

# **Clinical Notes: A History and Diagnosis of New Media Art**

[Dr Sally Pryor](#)

*School of Creative Arts*

*University of Melbourne*

[\*www.sallypryor.com\*](http://www.sallypryor.com)

This paper proposes that the four vital medical signs form a somewhat subjective and incomplete analysis of a patient's health. This view is applied to a personal account of the vital signs of new media art. The paper reflects on over twenty years of experience of the field variously labelled computer, electronic, digital and new media art. Through a series of personal snapshots of the early eighties, the late eighties, the mid nineties and 2005, the history and creative challenges of new media art are explored and extrapolated into the future. The alternative term Information Technology and Creative Practice (ITCP) and its transdisciplinary framework are endorsed. It is proposed that the look of the new will be interwoven with the human-computer interface, framed not as the combination of a set of usability tools with their use in action, but rather, as where and how the human and computer meet. The applications of an Integrationist view of language and communication are outlined and briefly explored.

## ***The Vital Signs of New Media Art***

In medicine, the term “vital signs” refers to a set of quantifiable indications that the patient is alive: respiratory rate, pulse rate, temperature and blood pressure. However, these signs are not as objective as might be assumed, for example, the 'White Coat' phenomenon has been observed to increase a patient's blood pressure on measurement. Additionally, the four signs do not tell the whole story: normal vital signs don't always indicate good health. Important changes such as the loss of large amounts of blood may not be apparent. Finally, there is an argument, at least amongst some clinicians, that pain should be considered a fifth vital sign.

In considering the vital signs for new media art, the most obvious problem is the lack of definitional precision of the term. What was new in 1993, or so, is not so new today. In this paper, I explore the vital signs of new media art through a series of personal snapshots of its evolution. Like the medical vital signs but a great deal more so, this assessment is not objective. Neither is it exhaustive: a full account of twenty years of this constantly evolving medium is beyond the scope of any one paper, even if restricted to just my own experiences. Everyone involved has his/her own story to tell. Here, I offer a broad-brush exploration of the creative challenges for one pioneering artist during the period and I apologise in advance to everyone/everything that I have omitted.

## ***Snapshot One: 'Computer Art'***

In the late 70's I was working in Melbourne as a computer analyst/programmer, a male-dominated, relatively rare and deeply unfashionable occupation at the time. I was desperate to make pictures with computers but this was before the availability of personal computers, GUI interfaces, pointing devices, paint programs and affordable colour printers. Computer graphics and animation systems were just starting to emerge and in 1979 the Australasian Computer Graphics Society was formed. The field was very much dominated by computer science and engineering and the phrase “a picture is worth a thousand words” began to be heard ad nauseam at AUSGRAPH conferences.

Then in 1982 John Bird at the Swinburne Film and TV school organised for animation students to use a wireframe CAD/CAM system in the Engineering Faculty. My friend, Andrew

Quinn, and I displayed the essential combination of creative and computing skills and were accepted as the new 3D computer animation students.

First impressions of the new system did make my pulse race! Looking at the screen was hardly a sensual experience and it was extremely challenging to develop a visual aesthetic for these cold green lines. I also found it difficult to express myself via 3D wireframe objects moving around in space. To see anything at all on the screen, we had to first draw a shape onto graph paper, then work out a set of linked coordinate points from this diagram and type them into the CAD/CAM (computer aided drafting/computer-aided manufacturing) program, movie.BYU, via its cryptic interface (fig 1).

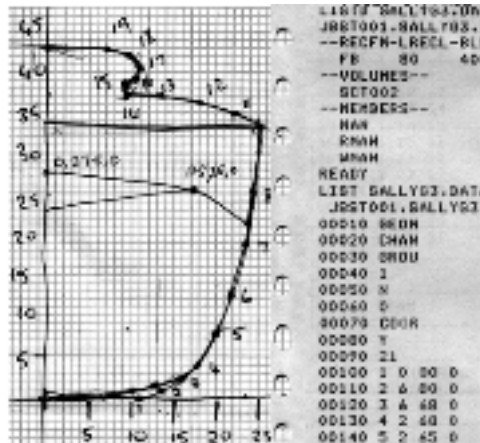


Fig 1 Traces of the production process of **Dream House**

To create an animation sequence, we entered numerical movements and rotations of the camera and objects relative to the X, Y and Z-axes. To actually view the animation, expensive output to black and white 16mm film at a commercial printer was required, so this was reserved as a once-only event at the end of production, with support from Film Victoria to pay for it.

In the meantime, John arranged for us to preview animations with a specialised contraption rigged up in front of the screen, involving a black and white video surveillance camera draped in black cloth – reminiscent of earliest photographers – filming one image at a time. This process took several hours to record a few seconds of animation and displayed a low-resolution video sequence with a prominent scan line running constantly down the tiny screen.

Any colour had to be added at the very end: the final precious black and white 16mm film was put through an optical printer by David Atkinson, coloured gels and filters were applied and the film was re-shot. This placed a painful burden on the imagination, as everything had to be previewed mentally up to this point. For example, in order to combine differently coloured objects in the same scene, the animated objects needed to be rendered separately to the final film and then layered using the coloured gels and filters, rewinding and re-exposing the same piece of film several times. The possibilities for disaster were enormous. Fortunately, David had the coolness of a surgeon! Yet pain persisted, because, naturally, all the edits that linked the different pieces of animation had only been previewed mentally right up until the very end, as well as the important relationships between sound design and vision.

Andrew and I received a great deal of technical support from John and David, as well as from Brian Curtis, who had encountered the system in the previous year. However, developing a unique creative aesthetic for artwork produced with this piece of engineering equipment was something we had to do alone. At the time, computer graphics/animation technology was so new that much of the existing imagery had a cool, flashy, high-tech aesthetic. In contrast, I wanted to make something hot and personal. The result was **Dream House** (1983), a short film about a dreamer who tours her head as if it were a house; different rooms correlating with different aspects of personality and experience. The film was ultimately very successful, being, to the best of my knowledge, the first Australian work selected for the prestigious SIGGRAPH screenings in the USA.



Fig 2 Still from **Dream House**

Despite the successes of both our films, Andrew and I had to go offshore to actually find employment as 3D computer animators. Fortunately we made contact in Australia with the director of one of the world's leading 3D production houses, Cranston-Csuri productions, based in the USA. Even after seeing our primitive facilities (his company was state-of-the-art 3D: digitising tablets, full colour rendering, motion previews, recording to frame-addressible video disc and so on), he offered us jobs on the spot, based on our creative expression, that is, what we had done with so little. Later in 1984, and linked with the success of our innovative work and the lack of local job opportunities, the Swinburne facilities were upgraded to create the Computer Animation Development Centre, ultimately laying the foundations for the Centre for Animation and Interactive Media at RMIT.

### ***Snapshot Two: 'Electronic Art'***

By the late 80's and despite returning to work at the Video Paint Brush Company with state-of-the-art facilities in the very young Australian digital production industry, my own vital signs would have indicated stagnation and imminent failure. I had ultimately found commercial 3D animation to be high-pressure demanding work, extremely expensive to produce and, as a result, in service of issues which did not satisfy me creatively, such as promotions for the Republican Party (US), cigarette smoking in Asia (Aus) and expansion of the Defence Department (Aus). I did, however, manage in my spare time to contribute 3D animation for Jill Scott's **Media Massage** and to create raw material for a subsequent short video, **Computers are Fun** (1988), in which Barbie meets the computer.

As well as the fascination with meanings of Barbie, I had also brought home from the US one of the first Amiga personal computers, which still works today with its 256kb of memory. After a year or so, I become downwardly mobile (in some eyes), deserting the state-of-the-art for these low-end personal computers, artistic expression and academia.

The early personal computers finally made it easy to directly create rather low-resolution colour images and animations. My pulse rate began to return to normal. Even though the range of colours was severely limited, I happily became immersed in the enormous pleasure of the pixel and I still think that the undo functionality is one of the best features of digital image making. As always, I tried not to fight the technical limitations directly, but rather, to develop my own aesthetic for what was possible, while also pushing the boundaries of the possibilities. I've never aspired to creating slick, sharp, high-tech work. This was fortunate as scanning involved the same black and white surveillance camera and coloured gels again. Scanning had to be done in three passes (red, green, blue), changing the gel mounted in front of the camera each time with (less than) surgical precision to order to minimise movement.

However one problem soon became apparent: how to exhibit the work produced? I could convert it to video but that hideously degraded the gorgeous pixels. I could print stills, but affordable printers used a three-colour ribbon and created a washed-out travesty of the original (the equivalent of today's \$150 ink jet printer cost \$3000 in 1989 which was a lot of money). Thus, to exhibit my new work **Digital Dolls** (1988) in galleries, I had to supply my computer itself and some kind of housing for it, as well as commissioning custom software to

achieve what is now a banality, a simple slideshow sequence of images. Interactivity was quite out of the question, although I longed for it.

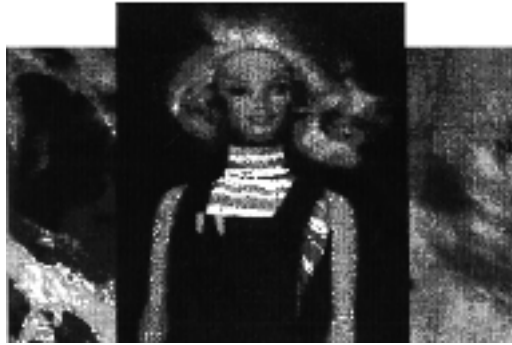


Fig 3 Still from **Digital Dolls**

The Barbie-based works also marked my growing awareness of the importance of understanding gender and technology. It was quite a shock, for example, to read that the original Turing Test involved a computer convincingly pretending to be a woman<sup>i</sup>. I have discussed the male domination of new media elsewhere<sup>ii</sup>; meanwhile in the late eighties my approach was to become an advocate for the greater involvement of women with technology, often alongside Jill Scott. I also started to think about the way people around me were starting to talk as if they themselves were actually computers. Influenced by the ideas of the philosopher, Elizabeth Grosz, I wrote a widely anthologised paper linking mind/body, software/hardware, self/other and male/female dualisms, **Thinking of Oneself as a Computer**<sup>iii</sup>.

Later, with help from the Australia Council, I was able to purchase a decent printer and create large mounted prints, such as **Thinking of a Computer as Myself** (1990), now in the Artbank collection. Thus, I worked with a range of forms in this new medium: stills, videos, installations and animations, including in 1990 an animated credit card called a GloboCard. I believed in this new art form and encouraged its development by participating in as many events as possible: national and international exhibitions, screenings, forums, residencies, conferences and publications involving art, technology and/or gender. Naturally I eventually burned out, leaving Australia for Tunisia about six months before electronic art was put on the Australian map with the local staging of the Third International Symposium on Electronic Art (THISEA) in 1992.

### ***Snapshot Three: 'Multimedia'/'New Media' Art***

One aspect of my Tunisian experiences was a new understanding of the importance of culture and communication. I became fascinated by language, writing and pictorial symbols because usually at least two unfamiliar spoken languages and two written scripts surrounded me. That had been rare in my Australian life. I wanted to artistically explore this in the context of human–computer interaction, which was ironic, as one reason that I went to Tunis was to escape from computers for a while.

Before leaving Australia, I had begun to study HyperCard, the new software for Macs that made it possible to easily author interactive multimedia works. HyperCard only had low-res, 1bit (black/white) graphics and 8bit audio, but it came with a programming language, Hypertalk, that made it possible to substantially customise the interactivity if you could write software. It became clear to me in Tunis that it was possible to create interactive multimedia works with HyperCard that incorporated language learning. To test this idea, I briefly returned to Australia then, with the help of ANAT and the University of Western Sydney, went back to Tunis with one of the first Mac laptops. I did manage to make a work that involved two people who don't share a common spoken language teaching each other their mother tongues, but this mainly made me realise the vastness and complexity of language. Eventually I began to feel isolated from contact with people working in similar ideas, to some extent because of the language barriers I experienced in Tunis.



impossible. Bandwidth issues are cyclic. For example, just as the bandwidth of CD-ROM drives finally became large enough to support decent, 16bit sound and images, the increasing significance of the internet meant that we had, once more, to keep file sizes small and consider each kilobyte carefully. But I just can't go back to those early Amiga days. And now, just as broadband Internet has become more widespread, cross-platform works for mobile devices require that we return once again to compressing our file sizes and being stingy with bits.

I don't mind the constant learning in this field and I enjoy the arrival of ever more capable software tools and more powerful machines. It is quite clear now that software doesn't create design skills: remember the early days of DTP and 10 fonts on one page anyone? But I think that it does make it quicker to acquire design skills, such as an eye for successful animation, for moving image edits, for juxtapositions of sounds and images, and so on. It is just so much faster to do the required experimentation now.

One issue I do mind in this process of constant change is the way it changes my previous artworks. How do I exhibit the Amiga works trapped on floppies formatted for computers, operating systems and software that I no longer own? Do I consider creating a hardware/software archive to be an essential part of my practice or are the old works as ephemeral as 'happenings'? Do I set aside a chunk of time to hunt down assistance? I find it irritating and would much rather be doing something else new and creative. For example, recently I had to go back and create an OSX version of **Postcards From Tunis** because less and less people have a system that matches the box of OS9 CDs that I possess.

One other point I would like to make is that, as an artist working with new technologies, it has been essential to have financial support over the years and I am very grateful for sources such as the universities, ANAT, the AFC, Film Victoria and the Australia Council. Partly as a result of this kind of support, Australian new media artists have been internationally successful and are amongst the best. My own fellowship from New Media Arts at the Australia Council was especially important to my development. The demise of the New Media Arts Board represents a significant loss of blood that may not be noticed initially in the vital signs of new media art but which will surely have an impact. While multimedia may not have provided the miracle drug for Australia's export market that some had hoped - I vividly remember the opportunists deserting multimedia (thank goodness) for the exciting new frontier of the internet - I think that the more general field of ITCP (see below) is as important as ever.

## ***Extrapolating into the Future: Four I's***

As I see it, four significant concepts for the look of the New are: intersections, ITCP, interface and integrationism. Actually we could add other i-words: innovation, invention, and so on ... but I will focus on these four here.

### **Intersections and ITCP**

As my story illustrates, cross-disciplinary intersections have been important in new media art and I think that they always will be. ISEA 2006 foregrounds the idea of "transvergence", that is, the bringing together of once distinct disciplines (such as art, architecture, computer science, nanotechnology, etc) into new forms of theory and practice. As someone who has never fitted neatly within the boundaries of any of the disciplines I've practiced (biochemistry, computer science, etc, even art and academia), I welcome this idea. It is also clear that such transvergence requires collaboration and that this involves people learning to respect each other's disciplinary-specific ways of working, of framing the world in general and the tasks at hand.

In terms of labels for what we have been calling new media art, I would now support the term ITCP<sup>vi</sup>. This is an acronym for Information Technology and Creative Practice in the fields of art & design. It foregrounds intersections between disciplines and is uncoupled both from the screen in particular and from definitions of the New in general. I think that it will be more able to accommodate the emerging creative forms of the future that move from the (desk-bound)

computer box to fuse IT, interface and Industrial (another !!) Design, such as mobile cross-platform devices and forms I can't even imagine yet.

## Interface and Integrationism

Human-computer interface issues such as usability have become much more important in recent times, as indeed they should. I vividly recall when an easily understood interface was considered 'sissy' and not for 'real men'. Perhaps this was linked to the sense of being part of a secret society with its own language?

Nevertheless, the human-computer interface has always been important and will only become more so in the future. But how can we theorise it? Human-Computer interaction has now become a well-developed field. However, I would argue that contemporary definitions run the risk of presupposing too much about human-computer communication, most notably the idea that there is a separation between an interface tool and its use in action. A much more open definition was presciently offered in 1990: "[t]he human-computer interface describes both where and how the human user and the computer meet"<sup>vii</sup>.

There is certainly no shortage of competing theories with which to analyse interfaces, and more generally, signs of communication. A comparative analysis is well beyond the scope of this (or any single) paper. I have argued elsewhere<sup>viii</sup> that the theory of Integrationism offers a powerful approach because it explicitly disassociates itself from (frequently unstated) assumptions about human communication that are hard to eradicate in a literate society. These assumptions include the idea that there are fixed boundaries between language and non-language; that the sender-receiver model describes human communication; that language is a fixed code; and more fundamentally; that words are the ultimate bedrock of meaning. Integrationist theory starts from first principles without making any of these assumptions and argues that every communicative sign is an interface, not just the signs of human-computer interaction.

Integrationist theory is ferociously difficult to understand precisely because it opposes what we tend to think of as common sense. My contribution to this problem is a kind of intellectual road movie about Integrationism, a CD-ROM/broadband web site. **Postcards From Writing** (2004). The work teases the term "writing" apart from "written words" and through my custom-written interface, offers users not only verbal information but also an experience of these ideas.

More generally, I propose that we stop trying to conceptualise computers by searching for previous forms of communication that they remediate (counting machines, writing machines, film and television machines, and so on). The key to the development of any new, 'post GUI' interface is to study human-computer communication from first (Integrationist) principles. As Roy Harris has maintained, it is impossible to truly innovate in this field if you do not first explicitly clarify not only your own assumptions, but also the macrosocial conventions it is assumed that everyone knows and accepts when they approach a computer<sup>ix</sup>. This analysis must include the communicational presuppositions that have already been made in the design of the computer and its interface, such as the embedded binary oppositions and decisions.

## Where To From Here?

At the time of writing I am preparing yet another reinvention. As Sue McCauley observes elsewhere at Vital Signs<sup>x</sup>, one response to consumerism and globalisation amongst artists is a turning away from the creation of personal works towards community-based and collaborative works. This is somewhat true for me.

I have not stopped being interested in creative exploration, in evolving technologies, interfaces, innovation and invention. I believe more than ever that art can be a research method. But I am more interested in applying my ability to create and program interactive, multidimensional works to the invention of digital forms that are useful in some way, that, for example, assist with communicative challenges such as dyslexia. I define myself currently as once more open to change and welcome invitations to collaborate in the creation (particularly

across disciplinary and cultural boundaries) of screen-based works, large-scale projections, mobile devices and other intersections with the field of Industrial Design.

Dr Sally Pryor ([www.sallypryor.com](http://www.sallypryor.com)) is digital artist/programmer, teacher and independent multimedia developer who lectures in the School of Creative Arts at Melbourne University. Sally has a multi-disciplinary background including biochemistry and computer programming. She has been working with digital art since the early 1980's when her 3D computer animated film, "Dream House" (1983) was selected for SIGGRAPH 84. She worked for several years in commercial computer animation before moving into art and academia. Sally's writing and artworks have been published, collected and exhibited nationally and internationally and she has received a number of grants, commissions and awards for her work on gender, technology, the body, subjectivity, language and writing. These include the Elektra Award for a woman working with new technology and a New Media Arts Fellowship from the Australia Council. For most of the 1990's Sally lectured at the University of Technology, Sydney.

Sally's work includes written publications, digital installations, videos, interactive multimedia and digital prints (including in 1990 an artist's book of digital prints about a surgeon's daughter, "Vital Signs")! Sally's recent works include the internationally award-winning CD-ROM "Postcard From Tunis" and an interactive multimedia installation "Gold Leaf" in the permanent collection of the Ballarat Fine Art Gallery. Sally's latest work is an interactive road movie about a new theory of language and communication called Integrationism. "Postcards From Writing"(2004) received an Honourable Mention at the 2004 trAce New Media Article Writing Competition and was a finalist in Drunken Boat's inaugural Web Art competition in 2006.

---

i "Teaching technology from a feminist Perspective", Rothschild, R., Pergamon, 1988

ii "Reel Women. Working in Film and Television", Bailey, J. AFTRS (Australian Film, television and Radio School), 1999

iii LEONARDO Vo. 24, No. 5, pp 585-590, 1991

iv "The Origin of Writing" Harris, R., Duckworth, 1986, "Signs of Writing", Harris, R., Routledge, 1995; see also [www.royharrisonline.com](http://www.royharrisonline.com), [www.integrationists.com](http://www.integrationists.com)

v Extending Integrationist theory through the creation and analysis of a multimedia work of art: Postcard From Tunis, Doctoral thesis, University of Western Sydney, Sally Pryor, 2004

vi Beyond Productivity. Information Technology, Innovation and Creativity. National Academies Press. Washington DC, 2003

vii "Your Word is My Command: Towards an Australian capability in human-computer interface design", Australian Science and Technology Council Canberra: Australian Government Publishing Service. 1990

viii Pryor, 2004

ix Interview audiotaped by S. Pryor, Oxford July 2001

x "The Look of the New: Vitality, Community and Creative Expression", Sue McCauley, Vital Signs, 2005