the means to explore them as an artistic platform.¹

Digital dance archive: visualizing space and time

My first assignment with the MediaLab was a series of projects with choreographer William Forsythe who had invited the Lab to assist him and his company, Ballett Frankfurt, in building up a digital video archive.² The company was seeking innovative ways to archive and access their large number of rehearsal and performance videos. There were at least two aims for these projects: one was to support new dancers in learning the works of the company before going into rehearsals. The second was to properly document the rehearsals and performances of choreographies that

were evolving over time, that resisted being 'finished'.³ Our first project was to create an archive of the developmental changes of the choreography *Loss of Small Detail* that premiered in 1991.⁴

As part of this project, a prototype interactive media installation was designed to support the preparation of new dancers. This installation, set up as a single terminal, gave access to the history of rehearsals and performances and included a first try-out of simultaneously recorded camera angles. It also included short lectures by Forsythe in which he introduced the movement principles of 'improvisation technologies'; a technique he had developed for 'real-time choreographies'. This is when we first used graphic overlays to augment his lectures. (Figure 1)

These visualizations made it much easier to understand the 're-organised' relations between body, space and time he wanted his dancers to understand and work with. Another archival project, completed in 1994, focused on the development of a new work *Self Meant to Govern* for which a unique 'knowledge base' of videos, including rehearsals and the premiere performance, recorded to facilitate an interactive multi-angle camera interface, was created.⁵ (Figure 2)



Figure 1: *Loss of Small Detail*, screenshot, graphic overlays on lecture.

For the design of the combined archive/teaching tool for *Loss of Small Detail*, which carried over into *Self Meant to Govern*, we proposed a cross-linked archive of theory (lectures) and practice (rehearsal, performances). The specific needs of the rehearsal context made it necessary to have fast access to the information; hence the material was broken down into short lectures and samples from rehearsals and performances. The navigation was always available as a list of the short lecture titles at the right side of the screen, arranged in chapters (Figure 3). The videos played in the center of the screen, and single letters in the corners, gave access to different levels of information linked to the lecture. For each chapter there was T - for theory, E - example, R - rehearsal, P - performance.

Finally, these projects resulted in the creation of a CD-ROM for public release in 1999 with the title *William Forsythe: Improvisation Technologies, A Tool for the Analytical Dance Eye*. This 'tool' was a more general description of Forsythe's movement principles. It was no longer documenting the development process of a choreography, and there was no rehearsal or performance material. The R - rehearsal and P - performance were taken out leaving only T - theory and E - examples (dancers demonstrating the lectures in

the studio with additional graphics). (Figure 4) The CD-ROM also includes a solo of Forsythe performing an improvisation using as many of these principles as possible. The CD-ROM doesn't introduce the viewer to Forsythe's creation process (something often misunderstood by those who use it), only how to understand dancing as a multi-layered language re-organizing an architecture of space and time.

Significantly, the design of the interface, in particular around the lectures, was the result of a long conversation and collaboration with Nik Haffner, a performer with the company who was able to explain the process of learning and performing. With my background in Architecture, Design and Media Art and Haffner's in dance and some film work, we made a strong interdisciplinary team. Up until these series of projects, documenting and archiving dance was largely done at the point of performance, but with *Improvisation Technologies* a part of the process that may be used in creation is captured and shown by one body and demonstrated in others. For dancers and dance scholars this becomes an important new way of accessing dance information. *Improvisation Technologies* also borrows space and time concepts from other disciplines like architecture, film and philosophy; it then



Figure 2: *Self Meant to Govern*, screenshot, multi-angle camera interface.



Figure 3: *Self Meant to Govern*, screenshot, navigation list.



Figure 4: *Improvisation Technologies*, screenshot, studio demonstration.

reveals itself to be a language for relating these other fields to the conditions of a physical performance on the stage.⁶

Designing tradition: ancient pine trees and 3D hyperlink interfaces

Soon after its publication, the *Improvisation Technologies* CD-ROM was selling very successfully in Japan and Tokyo Media Connections, known for its documentaries about Noh and Kyogen Theater, asked ZKM to design a CD-ROM like *Improvisation Technologies* about Kyogen. The aim was to bring Kyogen closer to the next generation, which was seen to be losing its connection to performing arts traditions resulting in a lack of attendance at performances.

Kyogen is a Japanese theater art form that has not changed for 500 years. It is traditionally performed as twenty minutes long comedy plays in between sections of the longer, more serious, Noh Theater. All together, this could comprise a full day and night of drama, dance and comedy. Approximately 120 Kyogen plays were created in the 16th century, but since then these texts have not changed and no new plays have been written. The art of learning and performing the comedy plays has been passed down from one generation to the next.

There could not be a starker contrast with the *Improvisation Technologies* project. It was difficult to fully grasp the differences between the Japanese and European traditions in the time we had for the project, but I needed to learn enough to come up with an appropriate design for the interactive interface and information structures for *That's Kyogen!* (the title of the DVD-ROM).

Mansaku, the son of one of the most famous Kyogen players of Japan, gave us an interview in which he described his life-long training in the tradition of Kyogen. This training has no parallel in the relatively short term of Western training in acting techniques. It is almost evolutionary in nature, as only at a certain age one is able to play a particular role. For example: the 'mushroom' characters in one Kyogen play are often played by children; whereas another character, the 'fox', performed in a fur costume covering the whole body, needs the physical strength of a young adult actor; and many of the more humorous characters require subtle qualities and a layer of seriousness that is best achieved by actors of an older age. Learning skills per se is not the most important part of training to

play a character on the Kyogen stage. Training is also evolutionary in the sense that the Kyogen actor repeats one role many times and through this routine evolves or develops his capacities from one level to the next. This is how life-long training enables an actor to transform slowly into new characters over time, which may be one of the reasons that the two families in Tokyo teaching Kyogen are only doing so inside their families.

Through research I eventually discovered an appropriate visual metaphor for the general design drawn from the painting of the ancient pine tree that stands at the back of the Kyogen stage. The pine tree is symbolic in Japanese Noh Theater. Not only is it the site for divine creation, as the place where the gods descend to earth from heaven, but Noh was traditionally played on outside stages in front of these old pine trees. The pine tree became my visual metaphor for the design, which became a three-dimensional tree-like interface layout. The branches were 'characters' which are linked to 'acting' and these chapters were also linked to 'plays'. (Figures 5, 6, 7)

The links are relational, in other words, in the 'plays' section the user can also find all the 'characters' of that play as well as access an 'explanations' section just by switching branches. In addition to this tree design, the interface offers an evolving set of information links beside the display window. So, when watching the performance in the 'plays' chapter, for example, different links appear when new characters appear on stage. This emphasizes the temporal dimension of the performance and makes the connection to one of Kyogen's defining characteristics; that it is knowledge of acting that can only be achieved through a lifetime of training and performing.⁷

Another journey in time: rhythm and eye movements

In the summer of 2000, during a research lab at Arizona State University's Institute for Studies in the Arts, I gave a presentation of the *Improvisation Technologies* CD-ROM. Participating in the lab was Indian choreographer Jayachandran Palazhy who was establishing a movement research center in Bangalore called *Attakkalari: centre for movement arts*, where he hoped to initiate projects involving dance and new media technologies.⁸ Soon after, in 2001, Palazhy and I collaborated on my first stage work *scanned*, and we continued to work together on an interactive multimedia dance documentation project titled *Nagarika*:



Figure 5: *That's Kyogen!*, screenshot, character branches.



Figure 6: *That's Kyogen!*, screenshot, character branches to acting.



Figure 7: *That's Kyogen!*, screenshot, acting explanation branches to plays.

The aim of the *Nagarika* project, now established as part of the Attakkalari media activities related to dance documentation, is to develop a series of DVD-ROMs based on traditional Indian dance techniques. The first of these series, inspired by both the *Improvisation Technologies* CD-ROM and the *That's Kyogen!* DVD-ROM, received support from the Daniel Langlois Foundation (for digital archiving projects), the Goethe Institute and a Japanese art foundation. With this, Palazhy formed a small interactive media design and development team to work on the project including Matsuo Kunihiro, a Japanese media artist, and myself.

The first in the *Nagarika* series, *Volume One*, was dedicated to the traditional Bharatanatyam dance. As with the Kyogen project, I needed to research Bharatanatyam – its traditions as a performing art and how it was transmitted from teacher to student. Indian dance training has a strongly oral dimension to it, and it was decided that the core of *Nagarika* should be lessons given by several teachers; some of the teachers are over sixty years old and Palazhy was at one time their student. On the DVD-ROM, six teachers give introductions to movement, time, rhythm and music; this involves detailed explanations and performance excerpts by the teachers themselves or by one of their students.

One could say that William Forsythe and the Ballett Frankfurt had established their own modest oral tradition as manifest in the collection of short lectures on

the *Improvisation Technologies* CD-ROM. And the interface designed for the *Nagarika* Bharatanatyam DVD-ROM was not much different from the basic layout of the Forsythe CD-ROM. Lectures (explanation) are linked to excerpts of movement sequences (Adavu) or longer parts of choreography (Korvai). (Figure 8) There is an additional context chapter, to give space for longer explanations, that branches out to other fields related to movement, time and space. (Figure 9) This is where the similarity with *Improvisation Technologies* ends.

As mentioned earlier, the Bharatanatyam training is already very verbal; but there is also a high density of expressive communication involving the face, eyes and head movement and many other expressive gestures with the rest of the body. Originally, we were discussing the possibility of adding graphics to the video as with the *Improvisation Technologies* lectures. For example, the dance establishes space and time by a simple eye movement (as in looking from left to right) followed by an arm movement. We thought at first to emphasize some of these clear ideas by layering animated graphics on top. But Palazhy explained that the most important base of Indian traditional dance lies in the rhythm. And this rhythm, in traditional Indian dance, lies in between singing and body movement and involves different time scales. Therefore, it is necessary to 'sing' the beats, and to support the singing, the teachers use hand and finger clapping in numerous ways to help them recall very complex temporal structures that they have memorized. This makes metric counting almost impossible.

Still exploring the idea of adding graphics, we thought of depicting the different time scales by having watches running with different hands; but this addition of graphic information offered no improvement on the video of the teacher explaining and demonstrating. So in the end we decided to simply leave the teaching alone – as closely as possible representing a live teaching situation. The lessons, even on the video, are highly multi-dimensionally expressive as well as clear and precise. The dancers use the movement of the body to establish time and with expressive gestures establish the space – the stage in front of the eyes of the audience – through a joyful mix of talking, moving and singing. In *Improvisation Technologies* we used graphics on top of video lectures as a tool to follow the construction of an increasingly complex mental architecture through dance. *Nagarika* has no such specific development pathway; it is more a collection of stations along a journey in space-time.

Double Skin/Double Mind: a workshop installation as theatre

In early 2006, I was invited by Bertha Bermúdez to participate in the *Notation Research Project* with my experience, not only as a designer of interactive multimedia projects for dance archiving, education and documentation, but also based on my more recent work as a theater artist mixing live performance and real-time stage technologies. Bermúdez' invitation seemed to suggest a way for me to bring these two strands of my research and work together – to mix multimedia and real-time stage technologies. My thesis for the project would be that: "extending

the multimedia information on the screen into the 'theater' space and using real-time stage technologies, might help improve the transmission of the dance information and further the aims of the dance research".

The project quickly evolved, to include both an Installation and a DVD-ROM. The basic material would be the *Double Skin/Double Mind (DS/DM)* workshop. Emilio Greco and Pieter C. Scholten had been developing for several years. In the Summer of 2005, the *DS/DM* workshop had been filmed for the making of a documentary about it. This meant that its structure had already been analyzed. Here Bermúdez was filling the same role that Nik Haffner had played with the *Improvisation Technologies* project: like Haffner she had not invented the systems of training/teaching or preparation, but she was the main one to shape it into 'user and design friendly' chapters; naming and editing the information structure.

In contrast to *Improvisation Technologies* (mental architectures for real-time choreography), *That's Kyogen!* (complex relations between characters, plays and acting) and *Nagarika* (multidimensional gestural expression of rhythms), the *DS/DM* Installation/DVD-ROM aims to provide access to the self-awareness preparation of the dancer for the creation and performance process. And part of the challenge of this project as compared to the other three was the task Bermúdez approached me with: "How can we depict the intention and inner quality of the movement? Lets try to describe the indescribable".



Figure 8: Nagarika, screenshot, Korvai choreography..



Figure 9: Nagarika, screenshot, context chapter.

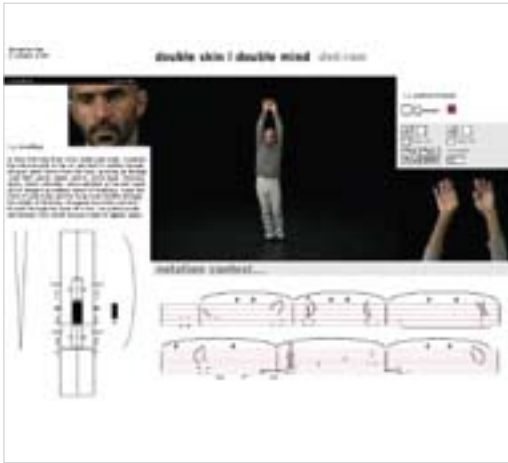


Figure 10: Layout Patchwork of fields, screenshot.

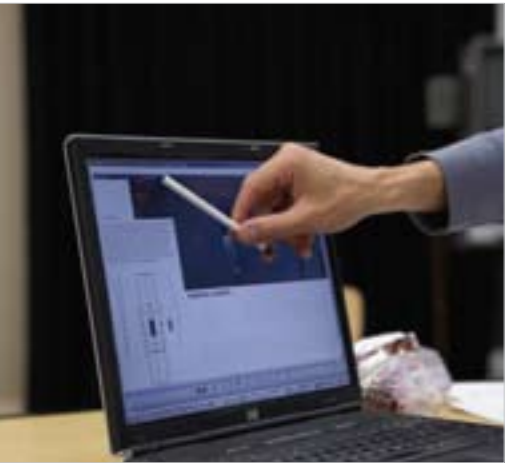


Figure 11: Photo from design session.



Figure 12: *DS/DM* Installation set up Amsterdam School of the Arts, June 2007. Participant/ Performer: Bertha Bermudez.

An interface design involving layers of hyper-linked information didn't suit the needs of this project, and it had to be something more than just an archive. I felt I could better approach the design challenge, to grasp the 'soft skills' of dance, through the creation of a toolset; a collection of lectures, graphics, text information and custom made software such as the *gesture follower*, developed by Frédéric Bevilacqua at IRCAM in Paris. This software is designed to give real-time feedback in the form of suggestions about performed movement qualities.⁹ There are two platforms for the toolset. One is the DVD-ROM, which I have designed by dividing the space of the screen into a patchwork of fields. (Figures 10, 11) This supports access to all the information areas or fields (video lectures, notation information, related text, the *gesture follower*) on one level. Mouse 'rollovers' preselect most interface actions; e.g. watch videos, navigate, scroll images, etc.



Figure 13: Installation set up Amsterdam School of the Arts.

The other platform for the toolset is the *DS/DM* Installation. Similar to the preparations for the *Improvisation Technologies* and *Nagarika* projects, we filmed Emio Greco giving step-by-step training sessions for some of the sections of the *DS/DM* workshop. His image is projected life-size on a screen inside an installation space (a metal frame from which the screen and four speakers are hung) surrounding the participant. This creates the feeling of having a 'personal one on one workshop' with Greco.¹⁰ An infrared camera watches the movements of the participant, and sounds change pitch and levels in real-time according to a computer-based analysis of these movements. We are also working on ways to depict this feedback visually. In summary, the *DS/DM* Installation/DVD-ROM is designed as a visual and acoustic toolset to improve movement awareness in a new media environment.

The Installation has been set up and tested so far at the Netherlands Institute for Media Art, Montevideo/ Time Based Arts in March 2007 and in late June 2007 at the Amsterdam School of the Arts. Here we invited participants and other guests to discuss how to best develop the feedback system of the installation. This has had intriguing results we did not anticipate. By creating a theater-like situation of many people watching a single performer moving inside the installation, we found out that the visual information display of the *gesture follower* feedback seems more important to the audience than to the participant moving inside the installation. An exchange process between the mover inside the installation and the audience watching it needs to be established. The audience thus participates on a more cognitive, empathic level, whereas the active user is involved on a physical, intuitive level; and all these levels meet in a reflection of experiences while watching/interacting/participating in the *DS/DM* Installation.

All URLs accessed on 31.07.07

- 1 The *ARTINTACT* CD-ROM series was dedicated to art projects, specially developed for CD-ROM and its interactive possibilities.
- 2 Ballett Frankfurt was discontinued in 2004. William Forsythe started The Forsythe Company in January 2005. www.theforsythecompany.de
- 3 For more information about these projects and details regarding the chronology of developments leading to the public release of the *Improvisation Technologies* CD-ROM see the booklet that accompanies the CD-ROM.

- 4 *Loss of Small Detail* went through several major versions since the 1991 premiere.
- 5 *Self Meant to Govern* was only performed a few times, and now it comprises the first part of *Eidos Telos* in the present repertory of the company.
- 6 Forsythe is involved with a new project to create an On Line Interactive Score from *One Flat Thing*, reproduced. In contrast to the *Improvisation Technologies* CD-ROM this project takes a finished work as its starting point.
- 7 *That's Kyogen!* is only available for educational institutions, libraries, universities

- etc. It is advertised as a very exclusive, also quite expensive series of DVD-videos and one DVD-ROM for educational purposes. After almost one year of production, the Japanese publisher Katagawa decided not to publish the title outside Japan.
- 8 Website of the Attakkalari Centre: www.attakkalari.org.
- 9 See: Frédéric Bevilacqua's *Momentary notes on capturing gestures* (published in this book) p. 26.
- 10 This was confirmed with user/participants at the June 2007 try out; sample comment: "I feel like someone is standing there".