Phantasmagoria: composing interactive content for the *humanaquarium*

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Abstract. *humanaquarium* is a mobile performance space which draws upon the traditions of busking and street performance to engage audiences in collaborative, creative play. We describe how the conceptual and physical nature of the performance space affected the way we composed the audio/visual performance content in *Phantasmagoria*, an interactive art piece built for the *humanaquarium* environment.

1 humanaquarium

humanaquarium is an interactive performance environment [3] which consists of a 1.5m cube, large enough to contain two musicians who play acoustic instruments, sing, and generate audio/visual content using laptop-based electronic music applications - Ableton Live and Max/MSP/Jitter (see Figure 1.) The rear wall of the cube is a plain white surface upon which visualizations are projected. The front face of the cube is a transparent touch-sensitive window, through which the performers and projected imagery are visible to the audience. *humanaquarium* is a participatory installation, allowing audience members to interact with the ongoing performance by touching the transparent window. The window uses frustrated total internal reflection (FTIR) technology [2] to detect when participants touch the screen. Infra-red light is shone into the sides of the clear acrylic, and when audience members place their hands upon the window the change in surface tension caused by their touches frustrates the contained light. Each touch generates an infra-red bright spot (invisible to human eyes) which is reflected back towards a camera, mounted at the rear of the *humanaquarium*. By tracking these bright spots, the camera can detect the movements of the hands, and send control data to the *humanaquarium* performance system. This is then used to affect the audio and visual content of the performance, and to manipulate the output of the two musicians' playing and singing. In this way, participants are able to interact with the performers, affect the development of the performance, and essentially co-create the performance content.

Fig. 1. A participant interacts with the two musicians inside the *humanaquarium*

2 Creating Compositions

Our core creative team consists of two electronic artists and an interaction designer, however, in practice, the process of composing performance content and interative strategies for *humanaquarium's* participatory platform blurs these boundaries and each member of the team contributes jointly to the creative process. In our practice, we do not separate issues of interactivity from issues of composition, as the interaction between the audience and the musicians is critical to how the composition is realised during performance. Each composition is defined as an aesthetic and temporal structure upon which interactions between the audience and musicians will occur. In order to compose appropriate creative content which properly supports the peformance, the interaction mechanism and its impact on the performance experience must be considered concurrently to any musical and visual choices that are made. Our team handles this approach by composing audio/visual content alongside the development of interaction strategies, simultaneously composing new media content (video manipulations, audio tracks, etc.) while testing the mappings between participant touch and control system response.

We have written several different compositions for the *humanaquarium* environment. Our first set of performances, *Darkshines* and *Mariana*, used abstract imagery and a fluid soundscape to create an ethereal space within the *humanaquarium*. We used video footage featuring the movements of jellyfish (filmed by UK-based documentarian and videographer David Green) as well as a drifting, pulsating soundtrack which intensified in timbre and colour in response to participant touches. During the making of the works, interaction paradigms were established iteratively and concurrently with the content composition. The skeleton of the audio/visual content was outlined, providing a starting point for the development and refinement of interactions and musical

ideas. To complete the composition, musical and interactive ideas were proposed, quickly implemented and then evaluated against the existing composition. Ideas which seemed to encourage interesting interactions were explored more deeply, refined, and integrated into the composition, gradually adding increasing complexity and content to the piece. During this process, a huge overlap occurred in the roles of team members, with interactions setting the musical scene, and musical ideas suggesting new interactions – audio/visual content was developed so closely with interaction design that all three creators contributed simultaneously to the musical, visual and interactive aspects of the experience.

The eventual interaction strategy for *Darkshines* and *Mariana* was a relatively simple mapping of vertical touch placement to the proportion of heavy and light instrumentation, and left-right touch placement to various audio/visual effects on the two performers. Audience response to these aquatic pieces indicated that we had created a mysterious and imaginative space within the purposefully spartan confines of the sharp-edged *humanaquarium* structure. Encouraged by this response, we decided to explore this concept of 'spaces within and without' further, and intensify the surreality of the fantastical environment inside the aquarium in our subsequent performance, *Phantasmagoria*.

3 Composition strategies in *Phantasmagoria*

Fig. 2. Scenes from *Phantasmagoria*

The concept of 'phantasmagoria' – a feverish dreamlike series of shifting scenes, images and figures – not only describes well our creative intentions behind the piece but also refers to a 19th century device which incorporates projected imagery into theatrical performance [1]. As *humanaquarium* was designed from the outset to borrow from traditional theatrical practice, we decided to further emphasise the theatrical aspects of the performance in several ways. The cuboid shape and single-sided aspect referenced conventional proscenia with a projected backdrop similar to stage flats. In the design of *Phantasmagoria*, we

intended to reinforce this by using visuals featuring stage-like setups. Previous compositions had featured semi-abstract moving canvases of jellyfish in aquaria. The variable depth of the image in these pieces was contrasted with the clearly defined layering of images in *Phantasmagoria*, where each scene comprised two distinct planes of action depicting clearly delineated architectural spaces (see Figure 2.) In contrast, again, to *Darkshines* and *Mariana*, *Phantasmagoria* featured human subject matter in the form of dancers and moving figures. These figures were used to clearly distinguish 'live' interactive visual material from the non-interactive backgrounds. Besides the symbolic and aesthetic effect of this descision (i.e. allowing the audience to literally 'bring the piece to life') it also yielded a practical benefit, as it made the audience's effect on the image clearly legible.

Two distinct sources were used for the imagery in the piece. As the background in each scene we used photos taken by Robyn Taylor on a number of visits to the neo-Baroque Palais Garnier opera house in Paris. These images were brought into After Effects by Guy Schofield (who had never visited the original building) and collaged together into surreal imaginary spaces, creating an interpretative representation exploring the character of the spaces in response to Taylor's descriptions and photographic footage. The looping, co-creational nature of this process is, once again, a defining feature of the composition process in *humanaquarium*, with one member of the team responding to material proposed by another in a continuous dialogue. The second source was the 1925 film production of *The Phantom of The Opera* [4], a classic horror tale set in the Palais Garnier, which formed yet another conception of the space and also provided the moving figurative elements. The 'penny dreadful' subject matter and the distinctive formal qualities of this footage – a grainy, low resolution video of an old silver nitrate print – reinforced the casting of the *humanaquarium* as a theatrical domain in the tradition of nineteenth-century magic lantern shows[1].

Phantasmagoria was designed to evoke the type of late victorian entertainment popular immediately before the birth of conventional cinema, when mediated forms of entertainment used innovative technology to explore new methods of connecting performers and audiences. Coupled with elaborate formal costumes, the whole effect was intended to establish an aesthetic space where the audience could clearly read *humanaquarium* as a theatrical stage but also be enticed into interacting with the performance in unfamiliar ways.

References

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