Digital Performance

A History of New Media in Theater, Dance, Performance Art, and Installation

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Introduction

There is not enough RAM
In the known universe to complete
The task you have requested.

Accept? Rejoice?

—ERROR MESSAGE IN PERRY HOBERMAN'S INTERACTIVE INSTALLATION *CATHARTIC USER INTERFACE* (1995)

Overview

During the last decade of the twentieth century, computer technologies played a dynamic and increasingly important role in live theater, dance, and performance; and new dramatic forms and performance genres emerged in interactive installations and on the Internet. Theater practitioners such as Robert Lepage, The Builders Association, and George Coates Performance Works surrounded their actors with screens projecting digitally manipulated images. The Gertrude Stein Repertory Theatre and Kunstwerk-Blend incorporated video-conferencing software to bring performers from remote locations together, live on stage. Webcams, webcasts, and the virtual environments of MUDs and MOOs provided new forms of live and interactive performance via the Internet. Laurie Anderson and William Forsythe created pioneering interactive performance CD-ROMs, and the computer games industry adopted ever more performative paradigms while its own influence looped back significantly into digital performance practice.

Yacov Sharir choreographed entire dance works in the computer using *Life Forms* and *Poser* software. Merce Cunningham projected images of virtual dancers on stage, created by combining motion-capture techniques and advanced animation software (figure 1.1). Troika Ranch, Company in Space, and Marcel.lí Anthúnez Roca used custom-made motion sensing software to manipulate images, avatars, sound, and lighting live on stage;

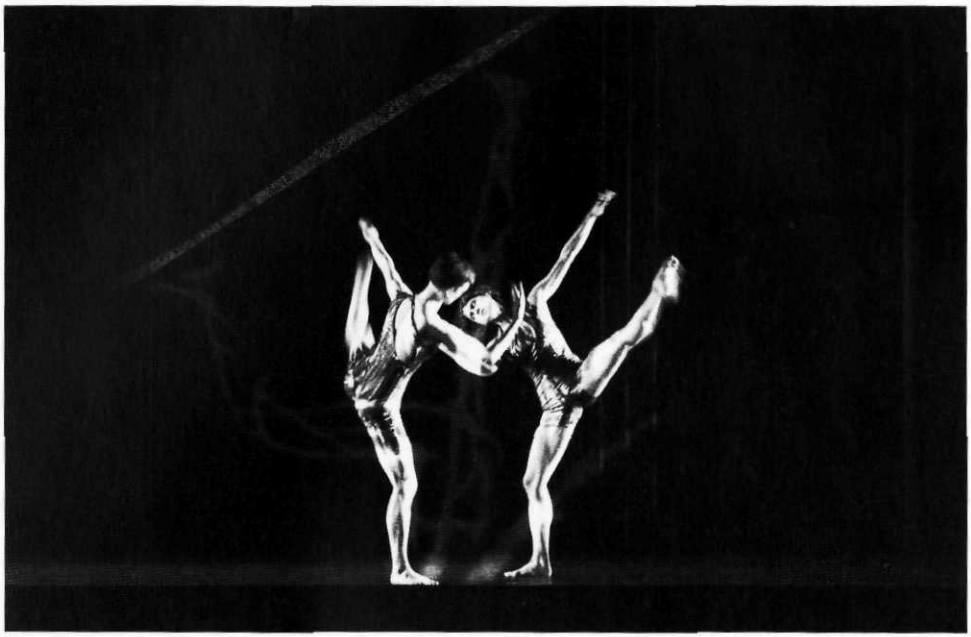

Figure 1.1 An image from veteran choreographer Merce Cunningham's pioneering collaboration with Paul Kaiser and Shelley Eshkar, *BIPED* (1999). Photo: Stephanie Berger.

and Toni Dove and Sarah Rubidge turned over those technologies to the audience, to experience them firsthand in advanced media-performance installations. Blast Theory fused paradigms from theater, Virtual Reality (VR), computer games, and "real life" to create complex audience improvisations; and David Saltz fed stage directions from the plays of Samuel Beckett direct into the computer, which re-presented them as algorithmic light-shows. Richard Beacham re-created ancient theaters using Virtual Reality, and ieVR harnessed the technology to create computer-generated, three-dimensional sets inhabited by live actors.

Performance artist Stelarc wired his body up to the Internet and was thrown around like a rag doll by audience members in other countries who manipulated him using touch-screen computers, and donned advanced robot prosthetics to enter a "cyborg reality." Guillermo Gómez-Peña viciously satirized cyborgic visions, while Eduardo Kac implanted his own body with computer chips and created art and performance at the frontiers of science and organic life. Survival Research Laboratories staged apocalyptic robot wars, while Amorphic Robot Works presented gentler, ecological fables in inflatable environments filled with robot humanoids and animals. The interactive potentials of computers were vividly dramatized and "performed" by users through myriad installations, CD-

ROMs, and video games. This book examines these practices and practitioners, and analyzes the artistic, theoretical, and technological trends that emerged in digital performance during the 1990s and have continued (though with considerably less impact and fervor) into the new millennium.

We define the term "digital performance" broadly to include all performance works where computer technologies play a *key* role rather than a subsidiary one in content, techniques, aesthetics, or delivery forms. This includes live theater, dance, and performance art that incorporates projections that have been digitally created or manipulated; robotic and virtual reality performances; installations and theatrical works that use computer sensing/activating equipment or telematic techniques; and performative works and activities that are accessed through the computer screen, including cybertheater events, MUDs, MOOs, and virtual worlds, computer games, CD-ROMs, and performative net.art works. As already noted in the preface, space as well as our lack of expert subject knowledge does not allow the study to extend to "non-interactive" digital artworks, nor to the extensive and inventive use of digital technologies in the fields of music, cinema, television, and video.

The application of new media to performance arts is extremely diverse, and the Internet has proved particularly significant in its development, not only as an immense interactive database, but also as a performance collaboration and distribution medium. The interactive capabilities opened up by computer networks allow for shared creativity, from textual or telematic real-time improvisations to globally constituted group projects, with distance no barrier to collaboration. New technologies thus call received ideas about the nature of theater and performance into question. The computer has become a significant tool and agent of performative action and creation, which has led to a distinct blurring of what we formerly termed, for example, communication, scriptwriting, acting, visual art, science, design, theater, video, and performance art. Finite distinctions apply less and less or, as John Reaves contests, they collapse altogether:

> In the digital world you cannot distinguish different disciplines by the physical nature of the media or by which work is created. . . . Theater has always been an integrative, collaborative art which potentially (and sometimes actually) includes all art: music, dance, painting, sculpture, etc. Why not be aggressive in the tumultuous context of the Digital Revolution? Why not claim all interactive art in the name of theater?[1]

Internet communication has been theorized as a type of virtual performance of the self, and thus "digital performance" is rationalized by many as being already ubiquitous, embracing multiple communicational and presentational aspects of electronic everyday life. Theater is thus created not only by those who consciously use computer networks for theatrical events, but also by millions of "ordinary" individuals who develop e-friendships, use MOOs, IRC, and chatrooms, or create home pages and "blogs" on the World Wide Web. Many home pages and blogs constitute digital palimpsests of Erving Goffman's

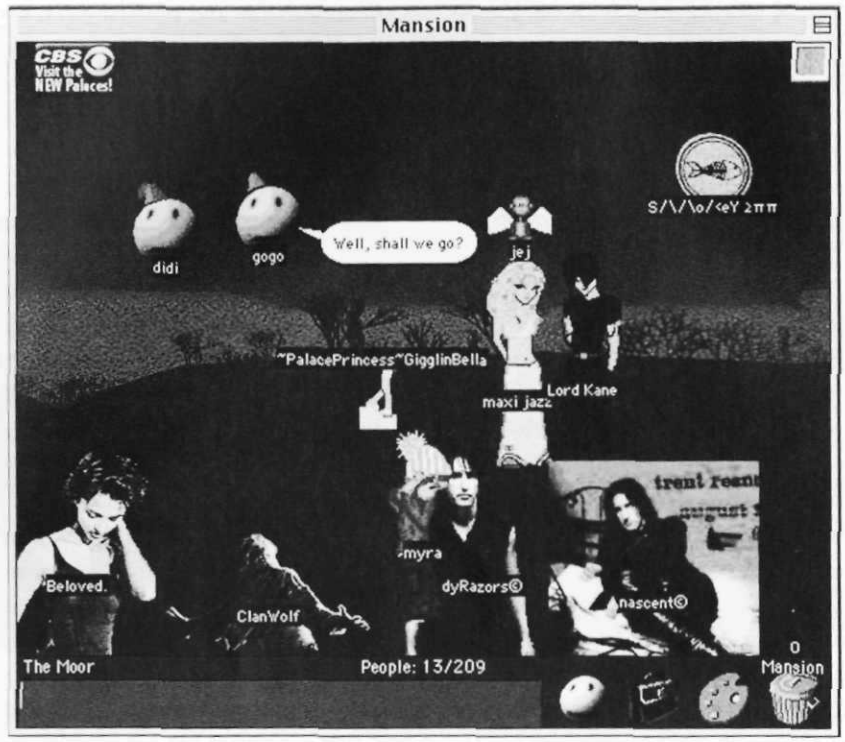

Figure 1.2 Online visual chat environments include highly theatricalized settings for user's role-plays such as Desktop Theater's *Waitingforgodot.com* (1997) site, which is examined in chapter 20.

notions of performative presentations of the self, with the subject being progressively erased, redefined, and reinscribed as a persona/performer within the proscenium arch of the computer monitor. Personas are honed like characters for the new theatrical confessional box, where, like postmodern performance artists, individuals explore their autobiographies and enact intimate dialogues with their inner selves. Seduced by the apparent intimacy and privacy of this most public of spaces, they confess all online and reveal secrets to strangers that they have never told their closest friends.[2] The World Wide Web is a site of therapeutic catharsis-overload, and it constitutes the largest theater in the world, offering everyone fifteen megabytes of fame (figure 1.2).

What's "New" about New Media?

The question of how "new" or "old" digital technologies are in relation to former media, and how they might offer progressive as opposed to merely repackaged or "remediated" paradigms in performance, is a recurrent and insistent thread that weaves throughout

this volume. The "Histories" section contextualizes recent digital performance in relation to the artistic philosophies of modernism and the experiments of the early-twentieth-century avant-garde; and a large majority of the chapters dealing with different manifestations of digital performance link these developments unequivocally to artistic or theatrical precedents from a pre-digital age. But we are equally unequivocal that the conjunction of performance and new media *has* and *does* bring about genuinely new stylistic and aesthetic modes, and unique and unprecedented performance experiences, genres, and ontologies.

While postmodern perspectives tend to emphasize how artistic ideas are simply being endlessly recycled in different ways, we argue that certain practices and technological systems *are* genuinely new, distinct and avant-garde, and we endeavor to identify and define how and why. We are also interested in cutting through both the hyperbole and the critical "fuzzy logic" that has surrounded the field. One of our foremost digital culture commentators, Lev Manovich, suggests that the greatest artists of today are computer scientists and the greatest artworks are new technologies themselves. Manovich argues that the Web represents the greatest hypertext work, "more complex, unpredictable and dynamic" than James Joyce could create; "the greatest avant-garde film is software such as *Final Cut Pro* or *After Effects*" since they offer endless possibilities and combinations; and "the greatest interactive work is the interactive human-computer interface itself."[3] We would dispute each of these specific ideas, and, more important, suggest that Manovich's formulation encapsulates an indiscriminate techno-postmodern aesthetic theory of infinite (yet always-already recycled) possibilities and "technology for technology's sake" that has tended to mar rather than advance critical understandings of the relationships between technology and art. A core problem with this now widely held perspective is that it fetishizes the technology without regard for artistic vision and content. The concern of this book is to take a generally reverse stance to much of the writing around cyberculture, digital arts, and performance, which has tended to discuss technological aspects first and foremost and content/aesthetics second (if indeed at all). Rather, our focus and concern is to assess and analyze the particularities of *performance* and *performances* in relation to how they have adopted and utilized technological developments in varied ways in order to create different types of content, drama, meanings, aesthetic impacts, physiological and psychological effects, audience-performer relationships, and so on.

The tension behind the "technology versus content" issue was tellingly underlined in an exchange on the "Dance-tech" user group mail list in August 2001. Company in Space, a pioneering digital dance group from Australia, sent an announcement advertising their new telematic work *CO3* (2001) which they described as "a landmark performance . . . the next startling stage in cybernetic performance art."[4] The e-mail described in some detail the coming Internet-linked performance between two dancers, one in Florida and one in Melbourne, who wear state-of-the-art motion-capture suits to animate two avatars

that perform in real time within a shared virtual reality environment. A curt reply was posted by digital performance artist Nick Rothwell: "I'd rather hear about the artistic content and motivation for using the technology, not just the technology itself. What is the content, exactly?"[5] The same issue was emphasized during a 1999 UK conference focusing on the use of computers in art and design, where a succession of speakers stressed that style and medium should never subsume content and message, and computer technology should be seen merely a means to an end, not an end in itself. The British film producer Lord David Puttnam dubbed new technology as "more of a bridge than a destination,"[6] and the late, great British multimedia designer Roy Stringer stressed how "authorship has nothing to do with technology." He observed that although artists, authors, and directors love to work in new forms and experiment with new digital techniques, "the killer application in new technologies is *content*."[7]

Therefore, to say, as Manovich does, that the Web is the greatest hypertext work is to propose the theater building as the greatest piece of theater, since that is where the finest performances *can*—or may, at some time, perhaps—be staged. We do not doubt that Web surfing can produce "great" artistic experiences, but like performances in theaters, quality is highly variable, and true greatness is rare. Similarly, the video-editing software programs he cites only produce what he terms "the greatest avant-garde film" when high quality footage is input, and its manipulation is undertaken with artistic sensibility and mastery. Manovich's claim for the artistic and interactive greatness of the computer screen interface is by far the strangest and most hyperbolic of all. The modern PC he deifies remains a dreadful and pathetic interface design: an anachronistic dinosaur of a machine that places file-cabinet icons borrowed from nineteenth-century offices onto a TV screen monitor design originated in the 1930s, above a QWERTY keyboard that, even when it was launched as a typewriter in 1878, was shown to have the worst possible letter pattern configuration.

Perhaps we are being too harsh on Manovich, who is more often one of the more astute academic commentators on digital technology. But his discourse here is indicative of a tendency in cyberculture criticism to romanticize (or else demonize) technology, to generalize its ontology and to forge links between computer technologies and other cultural and theoretical discourses too readily and indiscriminately. His primary point is more general and pertinent, and it concerns the emancipation of the everyday user of the Web, of editing programs and computer interfaces to manipulate and become the creator of artistic experiences. This is a fundamental area of what can be considered genuine "newness" within new technologies—the ability of lay users to become sophisticated artists. But this newness is most often a recycling of the old, and primarily relies on the computer as an accessor and manipulator of preexisting materials. The user, for example, can kangaroo jump around sites on the Web to map a unique but not in the true sense "new" terrain, or can transform, amend, and append others' work through a cut-paste-alter computational artistic model.

Resisting Postmodernist Perspectives

Alongside our running themes of relating contemporary practices to historical precedents and attempting to discern evidence of genuine newness in digital performance, there runs a parallel and in many ways complementary discourse that challenges and attempts to undermine dominant postmodern and deconstructive critical positions on cyberculture in general, and digital performance in particular. Our mistrust of postmodern critical perspectives (which is developed in detail in Chapter 7) derives partly from the fact that postmodern theory since the 1970s has largely perceived the ubiquity of media and the mediatized "image" as a cynical spiral of social domination and cultural degeneration. For many commentators, the coming of the digital age simply extends the paradigm. But by contrast for others, including what we believe to be a majority of the digital artists and performers we discuss, it has borne a new optimism about the potentials of media that is at complete odds with the knowing cynicism and cool distantiation of postmodern art and discourse. The positivity and excitement of scientists, technologists, and artists using computer technologies presents a discord between contemporary theory and practice. Progressive ideals and practices clash with postmodern theory's intransigent and homogenizing worldview, that is to say, with its now inherent conservatism (whereas once upon a time—specifically, the late 1970s and early 1980s—it was radical). Postmodern theory, once nemesis and destroyer of the author, the sign and the metanarrative, has itself become an authorial patriarch of conformist cultural commentary; a burning yet myopic critical sign; an oppressive metanarrative beyond compare within the history of critical theory.

Christopher Norris suggests that postmodernism and deconstruction have become "a prison-house of discourse"[8] and leading digital arts commentator Stephen Wilson wonders whether the technologists and cultural analysts occupy the same world.[9] Faced with arts practices that today are inextricably bound to ideas of research and academic enquiry, Wilson maintains that artists are forced to choose between three theoretical stances open to them:

> (1) continue a modernist practice of art linked with adjustments for the contemporary era; (2) develop a unique postmodernist art built around deconstruction at its core; (3) develop a practice focused on elaborating the possibilities of new technology.[10]

He concludes that artists now interweave all three approaches—an equivocal but generally accurate summation. However, while digital performance combines the old and the new in "classic" postmodern terms, we consider it as an emergent avant-garde, rather than merely a manifestation of a wider, all-consuming postmodernism. Indeed, we challenge many of the repetitious and often wearisome postmodern and poststructuralist discourses applied to digital performance, which cast it within a vast and undifferentiated artistic, cultural, and philosophical soup of fragmentation, appropriation, and deferred meaning.

Rather, pioneers of digital performance equate fully with the "avant-garde" in its original military sense of individual soldiers going ahead of the main batallion, to penetrate and explore unknown and hostile territories.

Such work is avant-garde in relation to key definitions, such as Russell's understanding of "a *vanguard* art"[11] and Peter Bürger's definition as "the attempt to organize a new life praxis from a basis in art."[12] As we argue in the Histories section, clear parallels can be drawn between the early twentieth century avant-garde movements such as futurism, which emerged at a time of comparable technological "revolution" to the digital one of the 1990s, when "an engineering or machine 'aesthetic' would come to define avant-garde architecture and art."[13] For Andreas Huyssen, "no other single factor has influenced the emergence of the new avant-garde as much as technology, which has not only fuelled the artists' imagination (dynamism, machine cult, beauty of technics, constructivist and productivist attitudes), but penetrated to the core of the work itself."[14]

Digital performance is an *emergent* avant-garde in that it has begun, but has not yet fully encapsulated the historical avant-garde's concern to cause and advance major social change and to transform "the way art functions in society."[15] But popular Internet collectivism, as well as the cyberactivism of groups such as Critical Art Ensemble and the Electronic Disturbance Theatre accords with Bürger's notion of "the avant-gardiste's demand that art become practical once again,"[16] and the proliferation of Web-based "virtual" communities with Russell's definition of the avant-garde as "in advance of, and the cause of, significant social change."[17] Russell's notion of social change and Bürger's "new life praxis from a basis in art" is nowhere more evident than within cyborgic performance praxis, which celebrates the conjunction of humans with machines and heralds the (contested) emergence of a posthuman society.

For many performance artists, digital technologies remain tools of enhancement and experimentation, rather than a means to reconfigure fundamentally artistic or social ontologies. Yet digital performance's impulse toward the creation of new avant-garde forms and a more radical engagement with the nature of virtual realities places it outside the confines of dominant postmodern paradigms. As it traces this trajectory, performance is undertaking a shift in the conception of technology, which relates to R. L. Rutsky's analysis of early twentieth century avant-garde film and architecture. Rutsky defines a turning point where:

> A notion of technology as instrumental, as the functional application of science, begins to give way to a conception that sees technology as a matter of form, of representation. And just as representation, for the avant-gardes, becomes increasingly allegorical, arbitrary, simulacral, so too does the technology. Indeed, this new conception of technology can be designated as *simulacral* or *techno-allegorical*.[18]

Structure, Content, and Arguments

This is a long book, covering numerous theories and practices within a wide and diverse field of activity. It is broadly divided into two sections, the first examining the histories, theories, and contexts of digital performance, the second dealing with specific practices and practitioners. There is nonetheless considerable overlap and interrelationship between them so that, for example, the histories/theories/contexts section includes case studies of recent digital performances that illustrate and encapsulate key arguments and ideas, while theoretical perspectives and historical precedents are continually brought to bear on the close analyses of works examined in the performance practices section.

The histories of digital performance span four chapters, beginning with chapter 2's analysis of "The Genealogy of Digital Performance," which is traced from the Greek *Deus ex machina* to Wagner's concept of the total artwork (*Gesamtkunstwerk*) to early dance and technology experiments by Loïe Fuller in the late nineteenth century and by the Bauhaus artist Oskar Schlemmer in the 1920s. Chapter 3 examines in detail the legacy of the early-twentieth-century avant-garde, closely linking today's digital performance with the theories and practices of futurism, constructivism, Dada, surrealism, and expressionism. In doing so, we argue the absolute centrality of futurist aesthetics and philosophies to current performance work utilizing computer technologies, and suggest that futurism's legacy to new media art in general and to digital performance in particular has been greatly underestimated. To pick on Manovich as an example yet again (a writer so good he can take it), his "Avant-Garde as Software" (1999) paper argues that the modernist avant-garde period between 1915 and 1928 represents the most important historical period relevant to new media, and his discourse concentrates on "the techniques invented by the 1920s Left artists," leaving the right-wing futurists out of the equation. While futurist art and performance was at its peak during this very period, Manovich instead focuses on Bauhaus design, constructivist typography, Dadaist photomontage, and surrealist cinema as the key artistic and methodological precursors to computer operations and paradigms. We argue that futurism, which emerged prior to all of these avant-garde movements and exerted significant influence upon them (particularly constructivism), deserves a much higher place in the history of digital arts and performance. We devote considerable attention to a close analysis of futurist theater manifestos, which reveal clear relationships between performance plans and practices separated by almost a century. These include fundamental principles of futurist art and performance such as alogicality, parallel action, photodynamism, luminous scenography, virtual actors, "synthetic theater," and the cult of the machine (figure 1.3). We contest that Italian futurist performance theory and practice between 1909 and 1920 laid the foundations for fundamental philosophies and aesthetic strategies found within digital performance.

As cinema and, later, television and video have exerted a significant influence on the development of performance over the last hundred years, so too have they been brought together since the turn of the twentieth century, as we examine in chapter 4,

Figure 1.3 The early twentieth-century futurist cult of the machine is updated for the digital age by performance artist David Therrien in *BODYDRUM* (2005). Photo: Gregory Cowley.

"Multimedia Theater 1911–1959." It includes analysis of early "film-theater" experiments; the theories of Robert Edmund Jones; and seminal productions including Erwin Piscator's *Hoppla, Wir Leben!* (*Hurrah, We're Living!* 1927) and Frederick Kiesler's *R.U.R.* (*Rossum's Universal Robots*, 1922), which we relate to recent digital performances by Blast Theory, Paul Sermon, and Andrea Zapp. Throughout the twentieth century, not only did live performance integrate film into productions, but both mainstream and experimental theater also competed with cinema in terms of its own sense of spectacle, and theater became more cinematic in conception, particularly in the latter half of the century. Playwriting saw increasing use of short scenes, cross-cut parallel action, and the use of flashbacks and dramatic time shifts, while theater staging drew inspiration from the cinema, increasingly employing neocinematic devices such as the introduction of incidental music and the use of lighting to create sharp montage or gentle dissolve effects. This aimed to intensify the theatrical experience, and to approximate cinema's absolute control of space and time, and the flow and location of the audience's attention.

Chapter 5's review of "Performance and Technology Since 1960" analyzes two landmark art and technology events from the 1960s: the New York *Nine Evenings: Theater and*

Engineering (1966) performances and the *Cybernetic Serendipity—The Computer and the Arts* (1968) exhibition at the ICA in London. It goes on to highlight key practitioners such as Nam June Paik and Billy Klüver, who brought about pioneering changes in the design and development of technologies for performance, and artists such as The Wooster Group and Laurie Anderson, whose radical approaches to the incorporation of technologies in their live work over many years have exerted a significant influence on a whole generation of practitioners.

The section on "Theories and Contexts" begins with chapter 6's analysis of the slippery and problematic concept of "Liveness." Philip Auslander's *Liveness: Performance in a Mediatized Culture* (1999) provided an important, if controversial, discourse on how cinema and ubiquitous television media have affected live performance practice and its reception by audiences. He argues that traditional ideas of theatrical "liveness" have been eroded to such a point that there now seems precious little difference between live and recorded forms. We contrast his position with Peggy Phelan's assertion of live performance's unique ontology and its resistance to media reproductions, and trace complementary critical oppositions between Walter Benjamin and Roland Barthes in relation to the "aura" of the photograph. We adopt a phenomenological perspective to interrogate and undermine some of Auslander's ideas, while also arguing that Phelan's position is equally untenable in relation to fundamental understandings of artistic "presence" and psychologies of audience reception.

Chapter 7, "Postmodernism and Posthumanism," begins with a discussion of Jay Bolter and Richard Grusin's theory of "remediation" and goes on to analyze how postmodern and deconstructive theories have dominated critical approaches to digital performance. But a close deconstruction of the antimedia and antitheater prejudices of (respectively) Jean Baudrillard and Jacques Derrida provides a basis for our argument that postmodernism and deconstruction can at best offer only outdated, and theoretically generalized and partial, discourses on the marriage of performance and technology. There follows a discussion of cybernetics and the related, more recent concept of posthumanism, which are seen to offer alternative and perhaps more fitting theoretical positions from which to approach the critical analysis of digital performance.

The tensions and dualities surrounding "The Digital Revolution" are explored in chapter 8. While Hans-Peter Schwarz has declared that we are living in "an epoch of media-morphosis,"[19] and Nan C. Shu has discussed how we now use computers without deliberately thinking about it, "in a manner akin to driving a car,"[20] we stress the equally potent forces of the "digital divide" that separate industrialized nations from the so-called third world. Further divisions are traced, from the dominance of the English language (which marginalizes digital performance works using other languages) to the border and frontier metaphors of cyberspace, and the battles between "proprietary" and "free" computer code. Brenda Laurel's influential thesis on the links between computers and theater

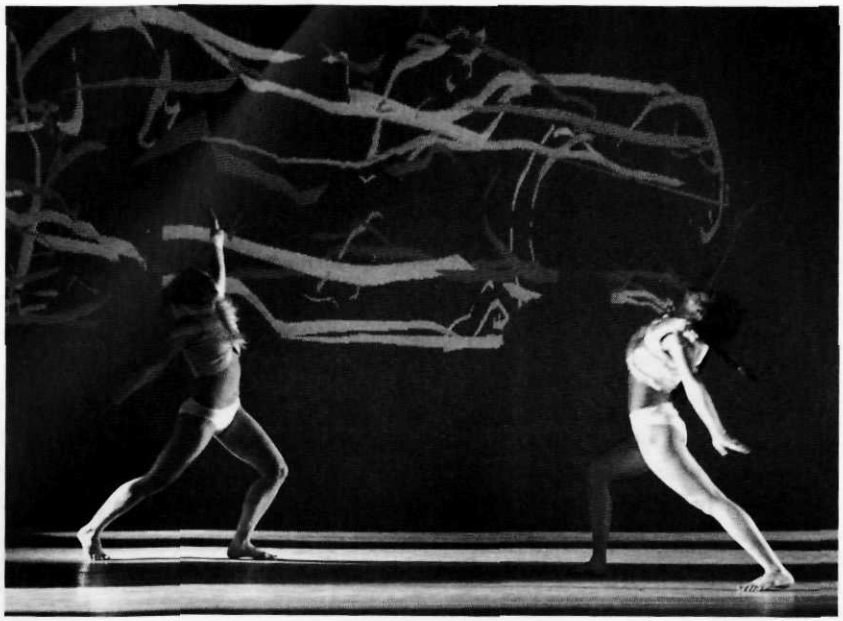

Figure 1.4 Mark Coniglio's *Isadora* software is used to control dazzling projection effects in Troika Ranch's *16 [R]evolutions* (2006).

is explored, and the chapter concludes by contrasting the hyperbole surrounding the "digital revolution" expounded by journals from *Wired* to *Scientific American* with the skepticism of writers such as Richard Coyne and Arthur Kroker, and artists including Guillermo Gómez-Peña and the Critical Art Ensemble.

Chapter 9's examination of "Digital Dancing and Software Systems" analyzes a range of software systems which have been developed by or for artists, particularly in dance, from desktop applications such as *Life Forms* and *Character Studio* to motion sensing systems such as *Isadora* and *EyeCon* that activate real time sonic and media effects during live performance (figure 1.4). The influential collaborations between Paul Kaiser and Shelley Eshkar's Riverbed company and choreographers Merce Cunningham and Bill T. Jones are shown to have taken the form and aesthetics of the virtual body to new heights through the conjunction of motion tracking systems with computer animation in works such as Cunningham's *BIPED* (1999) and Jones' *Ghostcatching* (1999). Short case studies of performances by Barriedale Operahouse, Palindrome, Half/Angel, and Paulo Henrique illustrate the way in which particular interactive features and performance aesthetics have emerged through the design and utilization of different custom-built programs.

Digital Performance Practice

The second part of the book deals with digital performance practice. It is structured in three major sections that engage with ancient and perennial fundamentals of theater and performance: The Body, Space, and Time. These core concepts are demonstrated to have undergone significant changes in numerous areas of performance arts practice where there has been engagement with and adoption of computer techniques and technologies. The book's final section investigates interactivity, with separate chapters devoted to performative installations, CD-ROMs, and computer games.

The section on the body begins with chapter 10's discourse on the concept of "Virtual Bodies," where the general fetishization of "the body" in recent social and performance theory is shown to have intensified in relation to its digital counterpart. We argue that cultural theories of the virtual body commonly misread and misconstrue its basic ontology, while also unconsciously confirming Cartesian notions of a mind-body divide. Analysis of a seminal article by Susan Kozel is used to contrast the positions of theorists and practitioners in relation to the virtual body, and to show how the performer's phenomenological experience reveals a part-split, part-organic relationship between their corporeal and virtual selves. The notion of a split body is further developed through analyses of artworks and performances inspired by the multimillion-dollar U.S. National Library of Medicine's *Visible Human Project* (1994), and the chapter concludes by dissecting the different ways in which Random Dance Company, Dumb Type, and the Corpos Informáticos Research Group employ virtual bodies in performance works.

Chapter 11 narrows the focus to examine the ways in which artists and performers conceive, manipulate, and interact with their "Digital Doubles." Ideas from anthropological research to Artaud's *The Theatre and Its Double* and Freud's notion of the uncanny (*unheimlich*) contextualize the discussion of works by Blast Theory, Igloo, Troika Ranch, Company in Space, and Stelarc. We offer a series of new categories to provide distinct theorizations of different types of "digital double" in the forms of a reflection, an alter-ego, a spiritual emanation, and a manipulable mannequin. The reflection double announces the emergence of the self-reflexive, technologized self, conceived as becoming increasingly indistinguishable from its human counterpart. The alter-ego double is the dark doppelgänger representing the Id, split consciousness, and the schizophrenic self (figure 1.5). The double as a spiritual emanation symbolizes a mystical conception of the virtual body, performing a projection of the transcendent self or the soul. The manipulable mannequin, the most common of all computer doubles, plays myriad dramatic roles: as a conceptual template, as a replacement body, and as the body of a synthetic being.

Robot and cyborg performances are examined in separate chapters (12 and 13), although a central argument runs through both that performative depictions of the robot and cyborg are commonly characterized by a camp aesthetic sensibility. We also argue that robot and cyborg representations belie deep-seated fears and fascinations associated with mechanical embodiments, and that these are explored by artists in relation to two

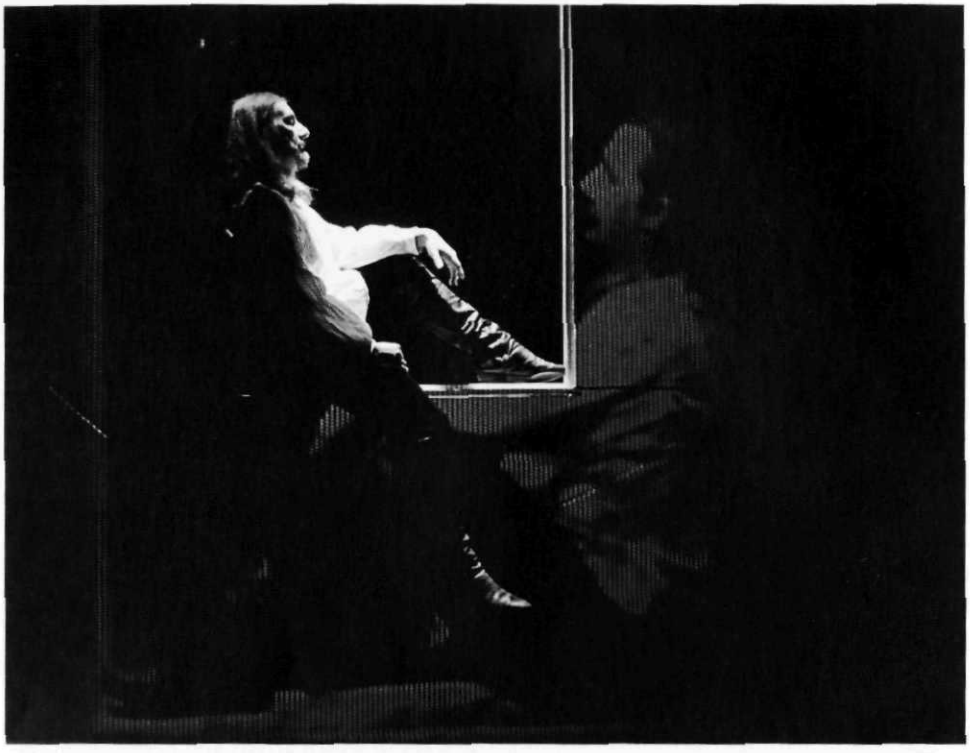

Figure 1.5 Hamlet encounters his digital doppelgänger in Robert Lepage's one-man show *Elsinore* (1995). Photo: Richard Max Tremblay.

distinct themes: the humanization of machines and the dehumanization (or "machinization") of humans. We go on to demonstrate how such performances frequently dramatize a return to nature and the animal, and to representations of *theranthropes*[21] (human-animal hybrids) that recall the gods and demons of folk legends and Greek mythology. Chapter 12 considers the history of robot performance from its roots in the automata of antiquity to the recent work of Norman White and Laura Kikauka, Simon Penny, Istvan Kantor, Momoyo Torimitsu, Survival Research Laboratories, and Amorphic Robot Works (figure 1.6). Chapter 13 delves into cyborg theory and considers the "real world" computer chip-implantation experiments of scientist Kevin Warwick and artist Eduardo Kac, before presenting detailed analyses of the futuristic techniques of quintessential cyborgic artists Stelarc and Marcel.lí Antúnez Roca (figure 1.7).

The next section, on Space, begins with "Digital Theater and Scenic Spectacle" (chapter 14) and examines ways that computer technologies have been combined with giant projection screens in theater events to transform and extend spatial perceptions and to create

Figure 1.6 One of sixty robot "performers" appearing in Amorphic Robot Works' *The Ancestral Path through the Amorphic Landscape* (2000).

Figure 1.7 Quintessential cyborg performance artist Stelarc and his custom-built robotic "third hand."

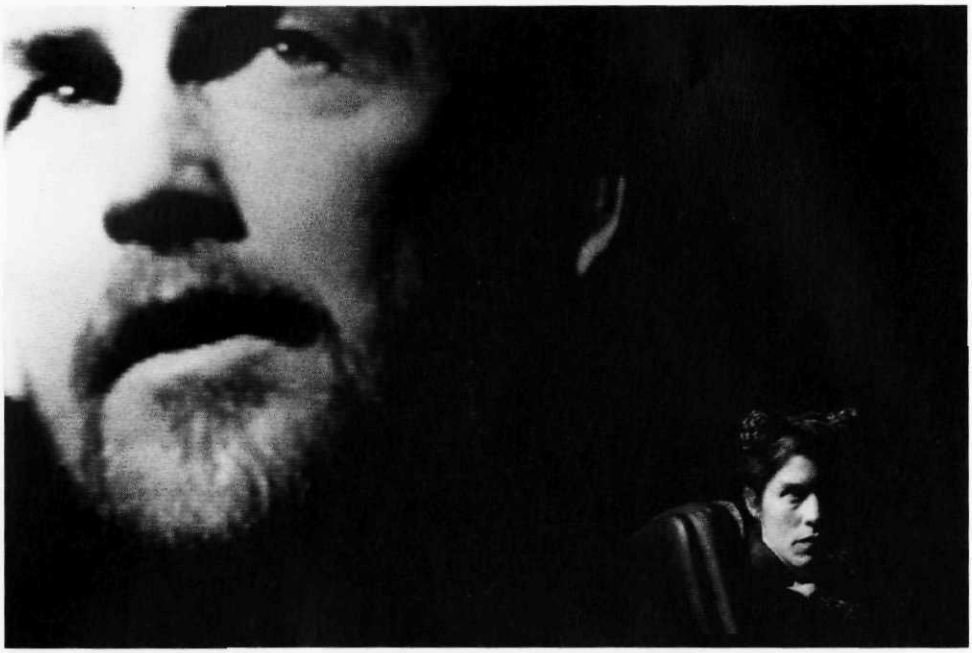

Figure 1.8 Exquisite multimedia theater using post-Brechtian aesthetics: The Builders Association's *Jump Cut (Faust)* (1997).

immersive and kinetic theater scenography. Three companies are highlighted to demonstrate different technical and artistic approaches: the deep-perspective, illusory effects of George Coates Performance Works; the inventive visual eclecticism of Robert Lepage's Ex Machina company; and the post-Brechtian aesthetics of The Builders Association (figure 1.8).

Chapter 15 provides a detailed discussion of a field of computer technology that would seem to offer theater and performance unique and compelling possibilities, but where surprisingly few, though notable experiments have so far materialized: "Virtual Reality." Two of the earliest performative works using VR, Brenda Laurel and Rachel Strickland's *Placeholder* (1993) and Char Davies's *Osmose* (1994–95), use the futuristic technologies to return to prehistoric landscapes and times, while Yacov Sharir and Diane Gromala's *Dancing with the Virtual Dervish* (1994) also returns to nature, exploring the interior of the human body; all three of these pioneering works are also united by an anti-Cartesian concern to excite an "embodied" experience. VR's employment as a three-dimensional scenographic medium is examined through analyses of custom-built desktop theater design programs, Mark Reaney's immersive live theater designs for the Institute for the Exploration of Virtual Realities (ieVR), and Richard Beacham's extraordinary navigable VR reconstruc-

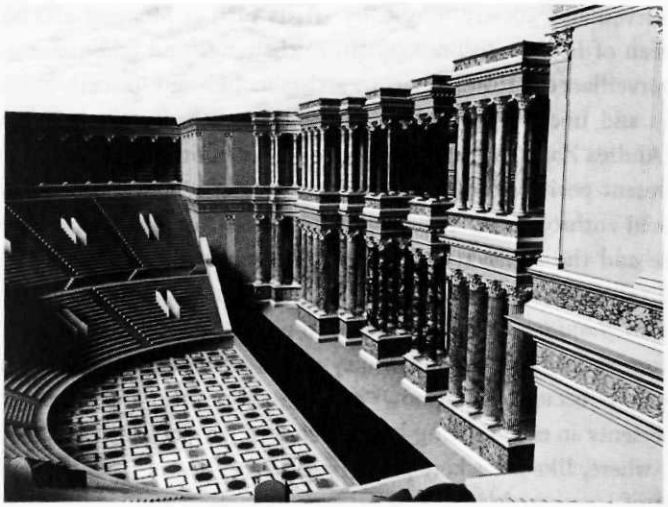

Figure 1.9 Richard Beacham's VR reconstruction of the ancient Theatre of Pompey. Courtesy of Kings Visualisation Lab, Centre for Computing in the Humanities, Kings College London.

tions of ancient theaters, which use the medium to bring archaeological ruins back to life (figure 1.9).

"Liquid Architectures and Site-Specific Fractures" (chapter 16) shifts the focus to artists' explorations of the relationships between physical and virtual space. It begins by discussing Marcos Novak's computational concept of "liquid architecture"—a fluidly responsive and abstracted, yet still physical form of space—and Slavoj Žižek's topological notion of virtual space as a "hole in reality," a type of supernatural fracture in the fabric of space which is always just out of view, "a floating anamorphotic shimmer, only accessible with a glance over the corner of one's eye."[22] These concepts are applied to analyses of theater works by Uninvited Guests and Bud Blumenthal, and to site-specific digital performances by a number of artists, including Susan Collins and Joel Slayton.

"Telematics: Conjoining Remote Performance Spaces" (chapter 17) considers the history of networked performance from early 1970s satellite and telex experiments and Kit Galloway and Sherrie Rabinovitz's *Hole-in-Space* (1980) to the pioneering telematic performances of the Gertrude Stein Repertory Theatre in the 1990s. The real-time linking of performers working in remote locations has been one of the most popular uses of the Internet for live performance, and we analyze a range of exemplars including works by Lisa Naugle, Fakeshop, Company In Space, Floating Point Unit, Guy Hilton, and Kunstwerk-Blend.

A fundamental piece of telematic hardware—the "webcam"—is afforded a complete chapter (18), where it is conceptualized in terms of an instrument for the performative

subversion of surveillance society. Works by artists such as Mongrel and Natalie Jeremijenko/The Bureau of Inverse Technology (BIT) challenge and take issue with the ethics of CCTV and surveillance culture; others by artists including Elizabeth Diller and Ricardo Scofidio parody and undermine notions of webcam authenticity and "liveness," while artists such as Andrea Zapp invert the negative power politics of Bentham and Foucault's *panopticon* to present positive multi-webcam environments highlighting notions of community and social anthropology. The chapter considers the relationship between the live act of striptease and the interactive behavior of pornographic webcam models and concludes with a detailed historical analysis of the most famous and longest-running webcam performance of all, *Jennicam*, which we relate to post-Beckettian theatre, soap opera, and durational performance art. Watching empty rooms with no characters within the *Jennicam* set—previously "occupied" but now "empty," previously "empty" but now suddenly "occupied"—presents an ever-shifting kaleidoscope of patterns and banal yet dramatically loaded activity where, like a Beckett play, like an Eliot stanza, people "come and go."

Other forms of Internet drama and performance appear in chapter 19's discussion of "Online Performance," which begins with a discussion of cyberspace as "place"; a brief history of the Internet since the 1969 military ARPANET; and an acknowledgment that tensions continue to exist in cyberspace between social libertarianism and centralist governmental and military instincts to police and control. In the mid-1990s, online drama communities such as ATHEMOO, the Virtual Drama Society, and the WWW Virtual Library of Theatre and Drama Resources emerged, while ambitious, globally constituted collaborative projects such as *Oudeis* (1995) were conceived. The chapter considers what Michael Heim has characterized as "The Erotic Ontology of Cyberspace" (1991) and its relationship to performative online spaces such as MUDs and MOOs, including analysis of stage plays featuring online sexual encounters and the infamous Mr. Bungle cyber-rape in LambdaMoo in 1993. The focus shifts to exploration of online identity in MOOs, chatrooms and virtual worlds, where users carefully and consciously create quasi-Stanislavskian character biographies, establishing themselves as fictional beings and engaging in improvisational performances. Online "worlds" are traced through early environments such as *Habitat* (1985, using home Commodore 64 computers) through to the graphical worlds of *The Palace*, to the anarchic work of the Austrian company Bilderwerfer, who steal and assume other people's (real) identities to comment mischievously on notions of self in the electronic age and to pour scorn on the shallowness and falsity of Internet identity and chatroom relationships.

The final chapter dealing with space centers on notions of "'Theater' in Cyberspace" (chapter 20), beginning with a survey of hypertext literature and drama from Michael Joyce to the Hamnet Players and Desktop Theater, which we relate to earlier artistic movements and groups such as Fluxus and Oulipo. "Chatterbots"—autonomous, artificially intelligent "robot" characters that reside and converse in cyberspace—from *Eliza* (1966) to *Julia* (1990) are considered in relation to Alan Turing's theories and "tests" and to

Philip Auslander's argument that the chatterbot phenomenon: "undermines the idea that live performance is a specifically human activity; it subverts the centrality of the live, organic presence of human beings to the experience of live performance; and it casts into doubt the existential significance attributed to live performance."[23] The chapter goes on to pose the question "Is There Such a Thing as Online Theater?" drawing on a range of critical perspectives that argue, on the one hand, that the absence of flesh denies the presence of theater, and on the other, as Alice Rayner puts it, that while theater may be "particularly susceptible to a kind of annihilation under the pressure of digitalization. That annihilation, however, opens the way to the credibility of 'denatured' space and time. . . . The digital production of time and space dematerializes one kind of presence but institutes another."[24] The chapter concludes with detailed case studies analyzing the interactive online theater experiments of artists including Guillermo Gómez-Peña and the Chameleons Group.

"Time" (chapter 21) has been an emergent artistic and philosophical theme in digital performance practice, and the conjunction of live performance and recorded/computer rendered imagery has been used in innovative ways to elicit particular temporal distortions and effects. In theater works by the Builders Association, Robert Lepage, Richard Foreman, Curious.com, and Uninvited Guests, these effects can be seen not only to disorient an audience's understanding and experience of theatrical time, but also to challenge and go beyond established postmodern notions such as "atemporality" or temporal montage. Rather, we theorize such works as operating in ways that situate them within more ancient and mythical understandings of the *extratemporal*. The live and the virtual combine to dramatize the experience of existing and functioning outside of time.

Chapter 22's examination of digital artists' and performers' articulations of the theme of "Memory" begins by analyzing the importance of memory and personal autobiography to recent performance practice; and the postmodern theories surrounding memory, which clash between notions of contemporary society's total amnesia and its absolute obsession with memory and mnemonics. These ideas, together with Marcel Proust's literary meditations on the theme, interweave through analyses of performances from Andrea Polli's *Fetish* (1996), which develops her abiding central theme of "the fluid nature of the experience of a memory,"[25] to Curious.com's *Random Acts of Memory* (1998), which highlights the way in which our faith in computational RAM as a memory repository may be gradually eroding human memory. Remediations of the visionary "Memory Palace" (aka "Memory Theatre") project of Italian Guilio Camillo (1480–1544) by artists such as Emil Hrvatin and Stephen Wilson are considered; as are a range of performative treatments centring on themes from traumatic memory (Dumb Type's *Memorandum*, 1999–2000) to time travel, *deja-vu*, and short-term memory loss (Blast Theory's *10 Backwards*, 1999).

The book's final section investigates interactivity, spanning interactive installation and performance works, performance CD-ROMs, and computer/video games. Chapter 23 begins an exploration of "'Performing' Interactivity" by defining four hierarchical

categories of interactive art and performance ranked in ascending order in relation to the openness of the system and the consequent level/depth of user interaction—Navigation, Participation, Conversation, and Collaboration—with separate subsections analyzing each paradigm. Navigational works range from simple web photo-dramas to complex flexi-narrative installations by Lynn Hershman, Grahame Weinbren, and Jill Scott, and commercial interactive movies by Bob Bejan and David Wheeler. The live audience participatory stimuli that trigger Paul Vanouse's interactive films mark a transition to the *Participation paradigm, where the user or audience's active complicity is seen as central* to a number of installations and performances (figure 1.10). Analysis of the work of Perry Hoberman affords a further transition into the Conversation category, where works by Paul Sermon, Toni Dove, Luc Courchesne, and the Centre for Metahuman Exploration are discussed; and the final category, Collaboration, examines ways in which audiences/users' own creativities guide and define works initiated by artists including Stephen Wilson, Webbed Feats, and Satorimedia.

Chapter 24's examination of "Videogames" begins with a survey of theoretical perspectives that emphasizes the critical oppositions between the "ludologists" who focus upon the game itself (its practice, gameplay, visuals, manipulation, the experience of

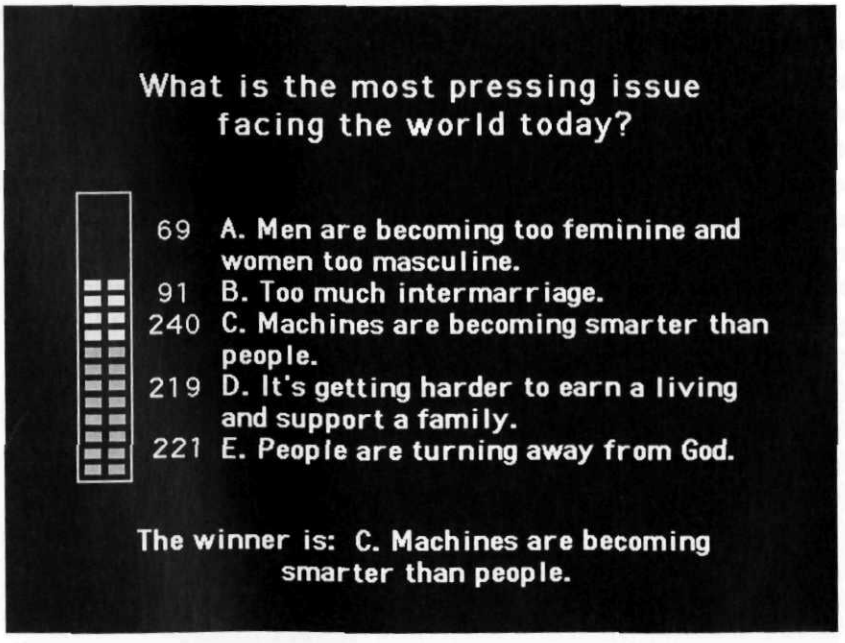

Figure 1.10 In the interactive cinema experience *Terminal Time* (1999, Steffi Domike, Michael Mateas, Paul Vanouse) the audience is posed questions and the volume of applause to each answer triggers a computer program to intelligently compile a film montage customized to their tastes and sensibilities.

playing it) and the "narratologists" who are concerned with cultural significations, meanings, and the philosophies underlying the progression of events. We go on to undertake a Brenda Laurel–style discourse on "video games as theater" by analyzing unifying principles and characteristics common to both, including narrative, simulation, terminology, and the fact that by the end characters will be left either dead or alive—a parameter that is as true of *Hamlet* as of *Final Fantasy*. Parallels are further drawn between violent video games and theatrical models from Greek tragedy and mythology to the *Grand Guignol*, while nonviolent, socially based games such as *The Sims* are related to the kitchen-sink dramas of the 1950s and '60s and to soap opera. The final part of the chapter investigates the increasing use (and creative abuse) of computer game engines/programs for artistic and performative ends by practitioners including Feng Mengbo, Tom Betts, and Mathias Fuchs and Sylvia Eckermann (figure 1.11). The chapter ends with a detailed analysis of Blast Theory's extraordinary VR war-game experience *Desert Rain* (1999), and our conclusion that rather than representing simplistic, inconsequential, or "plebeian" experiences, video games should now be viewed academically as the most prolific and dramatically effective form of "popular theater" of the contemporary age.

The rise and demise of performance "CD-ROMs" (chapter 25) offers a microcosm of the general development and adoption of digital technologies and techniques—how they

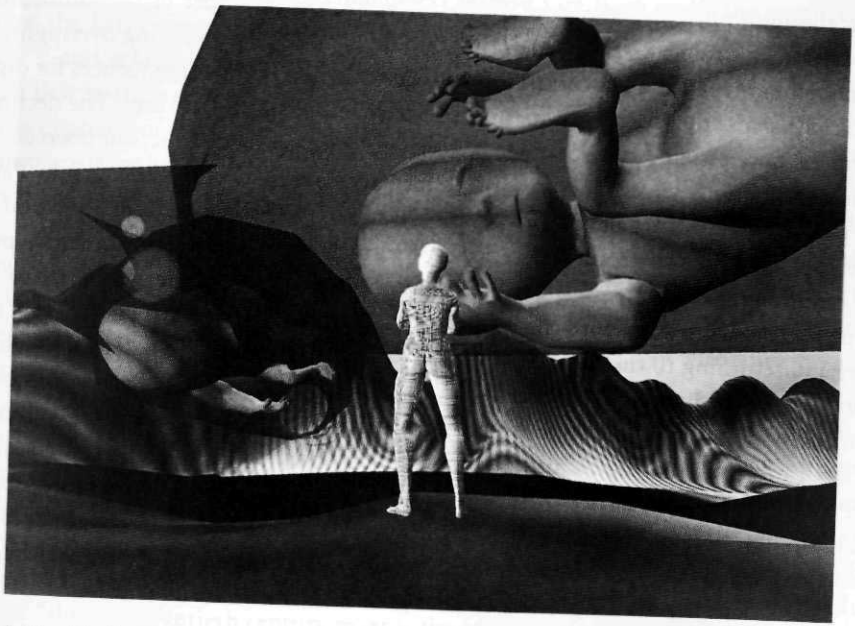

Figure 1.11 Abusing videogames to create art and theatre: Mathias Fuchs and Sylvia Eckermann's exploration of the liquid nature of identity, *fluID: Arenas of Identities* (2003).

commenced, developed, became fashionable, were absorbed, were replaced by a more advanced alternative, and then faded into relative obscurity. Three broad categories are defined and analyzed in relation to a number of case studies—educational; documentary/analytical; and performative. Educationally oriented performance CD-ROMs include works on Shakespeare by academics such as Christie Carson and Lizbeth Goodman, and by commercial companies such as Voyager and the BBC; performance documentation and analysis CD-ROMs include William Forsythe's acclaimed *Improvisation Technologies* (1994 and 1999) and works by the Bedford Interactive Institute, La Compagnie Les Essentiels, and Desperate Optimists. Our examination of performative CD-ROMs considers the different ways CD-ROMs have been designed to bring a sense of live theatricality to the "canned" format, from Laurie Anderson's labyrinthine *Puppet Motel* (1995 and 1998, with Hsin-Chien Huang) and Forced Entertainment and Hugo Glendinning's enigmatic *Frozen Palaces* (1996) and *Nightwalks* (1998) to Ruth Gibson and Bruno Martelli's upbeat interactive soap opera meets dance-theater work *Windowsninetyeight* (1998).

Our conclusion (chapter 26) does not seek to resummarize all our themes and arguments, but rather draws together and consolidates some central discourses. It begins by discussing the way that computers became firmly embedded into the social, business, and artistic fabrics of industrialized societies during the 1990s; yet by the turn of the millennium a severe backlash was underway marked by apathy, suspicion, and cynicism following the unfulfilled hyperboles of digital nirvanas, the whimper of the "millennium bug," and the dot.com collapse. The digital bubble, if not exactly bursting overnight, lost pressure remorselessly and has continued so to do with significant consequences for digital applications across the full span of associated activities, including the arts. The decline in investment, interest, and development became endemic; and academic, commercial, and artistic reevaluations were underway. In performance studies, academics such as Patrice Pavis pleaded a passionate humanist case for the humble live body and for theatrical text in the face of digital spectacle and robotic performance forms,[26] while numerous previously enthusiastic digital performance artists appeared to heed the call (or else to have become bored or frustrated with the technological palette) by turning their backs on technology and returning to the live. We revisit the rise and fall of what we identify as digital performance's true historical ancestor—futurism—to discern a parallel story of youthful optimism for a new and glorious future which ultimately fell short of the promised tomorrow. Both futurism and digital technologies initially presented themselves as *philosophies* of life only for it to be realized a little later that they were technical developments that would rapidly become dated and demand further enhancement to avoid becoming entrenched in their own technical difficulties, limitations, and clichés. But at the same time, at least the hyperbolic wishful thinking of a Marinetti manifesto from 1921 had actually become a reality by the year 2000:

If today a young . . . theatre exists with . . . unreal persons in real environments, simultaneity and interpenetration of time and space, it owes itself to our *synthetic theatre*.[27]

Our location of digital performance within traditions of avant-garde modernist practice rather than as part of an all-consuming postmodernism is concluded with a polemical analysis evidencing digital performance's "newness" and resistance to the self-consuming snake of postmodern theory and its state of blind denial of the new. Digital artists and performers around the turn of the millennium created something that has not been seen before, something still highly experimental, not fully formed, but nonetheless *new*. Blast Theory's *Uncle Roy All Around You* (2004) provides a final case study to emphasize the point—a one-person journey experience through city streets with a networked palm computer that mixes paradigms from computer games, performance art, virtual reality, online communities, architecture, and interactive art, and culminates in an unforgettable climax involving the arrival of a *deus ex machina*.

Theater "versus" Technology

We will conclude our introduction by focusing on a fundamental issue that surrounds and frequently clouds both the theory and practice of digital performance—the inherent tensions at play between the live ontology of performance arts and the mediatized, non-live, and simulacral nature of virtual technologies. Marie-Laure Ryan traces the word "virtual" back to the Latin *virtualis*, meaning "the potential, 'what is in the power (virtus) of the force,'"[28] and relates it to Aristotle's distinction between the actual and the potential, noting that in these terms an acorn is a potential (or virtual) oak. Thus "the virtual is not what is deprived of existence, but that which possesses the potential, or force of developing into actual existence."[29]

In ancient scholastic philosophy, the relationship between virtual and actual was dialectical, but in the eighteenth century this changed to one of binary opposition, with the virtual denoting the non-actual, the fictive, or the fake. Ryan suggests, "If the virtual is fake, cyberspace is a virtual space because it creates a sense of place, even though it does not exist physically; and the Internet provides the experience of virtuality because it transports the user into the non-existing territory of cyberspace."[30] She concludes that the pre- and post-eighteenth-century lexical definitions of "virtual" encapsulate the at once positive (the potential to actuality) and negative (the illusory or fake) aspects of computational virtuality. These dual notions operate clearly in advanced computer simulations such as Virtual Reality, where the environment projection is "fake" but the physical interactivity with it is direct and "actual." She goes on to note that postmodernism's obsession with the virtual and the fake has now rendered the negative aspect of virtuality a positive: "the late twentieth century regards the fakeness of the fake as an inherent source of gratification."[31]

Against the background of activity in the application of digital technologies within performance practice, the idea of computational "fakeness" has ensured an equal and opposite reaction against it. Whatever its potentials for artistic creation and theatrical effect, many resist or reject its inherent artificiality. The perception of digital images' lack of authenticity has progressively intensified in recent years as more and more people use sophisticated software packages, including image applications such as Adobe Photoshop, which were once the sole preserve of artists and designers. The realization of the speed and ease with which the ubiquitous digital airbrush can enhance, adjust, montage, and falsify representations has rocked to its very foundations whatever vague notion of "truth" may have clung to the already shaky status of the old analog photograph or the electronic video image. For many performance artists inclined toward notions of "artistic truth," virtual images and systems have thus been viewed with some suspicion, while electronic image media in general have long been eschewed by many because of their relationship to television: the most dulling, manipulative, hegemonic and aesthetically lowbrow of all art forms and art "spaces."

The artificiality or falsehood of the digital image has therefore limited appeal to many live artists on aesthetic, ideological, and political grounds. This is particularly the case in fields such as physical theater and body art, where the primary aim is the enactment of "embodied" authenticity, realized through the "no smoke and mirrors" and "no-strings-attached" material tangibility of the visceral, physical body. There is therefore a tension, even conflict, between those within performance practice and criticism at either side of the digital divide, which should not be underestimated. This has been exacerbated by the paradoxical rhetoric of disembodiment and virtual bodies, which have turned ideas of corporeal reality full circle by the claim that the digital body has equal status and authenticity to the biological one. The paradox that projected databodies and alternate identities enacted in cyberspace can be viewed as being just as, or even more vital and authentic than their quotidian referents, is now a source of belief and wonder to some and a totally unpalatable conception to others.

In the 2001 Performance Studies conference in Mainz, Germany, amid a performance program dominated by the conjunction of performance and high technology, Nigel Charnock's one-man show *Fever* (2001)[32] reveled in the resolutely nontechnological and the distinctly live (including live musicians on stage) (figure 1.12). Then at one point, an operator with a video camera enters the stage, and Charnock opens a curtain at the back to reveal a projection of the live video feed, ironically small and a little off-center, onto the cyclorama. "Look, it's the future!" he cries in comic mock-wonder, rushing around the stage in melodramatic paroxysms of joy. He then begins to undulate his torso and stretch out his limbs, clearly expecting a sonic response from a computer-sensory interactive system. When nothing happens and all is silence, his face turns to disappointment. "Where are the computer sounds?" he asks, to guffaws of laughter from the audience.

Figure 1.12 Nigel Charnock expresses the joys of the "solely live" in *Fever* (2001). Photo: Thomas Ammerpohl.

Charnock succeeds here in ridiculing performances that rely on technology as an add-on or novelty, and points out that digital dance is already tired and riddled by cliché. Just as significantly, Charnock demonstrates the exhilaration and unique quality of the live body in a magnificent and comic display of joyful dance, chat, and free improvisatory movement on a bare stage with a plain, white lighting "wash" (figure 1.13). The performance is also punctuated with more genuine "interactivity" than an onstage sensor system would achieve, as he runs around and through the audience, embracing them, flirting, talking face-to-face with individuals, and jumping like a naughty child over the rows of theater seats to steal their handbags, jackets, and coats, enacting the playfulness, freedom, and joyful intimacy of the *solely live*.

Monsters of Grace

One of the most publicized digital performances of all time, director/designer Robert Wilson and composer Philip Glass's *Monsters of Grace* (1998) provides an even more interesting example of the frictions between performance and new media, as well as providing an illustration of how the history of digital performance has been continually distorted and rewritten. In 1998, audiences in packed theaters around the world eagerly donned 3D glasses for the much-hyped *Monsters of Grace*, a performance Wilson and Glass described as "a digital opera." Their only previous collaboration, *Einstein on the Beach*

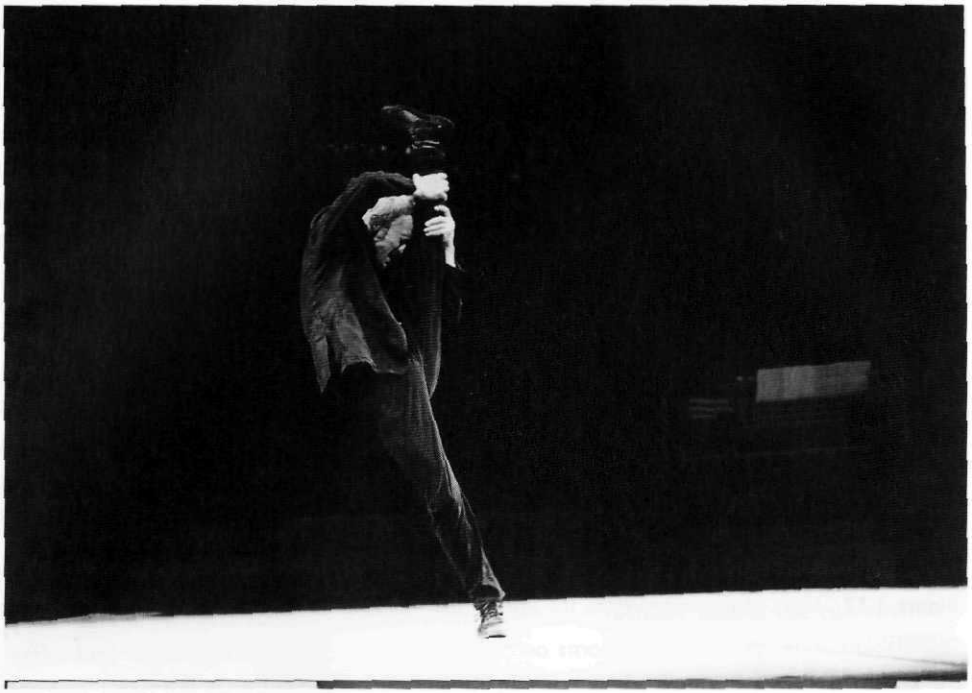

Figure 1.13 Nigel Charnock in *Fever*. Photo: WDR/Anneck.

(1976), was acclaimed as a landmark in the development of American (and world) theater, and the new project's exploration of virtual technologies aroused enormous anticipation and pre-publicity. The production featured thirteen lavish computer-animated 3D films, created by Jeffrey Kleiser and Diana Walczac, which were projected onto a screen suspended above the musicians and singers. Some films were figurative, others abstract, some seemed closely synchronized with the music, while others appeared to have little or no correlation.

The production and the largely (though not universally) negative reaction it provoked from audiences and critics, bring into sharp focus a number of fundamental issues and debates confronting virtual theater and performance. Firstly, expectations were too high, spurred on by overly optimistic and (at least currently) unrealistic rhetoric about the emergence of a totally new, immersive theatrical art form. Secondly, there is still fierce debate about the actual virtue of integrating digital imagery within live theater. Opponents fiercely contest that there is a mismatch of media and a corruption of theater's purity as a live form, a discourse (as we examine in more detail in chapters 4 and 6) that first emerged during the "film-theater" experiments of the early twentieth century and that

was given even greater credence following the publication of Jerzy Grotowski's seminal *Towards a Poor Theatre* in 1968.

Grotowski emphasized the elimination of the superfluous, including makeup and "autonomic costume and scenography"[33] so that theater became reduced to its essence: "the actor-spectator relationship of perceptual, direct, 'live' communion."[34] Noting that this corresponds to an "ancient theoretical truth," Grotowski nonetheless acknowledges that it challenges the notion of theater as a *synthesis* of different arts. But, punning on the word, he characterizes contemporary theater as the "synthetic theatre," one dependent upon artistic kleptomania "constructing hybrid spectacles, conglomerates without backbone or integrity", a " 'Rich Theatre'—rich in flaws."[35] He sees the Rich Theater as futilely emulating film and television with a "blatantly compensatory call for 'total theatre,' " which includes the use of moving scenery and "movie screens onstage." "This is nonsense," he declares. "No matter how much theatre expands and exploits its mechanical resources, it will remain technically inferior to film and television. Consequently I propose poverty in the theatre."[36] He warns that theater must recognize its limitations, and since it cannot compete with recorded media in richness, lavish spectacle, and "technical attraction, let it renounce all outward technique. Thus we are left with a 'holy' actor in a poor theatre."[37]

Grotowski's praxis at the Polish Theatre Laboratory was an ascetic *via negativa* (negative way) of pruning and elimination. For both actor and spectator, "the struggle with one's own truth, this effort to peel off the life-mask" involves a consequent peeling away of theater's illusory devices and the trappings of spectacle. "If we strip ourselves and touch an extraordinarily intimate layer, exposing it, the life-mask cracks and falls away."[38] Although these words were first published (in article form) in 1965, their influence remains profound. Grotowski is widely considered the seminal theatrical theorist and practitioner of the late twentieth century, a guru who has in turn greatly influenced other theatrical high priests of theory and practice such as Peter Brook and Eugenio Barba.[39] As Richard H. Palmer observes, Grotowski was "an outspoken antagonist to the incorporation of increased technology in the theatre . . . [and] provides theoretical legitimacy to late twentieth-century resistance to theatre's developing technology."[40] For Grotowski's actors, the *via negativa* also involved a rigorous stripping away of bodily conditioning and psychological resistances in order to approach pure, animal bodily impulses, and good old-fashioned "spiritual truth." In the same year Grotowski published his theory, Peter Brook waxed lyrical about the purity of *The Empty Space* (1968), where the simple act of a person walking across a stage ignited some magical electrical charge called "theater."[41] One is prompted to reflect just how much times, theories and aesthetic sensibilities have changed. Meanwhile, minimalism and conceptualism brought the *via negativa* to bear on art theory and practice, where white canvases, and lines of bricks took aesthetic distillation to new heights, and the tabloid press into apoplexy.

Via Positiva

Digital performance is by and large the polar opposite: *via positiva*. Rather than stripping away to reveal essences, like the classical image of Michelangelo hammering and sculpting stone to reveal and bring into being something already there but hidden underneath, digital performance is by definition an additive process. New technology is *added* to performance, a new ingredient that is delicious for some but unpalatable for others. In digital performance, extra technologies are added, extra effects, extra interactions, extra prostheses, and extra bodies.

In many ways, criticism leveled at *Monsters of Grace* and other digital performance productions continue precisely the same arguments expounded by the antagonistic critics of 1920s film-theater experiments, and by Grotowski: media projections do not enhance the intellectual power or visual spectacle of theater, rather their technological intrusion is alien; the two forms are aesthetic enemies. The wider tension between theater and technology in fact goes back even further. In *The Poetics*, Aristotle placed spectacle firmly at the bottom of his list of constitutive elements of dramatic tragedy, and Jacobean playwright Ben Jonson fought famously and furiously against the spectacular designs of Inigo Jones that threatened to upstage his text. The same argument still prevails today about commercial (and particularly musical) theater which is accused of succumbing "to a taste for expensive high-tech gadgetry in lieu of substantive writing."[42]

Jean Baudrillard echoes the sentiments (though not in relation to theater), and takes it further by insisting that people "prefer to renounce their creative powers in order to exercise and enjoy them through the mediation of machines first. For what such machines offer is, above all, the spectacle of thought and, in their dealings with machines, people opt for the spectacle of thought rather than thought itself."[43] Arnold Aronson attacks technology's wider impact on theater and dramatic writing, arguing that surface artifice rather than substance has become paramount: "In the midst of a modern era of spectacle, there is scant evidence that it is contributing in any tangible way to the development of drama . . . what is the point of trying to recreate 'virtual' imagery on a real, three-dimensional stage?"[44]

These ideas and resistances also relate to long-standing debates within modernist art whereby, for example, Malraux defined the modern in painting "as that which refuses—effaces—all values foreign to painting."[45] But equally, we would note that there were frequent assaults on this notion from artists within the modernist avant-garde itself. In 1921, Varvara Stepanova declared in a catalogue for an exhibition of the radical Soviet Institute for Artistic Culture (Inkhuk) that "the 'sanctity' of a work of art as a single entity is destroyed."[46] Susan Sontag summarized the debate in relation to multimedia theater in 1966:

> The big question is whether there is an unbridgeable division, even opposition, between the two arts. Is there something genuinely "theatrical," different in kind from what is genuinely "cine-

matic"? Almost all opinion holds that there is. A commonplace of discussion has it that film and theatre are distinct and even antithetical arts, each giving rise to its own standards of judgement and canons of form.[47]

The criticism leveled at *Monsters of Grace* centered on precisely this perceived mismatch and lack of integration between two distinct art forms, and its consequent diminution of the production's sense of "theatricality." Whereas the heightened, formalist theatricality of the collaborators' earlier *Einstein on the Beach* was critically considered to have broken new ground, *Monsters of Grace* received condemnation for its distinct lack of theatricality and liveness. Critics noted that the live performance element was closer to a chamber concert than a dramatic opera and moreover, due to the distinct separation between the musicians and the screen above them, there was a division, rather than unification between the live and the virtual. Although this was a deliberate artistic strategy by Wilson and Glass who stated publicly (perhaps mindful of the reviews) that later versions of the production were conceived strictly as a 3D movie with live musical accompaniment, it appears to have largely disengaged audiences. This is not to say, of course, that other practitioners have not successfully engaged their live audiences and enhanced a sense of theatricality through the integration of digital projections, as we make clear in due course.

Rewriting History

It is equally important to note that the extremely high pre-publicity profile of *Monsters of Grace* aroused fears from the large, well-networked community of pioneering digital performance practitioners. Their concerns were compounded by amazement at the scale of the budget invested in assuring its high production values. The digital animators, for example, were hired from their own high-end commercial film company specializing in advanced computer graphics and the creation of "synthesbians" (synthetic actors) for Hollywood movies and theme parks, and their 3D animations were rendered in extremely high-resolution 70 mm film (most Hollywood movies are on 35 mm).

Following many patient and difficult years of experimentation by numerous "unsung" artists and innovators working in metaphorical or actual garrets, there seemed the distinct possibility that Wilson and Glass, two of America's highest-status artists, would suddenly step in to steal the digital performance limelight, and that history would credit them with "inventing it." This was doubly ironic and distressing since despite Wilson's deserved reputation as a magisterial designer of visual spectacles, he was a relative novice in terms of his experience of combining theater and media projections, having rarely used them since including film footage in his early *Deafman Glance* (1971). As its title suggests, *Cyberstage* editor Mark Jones's article, "Monsters of Mediocrity" gives the production a distinctly lukewarm response, and goes on to suggest that Wilson and Glass were naïve in implying that their work was heralding a new form of art:

This showed a lack of awareness or acknowledgement of the other work which has being going on for a long time. . . . Not to consider the work done by such groups as The George Coates Performance Works, The Gertrude Stein Repertory Theatre, or The Institute for the Exploration of Virtual Realities at the University of Kansas is to deny them their fair place in the history of art and their valuable contribution to it. The problem, of course, is that when someone as famous as Philip Glass continues to say that he and Robert Wilson are the first ones to do this, some people are eventually bound to believe him, and that becomes that—the books are written. . . . Years from now, when authors write books on the history of electronic art, they will site Robert Wilson and Philip Glass as the pioneers of a new artform. And this makes me very, very nervous.[18]

This book is one such history, and Jones will be relieved to hear that the pioneers he highlights figure far more prominently than Wilson and Glass. It is *a* history of digital performance, but like all histories it is partial and incomplete. The degree of attention we pay to literally hundreds of artists and performance makers is dependent on numerous factors, from our particular interests and tastes to the pure, blind chance of whose work we have happened to see, sometimes live, and sometimes "secondhand" through documentation such as videotapes, CD-ROMs, and DVDs sent to our *Digital Performance Archive*. We are also highly conscious that there are numerous digital performance artists that, for reasons of space or final editing, the flow of narrative or our sheer ignorance should be included but are not, and to them we sincerely apologize. These are the sad drawbacks of historicizing, though future editions may provide the opportunity to reevaluate and remedy any drastic imbalances or glaring omissions.

Mark Jones's concerns about an unformed history of digital performance where big-budget, high-status established artists walk in, take over, take the headlines and take the credit is a serious issue and one we hope to redress in some way. The type of fear Jones has in relation to a selective historiography of live digital performance similarly applies to other areas, such as the academic genealogy of the performance CD-ROM. Here, another well-known and established figure, the choreographer William Forsythe, came in relatively late on the scene, but is now popularly considered to be the first real innovator, if not originator of dance CD-ROMs. His beautifully conceived and executed *Improvisation Technologies* CD-ROM (1994 and 1999), designed by Christian Ziegler and Volker Kuchelmeister, is rightly considered the most aesthetically and pedagogically advanced example of the "genre," but most of its acclaimed technical "innovations" had in fact been developed and honed years earlier by lesser known artists and educationalists.

Jacqueline Smith-Autard and Jim Schofield at the Bedford Interactive Institute (UK), for example, have been creating disc-based dance applications for schools and colleges since the late 1980s, struggling through a plethora of here-today gone-tomorrow hardware systems that have rendered years of painstaking research and digital dance-analysis

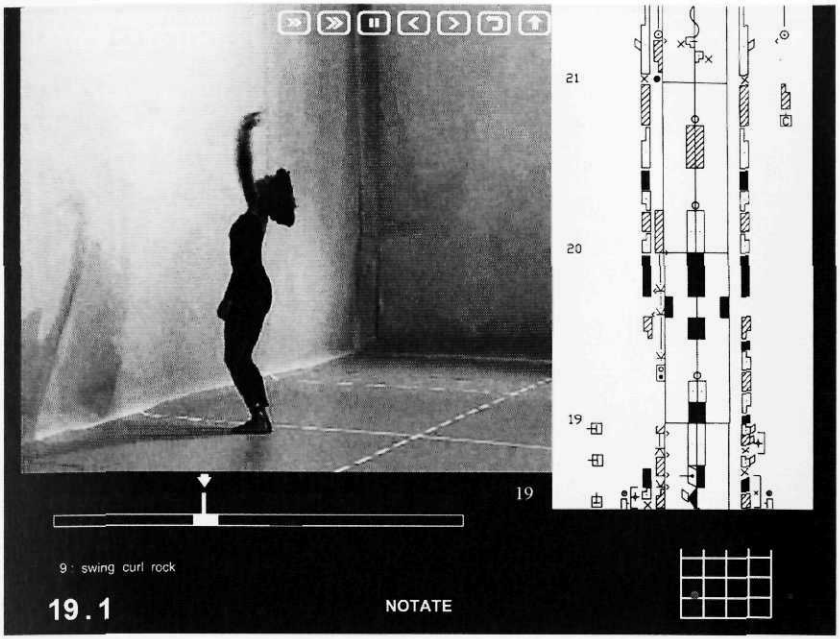

Figure 1.14 Bedford Interactive's award winning *The Dance Disc* (1989) is an early example of an interactive dance analysis disc. In this section, it allows the user to study video footage in conjunction with synchronized dance notation.

materials largely obsolete (figure 1.14). The use of split-screen simultaneous camera angles, and the superimposition of computer-graphical lines over video footage to trace and analyze arcs of movement (the most critically praised technical "innovation" of Forsythe's CD-ROM), were actually pioneered by the Bedford Interactive Institute years earlier in laser discs such as their analysis of Siobhan Davies's *Pilot Study* (1994) (figure 1.15). Their more recent and advanced CDi and CD-ROM package, *The Wild Child* (1999, with Ludus Dance Company), continues to overlay computer graphics onto video footage so as to dissect dance processes and aesthetics. More than once we have winced to hear dance academics discussing how the Bedford Institute has copied Forsythe's technique (figure 1.16).

One of our key objectives, therefore, has been to trace back the roots of and early experiments in digital performance, and to highlight the often unsung pioneers in the field who might otherwise slip into history without recognition. This means an inevitable concentration on the decade of the 1990s, its "golden era" and the key focus of our study, over more recent practice (although we nonetheless discuss many works from 2000 to

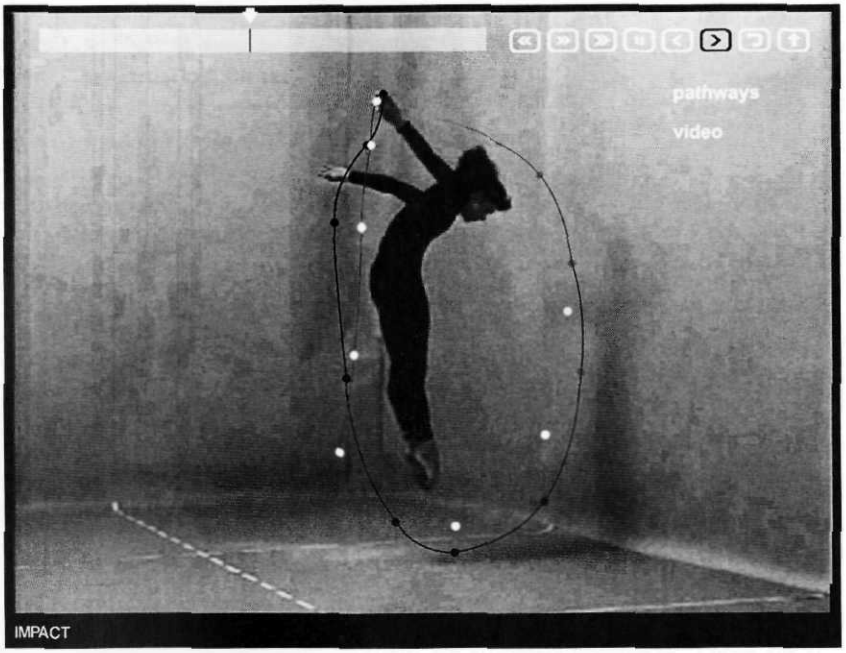

Figure 1.15 From 1994 Bedford Interactive used overlaid graphics to trace lines and arcs of movement, predating William Forsythe and ZKM's more celebrated use of the technique in 1999.

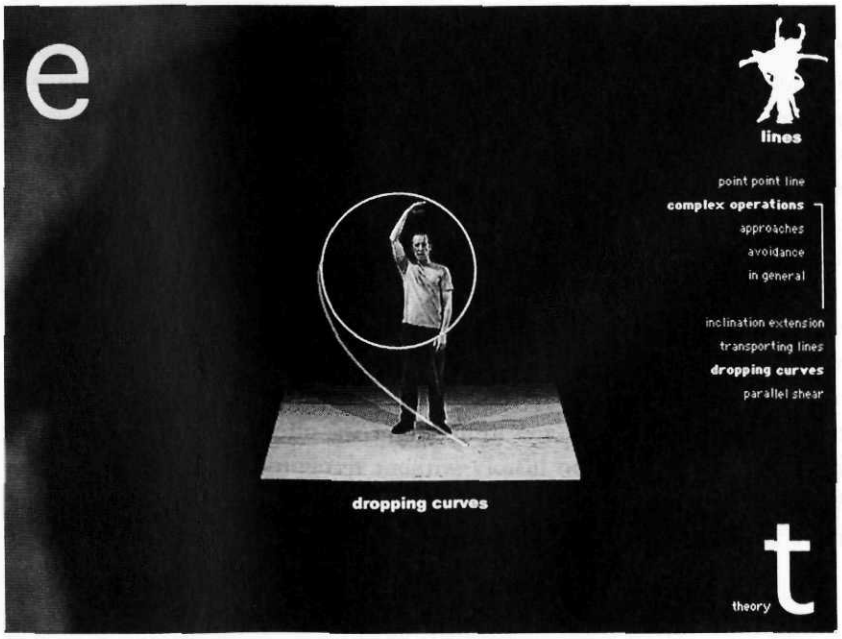

Figure 1.16 A screen shot of William Forsythe demonstrating a rotation movement in ZKM's beautifully designed *Improvisation Technologies: A Tool for the Analytical Dance Eye* CD-ROM (1999). Courtesy of ZKM, Center for Art and Media Karlsruhe.

2005). As Sarah Sloane has joked, books on computer technologies generally have the shelf life of a carton of milk, and we have not attempted to write a cutting-edge book about the "latest" developments in the field that would be likely to be here today and gone tomorrow. Rather, this volume attempts to provide a comprehensive survey, analysis, and history of digital performance's emergence in myriad aesthetic forms and on varied platforms; and the fascinating people—artists, technologists, theorists, and commentators—who influenced, shaped, and defined its development.