

## PathScape

Extracted from section 3.4.2 of PhD thesis

The conversations with colleagues that followed my curatorial research and exhibiting of *Burning the Interface*, the conclusions and lessons we drew from being able to survey so much interactive multimedia work to that point in time, led to a production project commenced in 1998 with the working title of *Strangers on the Land (SonTeL)*. With a small research team and seed funding of \$31,000 from the Australian Film Commission (AFI), this was the first prototype of an approach to what I now describe as visual or mnemonic indexing. The detail of this project are described in my thesis for the Master of Fine Art (MFA) at University of New South Wales (Leggett 2000a – copy on accompanying DVD-ROM, item 9).

*Strangers on the Land (SonTeL)*, examines Landscape as the mediated image, central to beliefs and identity within Australian culture both indigenous and non-indigenous. Through a dynamic and interactive process of presentation, intersections are made with interpretations and mediations about The Land, its many histories, its many appearances (Leggett, 2000a).

The prototype has an interface and navigation system giving access to 'narratives' through association with a specific place or location or series of locations. In the context of the AFI as a film-based organisation making prescient investments in the 'new media' area of the early 1990s, the project was described as exploring the notion of 'interactive documentary'.

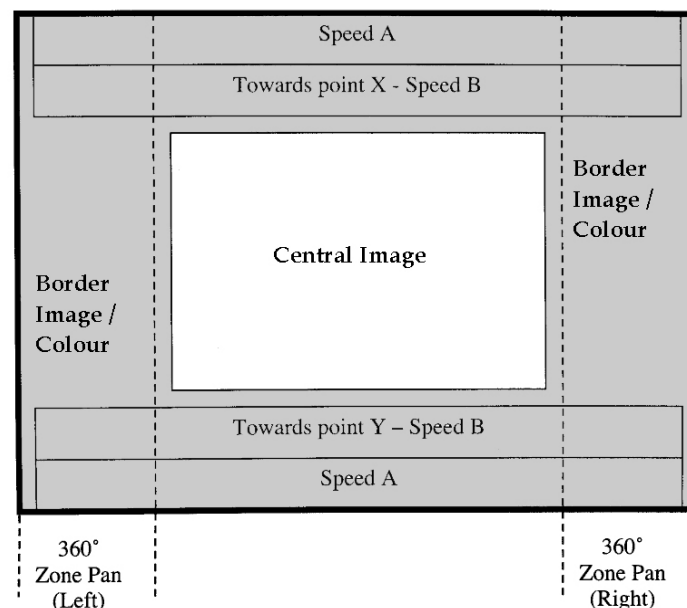
Following completion of the prototype and the MFA, the project continued to develop and further funding in 2000 of \$9,000 was achieved to produce a second prototype, *Pathscape*. The final section of this chapter will re-consider outcomes of that project as they impact upon the formulation and initial conduct of 'new studies', the contents of the following Chapter Five.

Each of the movies encountered in this interactive space employ, as part of the experiment, a range of genre approaches and / or narrative content, setting out to describe or make an association with, to tell a story about different sections of the Path. By linking movie files from a database with the image of a place during the authoring process, we were seeking to examine the layers of meanings that could emerge and co-exist within the present, future and past of place.<sup>i</sup>



*Fig. 4.1: Pathscape, prototype interactive system (Leggett, 2000b)*

The taxonomy of the database is represented with images of contiguous cinematic space. Individual photo images are pixilated to produce apparent motion – a movie - in a forward direction, perceived as a movement 'into' the space recorded of the bush track. The user controls this movement with gesture, using a mouse, to control the on-screen cursor.



**Fig. 4.2: Pathscape, screen Area Images and Cursor Gesture Outcomes**

### Interaction Design

A gesture with the cursor to the top of the screen (Figure 4.7 and 4.8) launches the movie of movement through the landscape, as in a cinema Point-of-View (POV) tracking or dolly shot. By gesturing with the mouse to return the cursor to the centre of the screen, the movie stops. By continuing the gesture to the bottom of the screen, the image on the screen will be replaced by the view in the landscape visible 180° from the initial view - in other words 'behind' the POV of the

initial image. By gesturing to top and then to bottom, the view through 180° can be instantly changed. By continuing the gesture to the bottom of the screen, apparent movement into the landscape will recommence, re-tracing as it were, the earlier steps. By gesturing further to edges of the screen, top or bottom, the motion 'into' the represented space will speed up by a factor of two. Thus in the prototype it becomes possible to traverse the full distance of 'the walk' through the Bush, (X – Y in Figure 4.9), commencing at the low-water mark on the beach and ending in the rainforest three kilometres away. This takes about 40 seconds at double speed (approximately 50kph 'real-time' Speed A in fig 4.8) and 80 seconds at the slower Speed B (25 kph). At any point the movement can be halted and a return made along 'the Path'.

The taxonomy of the Path is ordered with three indexical devices. Two are located in the border area that surrounds the central image. (Fig. 4.7) The **first** level of indexing is within this border and seen at particular points as fragments of images, visible for short durations. These indicate a nodal junction which, when 'captured' by using gesture to halt movement in the central image, will enable with a click, the launch of a movie and associated sound from a database, replacing the central image movie of movement along the bush path.

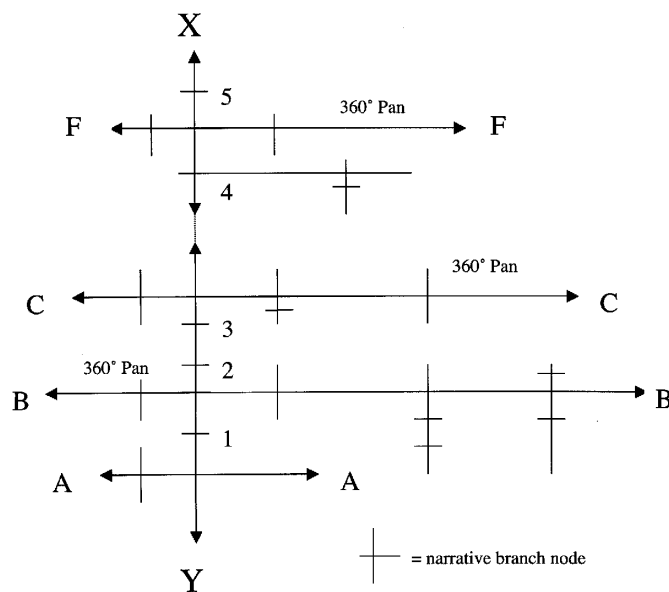
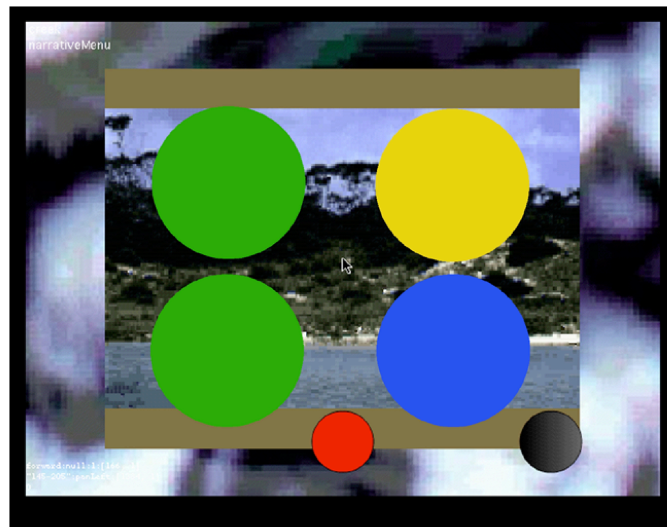


Fig. 4.3: Pathscape, schematic for accessing movie database

Thus along the X-Y axis (Fig. 4.9) are the 1, 2, 3, .... 4, 5 etc interactive options, or 'narrative branch nodes', groups of movie keyframes representing a *loci* or location linked to an associated movie file.

The **second** device uses changes in background colour in the border area and background sound to signify changes of zone. (In this prototype different colours represent different ecological zones through which the Path progresses). When a colour is visible in the border, gesturing to the left or right of the screen will launch the movie of a 360° panning movement of the landscape, a movie

representation of the zone through which the user is currently 'passing'. Gesturing to the right will pan right, to the left will pan left : AA, BB, CC ... FF (Fig 4.9). Within the pan will be 'found' further narrative branch nodes from where to launch movies set during the authoring process, associating each movie with the visible appearance of each locale.



*Fig. 4.4: Pathscape, screen grab : the end of a node movie, with colour-coded circles.*

At the completion of a movie / narrative node, the **third** indexical device appears as a series of circle shapes over the final frame of the movie (Fig. 4.10/11). Blue, yellow, brown and green circles function as 'buttons' to linked topics colour coded to symbolically represent a narrowing indexical sort under the descriptors: Anecdotes, Historical Context, Commentary and Analysis. Each option extends and develops the background of what has gone before, functioning as a taxonomy and narrowing the index path to the specific, reducing from the broad. (A short 5-minute demonstration with commentary of the *Pathscape* prototype can be found on the DVD-ROM, Item 3.)

## Consultations

The first prototype (*SonTel*) elicited a wide range of responses from participants who interacted with the system and most acknowledged the novelty of the interaction. One of the more detailed consultations was with the Aboriginal community local to the South Coast area of NSW in which much of the photographic and sound material was based. Their written response via a liaison consultant stated:

The use of a walk through a landscape as a design tool to introduce an audience to historical and cultural material is particularly attractive. This provides local people with traditional affiliations an opportunity to express their connection with the land and their intimate knowledge about their country and its history. As they go for a walk through this landscape people want to be able to engage in interactivity, choose their paths and stories while discovering new things. (Wells, 1999)

Of particular account during face-to-face consultations was the expressed need for 'specificity': who was that speaking? Where was she/he from? Where is that place?

Based on this qualitative and anecdotal evidence and with the limited resources left to the development project at the later stage of the second prototype *Pathscape*, it was decided to implement a text-based component. This would not compromise the initial intention of devising a visually based indexing system as the choice to use text would be clearly indicated and separated from the 'visual' path.

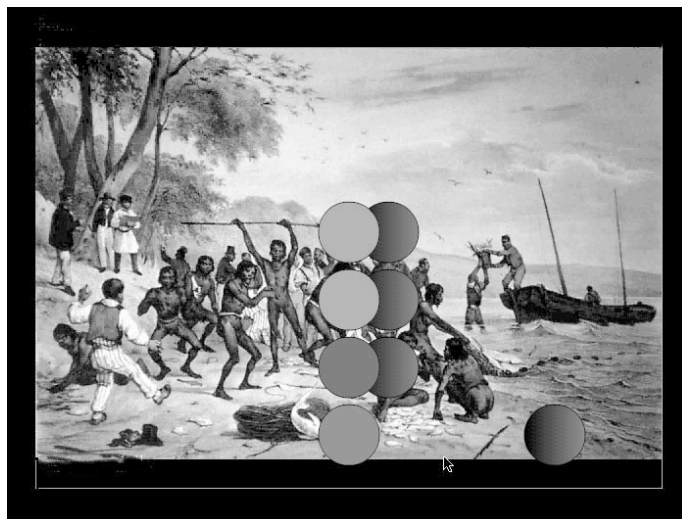


Fig. 4.5: *Pathscape*, screen grab within a narrative branch, with colour-coded circles.

The grey/black circles on the screen that sit behind each of the coloured circles is the **fourth** indexical device linked to a traditional text-based index. The text is organised sequentially as a series of 'browser pages' gathered, utilising XML protocols, from a Sources database of content. Following each narrative the blue, yellow, green and brown buttons link to text specific for the narrative: Sound; Picture; Transcript of words spoken; Keywords; Web Search option (requiring computer connection to the internet); the red and black buttons access all the content of the prototype: More Stories (as a Table of Contents - the narratives - with the frame numbers of the Path movie listed against each item, from which the narratives could be launched); and a Keyword Index.

The user in the prototype therefore has a choice - to navigate the index by using images and sounds, or by using words, or a mixture of both. The probable usefulness of the feature in an educational context was also noted and this indexical convention was useful as a 'comparative' element during observation of participant's interaction.

The *Pathscape* project progressed from the final prototype into the planning of several stages and iterative forms:

"It could be delivered on disc (CD or DVD) or via the internet or broadband cable or conceivably, as it uses XML protocols, via a PDA or mobile phone. The software framework

is dynamic, rebuilding the database interface at each launch.” (Leggett, 2002, Leggett, 2003)

A key-finding from the prototype indicated to us the need to develop an authoring tool that would enable individuals and groups to design their own system of linking the movies to a field of their interest. This was most evidenced in the local Aboriginal community’s stated requirements for navigation. (Appendix 8.12: *SonTel* prototype Responses).

Initial responses from the community, affirming the aesthetic and organisational principles of the project itself, were pursued further in a move toward a larger collaborative project. However, research into the development of appropriate interfaces that would enable the authoring of specific spaces with personal and community narratives became a goal that failed to find further funding from the original investors.

Later, Tex Skuthorpe, the Indigenous cultural custodian of another Aboriginal community, asks the question:

How did the Nhunggabarra keep the stories alive with such consistency over such a long time without written records? The answer is that they devised quite an elaborate system, which guaranteed survival even when disaster struck. A story was always linked to learning tracks, parts of the land itself and also to animals, none of which changed fast. The physical features of the land thus functioned as mnemonics. In some cases the story was accompanied by an illustration, a piece of rock art or a carved tree. This supported the storyteller’s memory. (Sveiby and Skuthorpe, 2006)

As an academic undertaking, the proposal to explore the ontology and epistemology of personal and collective memory using the *Pathscape* paradigm, by examining models for placing and retrieving audio-visual digital media artefacts, was accepted as the present research project at the Creativity & Cognition Studios in the Faculty of Information Technology at University of Technology Sydney. Later within the Faculty, *Pathscape* would be re-examined as a potential tool for Indigenous communities, (see 5.3.5) but at this point in the research was analysed for its re-development as a generic tool.

## Contemporary Evaluation

The *Pathscape* project passed through two iterative stages, which can be analysed with a table:

Prototype stage	Information	Interaction	Media
SonTel (1998-1999)	Landscape Stories History Ecology ‘quotes’	Gesture Mouse (spacial planned)	Photos (as movies) Sound

Pathscape (2000-2003)	As above + sources and citations	As above + hyperlinked to text sources as option; border image cues.	As above + dynamic XML-based database for sources; video; stereo sound
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Fig. 4.6: table analysis of *Pathscape* development

The encounter in the prototypes is related to earlier and concurrent HCI research, and develops the concept of meaning derived from situated action (Suchman, 1987, Robertson, 2002). The emphasis here is not on goal-orientated outcomes but on interactivity where action takes precedence and outcomes emerge. It privileges the heuristic as an essential component of knowledge building, reflection and critical perception of the process.

Norman refers to this as reflexive cognition, where thinking, comparing and decision-making leads to 'responsive execution' (p96) as a component of an experiential cognitive process characterised by being effective, effortless, expert and engaged. (Norman, 1993)

The *Pathscape* prototype enables the user to orientate within a given topography in a way not dissimilar to a regular route followed in the country or the city. Interaction with the representation of the surroundings reveals hidden evidence, concealed information and comment, delivered as stories, as samples of discrete information, enabling the interacting subject to put together knowledge of the place gathered from movies of its individuals and communities. Less as query terms addressed to a database, more as embodying gestures, using the relational terms, "more, same, less" within the interactive progression. The experience constructs meaning as part of the gathering process, adding to the interacting subject's knowledge base. Under these conditions, meaning emerges as a constantly shifting series of conclusions, the consequences of which flow on from the individual decision-making process about subsequent action.

In the context of traditional cinematic experience, where reflexivity is rarely a component, the interactive experience for the audience of *Pathscape*, as explorers of a representation of that place, anecdotally revealed four main areas of response: participants who wholly embraced the immersive visual and navigational experience together with the knowledge building process; those who wholly embraced the experience without much concern for the documentary and informational aspects; participants for whom the knowledge acquired was unacceptable and without authority or specificity; participants who resisted the responsibilities of interactive engagement altogether.

- i It was later that Yate's work on *The Art of Memory*, discussed in Chapter 2.2.5, came to the author's attention. It served as a spur to continuing the research, commenced in the fine and visual arts, in the context of engineering and IT.