Data Art
Interactive Landscapes
Johannes Birringer
Over the past twenty years, the landscape of contemporary art has shifted in many ways. If we think of them as small tectonic shifts, we avoid touching upon the overexcited hyperboles of the earlier pronouncements on the digital revolution or the information age which littered the side of the highways like so many religious billboards promising salvation. But we live in times of war and the production of bare life, not liberation. How, then, do we avoid the darker pessimism of the critics of technological progress who deplore the impact of the cybernetic and prosthetic imagination on our culture, and who generally also tend to dislike computer games because they suspect them of nurturing a dangerous and anti-social autism?

Our user manual will be friendly, addressing the autisms and the virtual cameras directing our movement through strange and (un)familiar landscapes, as we also live in times of increasing mobility and an even more increased spread of computing and the wired/wireless networks; and the discomforting biotechnological-political paradigm. First, as signposts along the way, we shall address movement in its various meanings, from dancing to moving through space, and through the détournements and levels of fantasized reality. We think about art as a phenomenon now closely related to play and the playful, as much as it may strive to continue to be connected to the social, historical, political, and diverse civilizational layers of our earthly existence.

Artistic experimentation since the 1990s can be addressed in the wider context of digital culture, as it is probably useful to see performance or dance, like architecture, film and music, games and robotics, installations, net art and locative media, folding or unfolding on the same plates of dominant modes of technical reproduction or, to use Benjamin’s code word, ‘reproducibility.’ The work of art in the age of digital reproducibility is a data work and thus entirely difficult to place within existing aesthetic categories or any other categories derived from science, technology or mass culture. But to offer a viewpoint, the tectonic landforms that have come to dominate the scenery in our digital regions can be described as unstable media created out of data processes and interactions, network communications and responsive environments. The role of physical-bodily involvement in the digital is unquestionable. Notions of ‘work’, however, have changed and are now indeterminate.

It is likely that the ‘work’ of art is not only changing its form and means...
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of delivery. Its processual and participatory qualities are now embedded in performative interface systems, in augmented space. The latter is based on computer programs and algorithms, as well as rule-based features, including new possibilities in emotional design/affective computing, on one level, but also implying fundamental technical determinants, on a higher level. One will have behaved a certain way, one will have been engineered a certain way.

And game is one of our central cultural metaphors of the digital age, a sacred cybernetic model of control. Games are programmed to be repeated and thus are reproducible as a systemic of patterns with variables, cultural and technical. igloo is working with game-making tools: game engines, animation and motion capture technologies. At the same time, they resist the category of game. This essay explores this contradiction by surveying the multiplicity of practices that igloo have been and are involved in alongside their contemporaries with critical reflection on the status of this art ‘work’ in the context of digital culture.

Art & technology & igloo

The output of artist groups such as igloo, amongst other contemporary ensembles and art/ research labs, is symptomatic for the tremulous movement of the scenery with its emerging mainstreams (computer games, digital art now exhibited in museums and festivals) and undergrounds (machinima, net art, YouTube). The increasing significance of such artist groups who in many instances also perform their own hard/software engineering and coding, coincides with the spread of the computer and the simultaneous rise of the internet and the World Wide Web since the early 1990s.

Tracing the output of igloo in this digital culture of the last fifteen years, I begin by mentioning the publication of two manuals which precede the release of the SwanQuake: The User Manual you hold in your hands. The first is Darren Tofts’ Interzone, a comprehensive guide through media arts, performance and a-life practices in Australia during the last decade of the twentieth century, focusing in particular on certain key terms – interaction, interface, immersion – which help to define the relationships between art and new technology, between words, concepts and cultural phenomena they signify. (Toft, 2005)

The other manual reflects on practices directly (via the practitioners and their exhibitions and projects). aRt&D: Artistic Research and Development can be seen as a research manual, documenting a whole new investigative field of electronic art by looking at a number of characteristic projects which either concentrate on the creative use of existing technologies or develop their own new technologies (hard-, soft- and netware) needed to realize the intended project. (Brouwer et al., 2005) Bringing together practitioners from a variety of labs from around the world, this manual demonstrates very persuasively how interdisciplinary the digital arts field has become, and how often new works are developed now over longer periods of time linking visual, sound and performance artists with engineers, programmers and scientists from diverse fields. The connection between conceptual techniques, technical craft and software engineering is nowhere more obvious than in the confluences we have seen between some of the physical performance practices (dance, music) and technology, but also in the innumerable, heterogeneous art, technology and new media ‘techniques’ that have evolved in the computer and club culture scenes (hip hop, digging), the universe of sampling and re-mixing which DJ Spooky refers to as ‘rhythm science.’ (Miller, 2004)

Making art of databases, creating work with real time sampling and data processing, sometimes involving multiple partners connected live through the network, constitutes a paradigm of media composition which was not
imaginable thirty or fifty years ago, even as many of today’s digital artists may remember that all avant-garde movements in the past, in some way or other, made innovative use of tools and of ‘old media’ in order to explore new interfaces or alternative ways of being in direct contact with the material on which one is working. Even if this contact involves shared virtualities in telematic performance. Remembering old media and immediate contact techniques, whether between painter and paint on canvas, between composer and living sound or between choreographer and dancer, may serve us well as we probe into new systems for transformotive ‘techniques’ of controlling images and sounds, re-encoding and trans-coding media or compressing and transposing data through software and translocal networking technologies.

Computerization of creative practices is key to understanding our age, but even the role of the computer, after the rise of CdROMs, multimedia and the world wide web, cannot fully explain the comprehensive social intersections we witness between film, television, games, video, photography, music, fashion, literature and story-telling in a vast assemblage of cultural performances and life-styles. In Interzone, Tofts emphasizes the principle of interaction when he observes that computers had already found their way into domestic life in the form of video games. (Tofts, 2005:7) This association of computers with entertainment and game-play indelibly fixed the computer and its modes of interaction as part of available culture. In this respect, the popularity of video games is the first and most pervasive instance of the computerization of society. Interactivity, as a concept, was natural to game-play. However, game-play, with its logic of pursuit, strategy and problem solving, offered a paradigm for engaging with electronic media generally, requiring two-way or reciprocal interplay between itself and the user. Video and computer games also introduced styles of engagement with computers that would find resonance in our first encounters with computer-based art works.

But pervasive computing and this principle of interactivity do not necessarily reflect other developments which are derived from computational science and cybernetics but are more closely connected to biology and genetics, and thus the search for understanding the technical reproducibility of life itself (and of bodies and organs, designer identities, becoming other). Speaking of seismic shifts: contemporary biotechnologies, surreally refracted in creative experiments referred to as transgenic art, wet biology art or tissue culture, surely spell the fundamental technical determinant of the new twenty-first century. Biocybernetic reproduction – if it confuses the distinctions between humanity, animal species, dynamics systems, technologies, cultures and other parallel universes (extra-terrestrial, mythical, supernatural, genetic) – transforms the conditions of all living organisms in our technical realities. To some extent the fantasies of science have already been played out in the popular cultures of science fiction. At the 2005 Ars Electronica, ‘hybrid realities’ were dissected and questions raised about our mirages, our stimulations, the games we play. How are we to use the ‘avatar perspectives of technology’ that allow us polyphonic, hybrid identities?

How to use our perceptions in the virtual real, in a reality in which structures of life, biological existence, intelligence, or consciousness are unintelligible without the help of extra sense-machines (those of science, mathematics)? Chaotically speaking, is not such hybrid reality the condition of an impossibility of setting up boundaries, perimeters and limits, presuming that everything crossbreeds, entangles, merges and penetrates everything else? This is the digital world in which we play our games, for what is the digital if not a powerful technique of hybridization, contamination and dissemination.
Wiggly worm, or: human-computer interfaces

This sense of mellifluous and sinister crossing pervades Ruth Gibson and Bruno Martelli’s creative output over the past ten years since their initial collaboration in 1995, and it becomes quickly apparent that the www.igloo.org.uk website is in itself an interactive installation allowing the visitor to move through expanding terrains (small thumbnail images become larger photographs, movies or animations) and inverted, punning concepts – Star Wars becomes WarStars, The Empire Strikes Back becomes BackStrikesEmpire; Merce Cunningham’s Summerspace (1958) and Winterbranch (1964) beckon from afar as natural landscapes, the cycle of seasons, metaphorical birds, pixilated creatures, optical illusions and mythical allegories greet the viewer in igloo’s Summerbranch, WinterSpace, Cuckoo and Viking Shoppers. Nothing is quite what it seems. Toys for children, an ‘emoticon gallery,’ and wiggly lines for a chill out screen-saver are also on offer. Technical or coding language joins hands with choreographies of the body, 2D and 3D computer graphic media flow into and out of live performance, tool systems abound yet are explored to humorous and entirely surprising ends. For example, in 3Ascii Ladies (1997), red, green and blue versions of a ‘character’ from WindowsNinetyEight (1996) are created by an ASCII camera and used for a looped projection: what is left from the earlier filmic work are kinetic-numeric (body)shapes consisting of computer code.

For dotdotdot (2002), igloo uses motion capture, web tools, animation, games engine technology and custom built software, combined with sound and live movement, to generate a series of animated dancers with which the viewer can interact on line. As so often with their pieces, these exist in multiple shapes or formats. They continue. They metamorphose and a ‘live’ audio-visual installation or performance becomes an interactive online version, inviting the internet flâneur to ‘manipulate’ the dancers ‘in terms of speed, sound, rotation, movement and angle of view’. In addition, ‘a range of options are also available to change the physical appearance of each one. These permutations can be combined with internet radio station choices from drum n’ bass through to chart music. The viewer can mix and select in relation to their own experience or preferences to create short animations of their own.’

Such re-versioning with multiple user-friendly choices is not a surprise in the world of digital art or data art, but it is significant to observe the consistency of igloo’s experimentation with different formats and new methods of interaction (which also almost always involve collaboration with other artists, and in many instances also a pre-occupation with specific sites and landscapes). In particular, their creative production of SwanQuake (2007), adventurously devised to make novel use of computer gaming 3D engines in multi-user network environments – enabling users to interact with motion capture driven avatars to create new performance spaces – indicates a persistent and reflective aesthetic engagement with the dexterities of joysticks and game engines, and with techniques such as motion capture which, in 1995 when Gibson and Martelli made their first joint work Daylight Robbery, were virtually unknown and untried by most artists in the field, outside of the Hollywood industry.

Such pioneering creativity, making Daylight Robbery the first ever motion capture animation on CdROM submitted to the Arts Council England, strikes a chord in our historical recollection of early stages of the emerging ‘dance and technology’ movement, even if igloo does not squarely belong to the movement yet intersects with it, more often than not. Martelli’s background was in motion graphics, and his previous London-based design group, ShoeVegas, was at one point (in 1997) commissioned to design the computer games portion of a new exhibition on the history, culture and social aspects of digital media for
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the **National Media Museum** in Bradford. Martelli’s interest in designing the museum ‘game environment’ for visitors and hard-core players probably fed into an abiding fascination with game engines and design processes behind computer games. Upon closer look, while Gibson did not have a Hollywood connection, she did work as a model for UK games companies and the UK-based **VICON** company (established in Oxford in 1984), which produced the well-known optical motion capture system now installed in a number of British and American universities.

Around the time of igloo’s birth, new camera tracking or magnetic and optical capturing techniques, interactive performance design and computer renderings of motion began to inspire curators and dance producers in the UK (**Terry Braun** and **Illuminations Interactive**) to arrange the ‘Digital Dancing’ workshops in London (1994 through 1998), taking place at venues such as **The Place Theatre, Riverside Studios, The Jerwood Space**. All of these workshops involved igloo, and Gibson’s background as a dancer drove her specifically to look at development of movement in this new context of motion capture. Martelli had joined Gibson, and both of them drew on their expertise to test the filmic qualities of animation, pushing the limits of photorealism and a more impressionistic pointillism, and particularly the recognizability of human movement forms against the abstractness of the animated shape.

The meeting of computer culture and dance culture during the mid-1990s was one of exhilarating potentials, full of promise and anticipation. With the traditional emphasis on training, on learning a new technique, the incorporation of the digital into movement practice signalled a slow but steady growth. But dance schools like **Laban Centre** or **P.A.R.T.S.** did not follow the path, the prejudice against human-computer interfaces remaining strong. Not all the vistas that opened up have been successfully explored; in fact it is remarkable how few significant computational dance works or choreographies, installations or telematic projects are known to a wider audience and critical reception. Beyond videodance and dance on film, which experienced a boom in the early 90s, some concert dance explored combinations of performance and video projection, particularly the relations of scale and proportion between body and image, and the conversions between stage dance and dance for the camera (Wim Vandekeybus, Frédéric Flamand, Lloyd Newson, Victoria Marks, Jean-Claude Galotta, Philippe Decouflé, etc.). Interactive dance, however, developed more slowly and gradually, as with the work of Troika Ranch, halfangel, Amanda Steggell/Pier Platou, Thecla Schiphorst, Lisa Naugle, Robert Wechsler, Pablo Ventura and others, when interactive software became available or was written by the artists themselves.
In Plane (1994) was a duet for dancer Dawn Stoppillo and her video image, but Troika Ranch here used their own custom-built MidiDancer system for the first time to allow the performer to control the generation of music, the recall of video images, the theatrical lighting and the motion of a robotically controlled video projector. Fig. 3 Later, Mark Coniglio’s software Isadora became one of the more widely used and popular interactive programs written by a composer/programmer for live performers. Looking back at the earlier history of dance and technology, and noting how various artists used direct gestural and motional interfaces, it is easy to recognize that the deployment of sensor and capture systems depended on the creative software writers who developed VNS, Big Eye, MAX/MSP, Isadora, Eyecon, EyesWeb, etc. Initially inspired by music technology and the evolving practices of mapping performative input to sonic, video and real time graphics output, the conception and practice of dance technology and of performative digital art in general therefore must be understood through the extended creative development of computer software as well as the inescapable correlation of the computer-mediated rendering of data and embodied action.

The rendering of such action has taken many turns, and one can sometimes observe how digital artists prioritize the extensive development of software techniques – Marc Downie now speaks of ‘choreography for extended agent architecture’ pushing into new territories for both interactive art and artificial intelligence with the intention to match the complex choreography of Trisha Brown. The movement vocabulary of much interactive dancing, however, tends not to foreground the articulation and composition of dance gestures and phrases in a conventional sense, but brings attention to other movement. For example, the snowflakes and dancing dots in igloo’s Winterspace. Hilariously, and sometimes poignantly and even ominously underscored by the beautifully evocative sound tracks igloo commissioned, Winterspace is a rich and poetic work of flowing, floating lights (snowflakes become star lights against a dark ‘sky’) intermittently and mysteriously mingling the motion-captured dancers into the landscape. The dotted creatures pirouette across, or slowly make their lateral progression in the night, a slow modest duet of lovers who later are seen rolling on the floor, dots and dots and dots blurring the viewer’s vision, until the ‘dancers’ become a thorough optical illusion, specks of lights.
Ingeniously, Gibson designed the pointillist costumes with tiny white dots of Scotch-Lite on black leotards, gloves and hoods, and thus the costumes become part of the digital landscape and, naturally, the bio-capturing technology as such. She describes how the piece is intended to work:

The dots are picked up by infra-red lighting and vision mixed with an identical star background. When the dancers are still they disappear into the background (camouflaged) and when they move they create a shower of moving particles. Duets happen where one dancer is in costume and one is not. At times the dancer (without costume) becomes, a shadow, a negative space, an absent yet silhouetted human shape. This dancer is lifted and once in the air disappears, attention is then drawn to the physical energy of the supporting, partnering (costumed) dancer, we catch his subtle weight changes, his transferences of energy whilst carrying. (...) So the presence and absence of the costume portray opposites within the framework of a contact dance duet. (Gibson, 2005)

Reading Gibson’s description, one becomes even more drawn to the question how artists weigh their attention and their aesthetic toward the ‘coupling’ of human movement and digital animation, and how we can look at the couples but also give performative and technological crafts their own analysis, in this way distinguishing the choreographic from the algorithmic. Dancer Marlon Barrios Solano has advocated the desire for the coupling: ‘we are moving creatures within ever changing technologies with a strong tendency to couple with them’ but also suggested that critical reformulations of choreography and computation need to address how we are designing the space of relations of interactive continuity, how we think about open systems for improvisation and the ‘recursive designing of designing’ (dance-tech mailing list, 8/15/06).

Among the large-scale dance works of the late 1990s incorporating motion capture animation, the most well known are Merce Cunningham’s Hand-Drawn Spaces (1997) and Biped (both in collaboration with Shelley Eshkar and Paul Kaiser, 1999), as well as Kaiser, Eshkar and Marc Downie’s collaboration with choreographer Bill T Jones in Ghostcatching (installation, 1999), You Walk? (2000) and 22 (2003). More recently, amongst the widely known choreographers, only Bill T. Jones, Bebe Miller (at Ohio State University’s motion capture studio) and Trisha Brown ventured into lengthier research and production periods to create full-length dance works. There may have been a lot more projects with motion capture animations created by independent artists, but often the completion and dissemination of such pieces depended on an ability to develop sustained methods of technological research. A prime example of such research was undertaken by one of igloo’s long-standing collaborators, Company-in-Space, who have been working with motion capture for many years; and have even acquired a second-hand Gypsy exoskeleton. Their most recent work SentientSpace 1.0, made in collaboration with igloo and premiered in Melbourne in 2004, was developed in labs and residencies over a period of two years.

Lack of funding or access to specialized equipment has been prohibitive; motion capture studios and CAVES (cave automatic virtual environment) only existed in the commercial industry or in universities, and the cross-over collaborations between choreographers, composers, programmers and scientists which happen increasingly today were not quite as common in the 1980s and 1990s. Substantial projects testing the artistic potentials of virtual reality are a case in point: the Banff Center’s Art and Virtual Environment Project (1993-95) funded nine experimental VR projects, including Diane Gromola’s and Yacov Sharir’s Dancing with the Virtual Dervish: Virtual Bodies, Perry Hoberman’s Bar Code Hotel, and Toni Dove and Michael Mackenzie’s Archeology of the Mother.
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Fig. 4 WinterSpace igloo © 2001-05

Fig. 5 Apparition, by Klaus Obermaier, with Robert Tannion and Desireé Kongerød. ©2004 Courtesy of the artist

Fig. 6 Viking Shoppers, igloo ©1999
SwanQuake: the user manual

Tongue (see Moser, 1996) but then discontinued their investment. Around the same time, with the support of her high tech company (SoftImage), Char Davies gained acclaim with Osmose (1995), an immersive virtual reality installation deploying a full-bodied interface (including breathing and balance sensors) to enhance the immersant’s organic sensorial experience inside the stereoscopically projected nature landscape of forests, ponds, sky and subterranean earth. While Osmose reached a larger audience and went on tour, Dancing with the Virtual Dervish remained a maverick example of one dancer’s immersive experience within a real-time, 3D graphic and aural environment generated by an array of computers. Sharir refers to it as a distributed performance environment, which he entered and inhabited with a head-mounted display and dataglove. The three-dimensional world, created by Gromola, projected on an enormous scale the torso (skeletal spine, pelvis, ribs) and inner organs of her body built from X-ray and MRI data. Sharir reported that when moving through the virtual torso he also encountered digitized images of himself dancing, which diffused and multiplied his sense of being inside an other body. Debates about the virtual ‘double’ became commonplace in the 1990s, as more and more performers and media artists began to experiment with digital projection and interactive systems, ‘live’ screens and audio-visual installations that involved the audience in the transactions.

The contradictions between choreography (danced) and its double (video images projected onto screens onstage) were obvious, while playing with one’s virtual double can be traced back even to the early days of closed-circuit video and interactive installations such a Myron Krueger’s Videoplace (1975). But whereas choreographers often continue to use digital projection as mise-en-scène in conventional theatre auditoria (see Fig. 5), the more crucial changes have been taking place in the realm of interactive digital art outside the theatre. Interactive systems have changed as well over the past fifteen years, growing up from more static programmed environments – interactive cinema and interactive media installations – in which specific sets of permutations could be ‘triggered’ by the user, to the more dynamic, emergent environments capable of evolving real time generative processes in continuous interaction through either direct close-to-the-skin (sensors, smart fabrics, wearables) or indirect (optical, magnetic, ultrasonic, camera tracking) interfaces. The design and manipulation of the interface or correlation between embodiment and technical mediation is undoubtedly central to the game of digital performance. The main shift in interactive art also involves what igloo and others have called ‘user-centered design’ – the emphasis is on the user experience, marking the dissolution of the distinction between artwork and process and between artwork and audience.

On the one hand, we can argue today that it was artists and creative developers such as igloo or Troika Ranch – along with many workshop activities arranged by independent networks or arts organisations – who pushed the boundaries, exchanged knowledge and tools, shared open source software or reverse engineering techniques. On the other hand, the particular relationship between movement (dance) and the digital can perhaps only be sufficiently recognized if we explore the correlation of bodily materiality and data processing more deeply. In the case of igloo, who have made only a handful of works for the stage, the probing will have to be directed at the participant-player, as their more recent installations invite the user to enter into the digital landscapes.
Imaginary landscapes, troubled systems

Looking at the trilogy WarStars, BackStrikesEmpire and XHT 8311 Fig. 7 (filming to take place in 2008), one notices igloo’s deepening preoccupation with the relationship between figure and landscape, and a certain optical rhythm of juxtapositions (in the installation of diptychs) that reaches a Bill Viola-esque metaphysical lyricism in BackStrikesEmpire. Perhaps surprisingly, the small, lost human figure, filmed wandering in the vast expanse of empty landscape, here gains a romantic and melancholic sensibility, conveying the drama of
subjectivity in our nature of being, split from ourselves and alienated from the environment which does not know us. These filmic installations have a quality of the picturesque and quasi-romantic sublime which, in *Summerbranch* and the curiously named *SwanQuake*, is destabilized by the use of the game interface: now we are transported inside this imaginary land, the forests of our children’s dreams and fairy tales, inside vistas of an uncanny nature-architecture, neither real nor natural but entirely constructed. Since the interface (joystick) suggests an intuitive adaptation to the environment, our behaviour to some extent now ‘moves’ the landscape. We are not moved or overwhelmed by it, our task is to move through it. There are no rewards.

As a culmination of igloo’s work with digital technology, motion capture and interactive 3D engines, *Summerbranch* first takes the visitor past an installation of lenticular prints and wallpaper, followed by a slow and meditative video of the ‘New Forest,’ and then gives her or him a joystick to explore the 3D environment, walking into the forest *Fig. 8* Significantly, the common conventions of commercial computer games, especially those of the hugely popular ‘shoot ‘em up’ variety, are undermined in this work. We discover ourselves to be pathfinders, fiddling with the quaintly old-fashioned joystick and carefully walking through a computer generated virtual forest in which we might, per chance, encounter elves and fairies or other creatures. These others, however, are performers ‘disappeared’ into the background of the forestscape, remaining motionless and barely visible (wearing ghillie camouflage suits), or they might enact a trance-like dance in the leaves of the unreal forest. The creatures are animations, and like the forest a photorealist dream which looks so real that it is uncanny and thus unsettling.

If games design strives for ever-improving realism, igloo’s art game creates a psychological puzzle by staging a palpably constructed world that invites acquiescence into its pastoral stillness, a kind of blending into the natural environment rather than taking control of it. This will inevitably unnerve hard-core game players, and muddle debates on why artists create computer games for galleries in the first place, and how they wish to reconcile non-competitive play modes with game modes, or make the exploratory playfulness of the experience transport a Buddhist satisfaction or a critical opening on the biocybernetic/political paradigm. In order to raise this question about igloo’s interface design for the playful boyscouts and girlscouts and its implicit critique of power games, I end by looking again at the contemporary context and how other practitioners seek to redefine the relations amongst power, communication technologies and the non verbal aspects of communication.

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**Gaming interactions**

The interest in games and new media, for example, appears to have tempted digital artists to dabble with surveillance and GPS devices, which invoke the spectre of military and human factors research. **PLAN** (Pervasive and Locative Arts Network – Enhancing Mobile and Wireless Technologies for Culture and Creativity) is a UK network of computer scientists and artists who became interested in developing mobile and interactive media that are directly embedded into the world around performers or ‘creative users.’ Artist groups such as **Blast Theory**, **Active Ingredient**, and mavericks like **Jen Southern**, **Heath Bunting**, **Ewen Chardronnet**, **Marko Peljhan** or **Igor Stromajer** have explored the boundaries of pervasive media using innovative locative games played on mobile phones in outdoor locations or deploying avatars in redesigned computer game worlds, or even creating strange ficto-critical projects such as Chardronnet’s tactical media research (as ‘autonomous
astronaut’) into satellite TV and spatial images, GPS, and meteorological systems.

Scripts, the textual term once used for theatre dialogue, here become programming/hacker code, and neural networks the metaphor for algorithms, which define the functional behaviours, actes sans paroles, of the agents involved in such transductive scenarios. In many cases these functional behaviours relate to motion/gesture. When Steve Benford, director of Mixed Reality Lab and scientist-collaborator on Blast Theory’s roaming urban performances, speaks of system input and expressive latitude, he is referring to design strategies for Human-Computer Interfaces (HCI). He classifies ‘public interfaces’ according to the extent to which movements and gestures, i.e. a performer’s manipulations of an interface and their resulting effects, are hidden, partially revealed, fully revealed or even amplified for spectators. Such taxonomies of a design interaction system, which tend to apply to performances in everyday life, have implications for artistic design decisions and the iterative stages of prototyping now increasingly prevalent in interactive art processes that involve wearable computing (e.g. sensors or conductive fibres in intelligent garment design), biofeedback, and the programming or orchestration of responsive environments.\(^1\)

In the first ‘historical’ phase of interactivity, the cybernetic model of human-computer interaction focussed on controls, and on a stimulus-response or action-reaction model. The interface remained tangible as mapping between performative input (gesture) and output (sonic, visual) were easily inferred.\(^1\) The current second phase of interactivity concerns itself with action insofar as it is guided by complexity and multi-leveled emergence, and by a different understanding of enactment\(^1\) – with corporal and sensory-motor processes – and with autonomy (auto-poiesis) (cf. Couchout, 2004: 99). In regard to galleries and museums as play-spaces, the curating of art games may not proffer the excitement orchestrated by the 2002 London Barbican’s Game On, a massive computer games exhibition completely overrun by families and young gamers. Artists, consequently, take to the streets or invent counter-strikes, such as Italian sculptor Damiano Colacito’s exploitation of particular cult objects or tools in game landscapes, which he models and re-creates as actual objects.\(^1\)

Machinima, an underground digital movement connected to hacking and reverse engineering, puts game tools to unexpected ends by modifying content in the virtual environment. Usually, machinimas are produced using the tools (demo recording, camera angle, level editor, script editor, etc.) and resources (backgrounds, levels, characters, skins, etc.) available in a game. Ricard Gras, a producer at LA INTERACTIVA (Leicester), develops interactive content and machinima using game tools from EyeToy, SIMS and Second Life, exploring different engines and using machinima as a way to allow audience participation in the development of narratives.\(^1\)

Perhaps the most notorious out-of-the-box experiments with game structures to date have been devised by the UK-based company Blast Theory. One of their major works, Desert Rain (2000), was a game and installation/performance placing participants in a collaborative virtual environment and sending them...
on a mission into a virtual world echoing with confused layers of mass media
Gulf War images echoing Hollywood images. Influenced by Baudrillard’s
assertion that the Gulf War did not take place because it was in fact a virtual
event, *Desert Rain* critically explored consumption of televisual information
and the shifts in our perception and understanding of the world around us.
Following *Desert Rain*, the company embarked on the creation of a series of city-
wide interactive pieces. In their first and best-known piece in this series, *Can
You See Me Now* (2001), a chase game is played online as well as on the streets.

*Fig. 9* Players are dropped at random locations into a virtual map of a city.
Tracked by satellites, Blast Theory’s runners appear online next to the player.
The runners use handheld computers showing the positions of online players
to guide them in the chase. In this complex ‘mixed reality,’ a player uses the
arrow keys to flee down the virtual streets, send messages and exchange tactics
with other online players:

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*An audio stream from Blast Theory’s walkie talkies lets you eavesdrop on your
pursuers: getting lost and out of breath on the real streets. If a runner gets within 5
metres of you, a sighting photo is taken and your game is over.* (Blast Theory)

The company has continued to develop these city-wide participatory game-
like works with *Uncle Roy All Around You* (2003) and *Day Of The Figurines* (2005).
These works evoke street theatre, happenings, and the participatory legacies
of the 1960s and 1970s; but other artists have also made connections to this
period and the political projects of Situationism. For example, the existential,
experiential and conceptual propositions in the interactive vocabularies created
by Hélio Oiticica and Lygia Clark in Brazil, were recently redeployed in
Lucy Orta’s intimate architectures of cloth, devising her ‘collective wear’ into
interactive shelters and modular habitations [*Nexus Architecture*] involving the
collaboration of local participants. A clear trajectory from Oiticica’s 1960s
parangolés to today’s intelligent sensorial ‘wearables’.

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### igloo science fiction

How do we resolve the question about the body (in dance) and the narratives
of biopolitics? Do the digitized camouflage and troubled dots in igloo’s
landscapes fall to the socio-cultural side of relational art and outside the
frame of developments in digital dance or to the more lyrical, romantic side
of installations created within the collaborative dance and technology context,
such as, for example, in the work of Kirk Woolford (*Will.0.w1sp*), Sarah
Rubidge/ Alistair MacDonald (*Sensuous Geographies*), Thecla Schiphorst
(*exhale*), and others? It appears igloo may not be at home on either side.

As mentioned earlier, igloo resists the category of game, and they also resist
being categorized as commenting on game culture or being overtly political.
As they do not quite ‘fit’ into a critical examination of choreography,
either, I understand their work in a larger context of visual art and the new
developments in artistic data visualization.

Explorations of motion and visualization emphasize highly subtle
manipulations of visual and aural qualities, correlated to new concepts
of dynamic systems or semi-chaotic systems whose philosophical and
scientific thought-models are derived from research in biology, computer
science and the cognitive sciences. No longer based on choreographic
notions but on a kind of experimental mathematics, movement
description is rendered as image-movement, the troubled dots are not
posthuman but reflect how the living can be modelled and transfigured.
Nevertheless there is something in igloo’s current game experiments
with uncanny landscapes that offers a sincere interrogation of today’s technical producibility; and their artistic perspective is clearly one of countergaming. Flying through imagined lands, we carefully avoid shooting them up and watching the rubble grow behind us. We are Benjamin’s angels of history where, in the macabre lands of ghilled posthumans with their OPSGear and Gunther van Hagen’s BodyWorlds, igloo’s propositions, charming and innocent, intimate a new form of science fiction.

Notes

1. Choreographers of contemporary conceptual dance have already explored the consequences: Jérôme Bel’s The Last Performance (1999), followed by Xavier Le Roy’s Self-Unfinished (2000), and then Project (2005), a combinatory of ball games – soccer, handball, cornerball – played according to idiosyncratic sets of rules that are imposed upon the players or have been chosen by them, and perhaps are even open to modification (which is a contradiction in terms but happens at times).

2. A third manual that could be mentioned here is by Steven de Belder and Theo van Rompay (2006) which describes P.A.R.T.S, the experimental school for contemporary dance which, in the ten years of its existence since 1995, has challenged our more traditional assumptions about craft, technical training, and composition, helping to bring forth a generation of choreographers and conceptual artists now working in every part of Europe.


4. For example, shooting on location in Iceland for Viking Shoppers and WarStars, and in Australia for BackStrikesEmpires.

5. Formerly the National Museum of Photography, Film & Television.


7. For his collaboration on Trisha Brown’s How Long Does The Subject Linger On The Edge Of The Volume… (2005) and his concepts of agent-based artificial intelligence, see Marc Downie (2005).


9. SentientSpace1.0 was initiated at the motion capture lab during Monaco Dance Forum, December 2002, and underwent significant development during the UK-based DigiLounge Lab in early 2004.


11. Char Davies explains: ‘I think of virtual space as a spatiotemporal ‘arena’ wherein mental models or abstract constructs of the world can be given virtual embodiment (visual and aural) in three dimensions and be animated through time. Most significantly, these can then be kinesthetically explored by others…’ See ‘Virtual Space’ (2004).

12. At the 2002 Motion Capture Tech Laboratory (‘Real Time and Networked: Sharing the Body’) at Monaco Dance Forum, for example, the systems used in the workshop were two Gypsy exoskeletons, the Polhemus Tratracker, and the Motion Captor optical system provided by Animazoo. The software was off the shelf programs (e.g. Kaydara Filmbox) and customized code. See Scott deLahunta (2003: 72-79).


14. In a posting to the dance-tech list, Curators suggest that ‘aesthetic and conceptual concerns regarding vocabulary (emergent technique) and dance as ‘switch de/activation’ has lead to exploration of alternate interfaces. We can observe this ‘shift’ in the rapid decline of dance-tech & electroacoustic music technology (music-tech) collaborations involving direct, gestural interfaces during the 1990’s.’

15. The Third International Conference of Enactive Interfaces, held at Montpellier (2006), was dedicated to research on ‘Enaction and Complexity.’
16. Perversely, Damiano Colacito’s objects flee from the territories of virtual reality and materialise themselves in our world.  
17. Others have called Machinima a new form of independent filmmaking, treating the viewpoint the game gives them as a camera (`shooting film in a Virtual Reality’) and recording and editing that viewpoint into new story-demos or narrative shorts.  
18. For a good contextualization of the interactive vocabularies developed from Clark’s and Oiticica’s participatory creations of the 1960s and 1970s, see Simone Osthoff (1997). For a detailed analysis of Lucy Orta’s work, see Bradley Quinn (2003: 155-86).

References

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All links: www.swanquake.com/usermanual/JohannesBirringer

Biography

Johannes Birringer is a choreographer and artistic director of AlienNation Co. a multimedia ensemble based in Houston. He has created numerous dance-theatre works, digital media installations and site-specific performances in collaboration with artists in Europe, North America, Latin America and China. He is the author of several books, including Theatre, Theory, Postmodernism (1989), Media and Performance: along the border (1998), Performance on the Edge: transformations of culture (2000), and Performance, Technology, and Science (2008). He now directs the Interaktionslabor Göttelborn in Germany and is Professor of Performance Technologies at Brunel University, London, where he directs the DAP-Lab.