Spatial and Narrative Memory
By Ben Cotton

The mechanisms by which people to this day use to memorise large quantities of information were first discovered in ancient Greece. Simonides of Ceos, an ancient Greek poet realised one way in which the brain can organise memories when he attended a banquet. At one point he was called away from the banquet, and just as he had left the roof of the building collapsed, killing all the remaining guests and leaving their bodies unidentifiable. Through remembering where each guest was sitting, Simonides alone was able to identify the bodies. In this way the principles of mnemonics (systems of aiding memorisation), and spatial and narrative mnemonics in particular were born.

Following this line of inquiry, I created numerous experimental computer-based maze games to test various aspects of spatial and narrative memory.

The first couple of games were abstract representational top-down mazes. In the first, the test subjects had to navigate the maze by following a pattern of coloured dots; at cer- tain points this maze was rotated to disorient the user. In the second, the test subjects had to navigate two mazes, one after the other. The trick in this case was that the second maze featured invisible walls – the key to navi- gating the second maze was embedded in the first, through abstract narrative animations attached to geographic features.
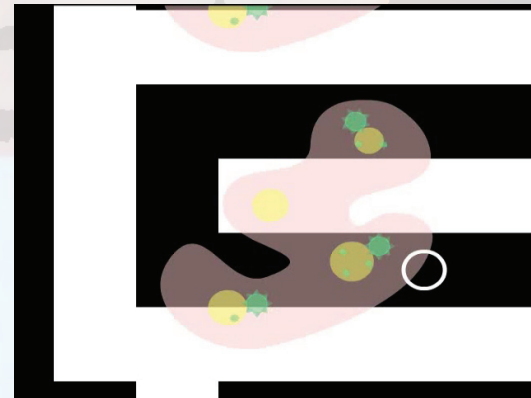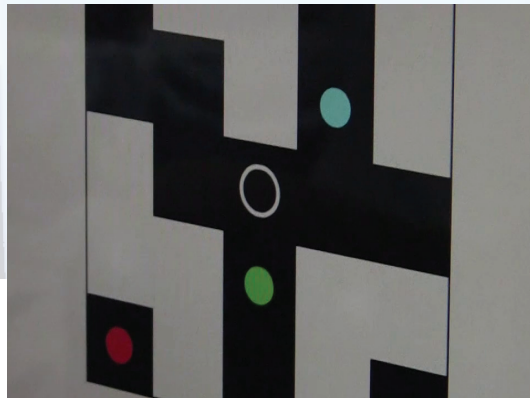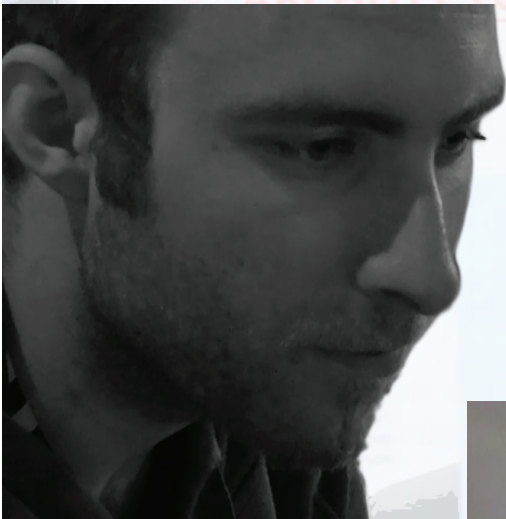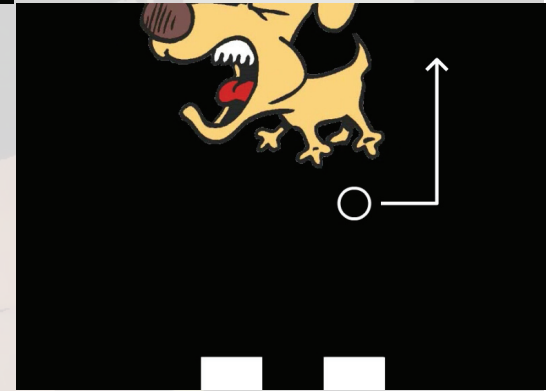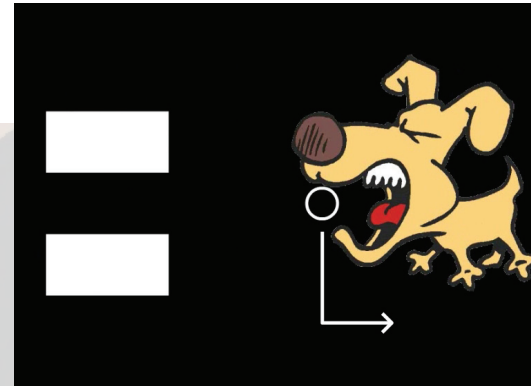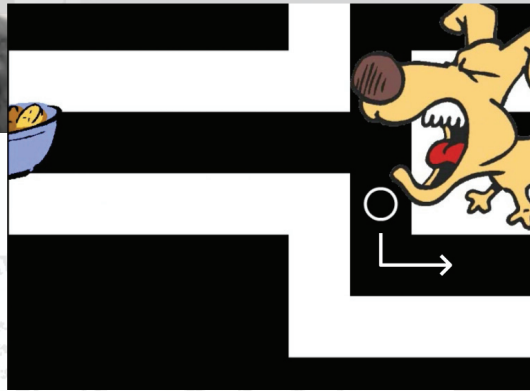
Though in some ways my initial experiments failed – the participants struggled to navigate the mazes with the tools I had given them – a couple of key findings emerged them and my concurrent research. Namely, that the more abstract, representational and unrelatable something is, the more difficult it is to remember, and that space and memory are not innately linked in the brain.

As a third experiment, I replaced the abstract narrative animations of my second maze game with concrete imagery easily recognisable to everyone. The result: my test subjects easily navigated the invisible maze after only one trial, proving that abstraction of symbolic elements hindered people's memory and understanding of them.

At this point, I started to formulate my design challenge: to create an interactive game which would enable an individual with poor memory to more effectively memorise the things that are important to their lives. As well as the design challenge I began to define the specific persona my game would be targeted at. This hypothetical person would enjoy games but be too busy with hobbies and work, and have too short an attention span to remember the essential minutiae of life. Only by producing an engaging and entertaining experience would the game I design be able to overcome these aspects of their personality to improve their memory.

For a first concept to address my chosen design challenge I initially expanded the maze games from my previous experiments to feature an abstract representation of the Wellington CBD with recognisable landmarks on top of which food items would appear, representing the things my persona wanted to remember. However, I soon realised that even this was too abstract to be much use – I needed to use as little abstraction as possible. I needed to use real environments and present them from a human perspective for my interaction to be effective.
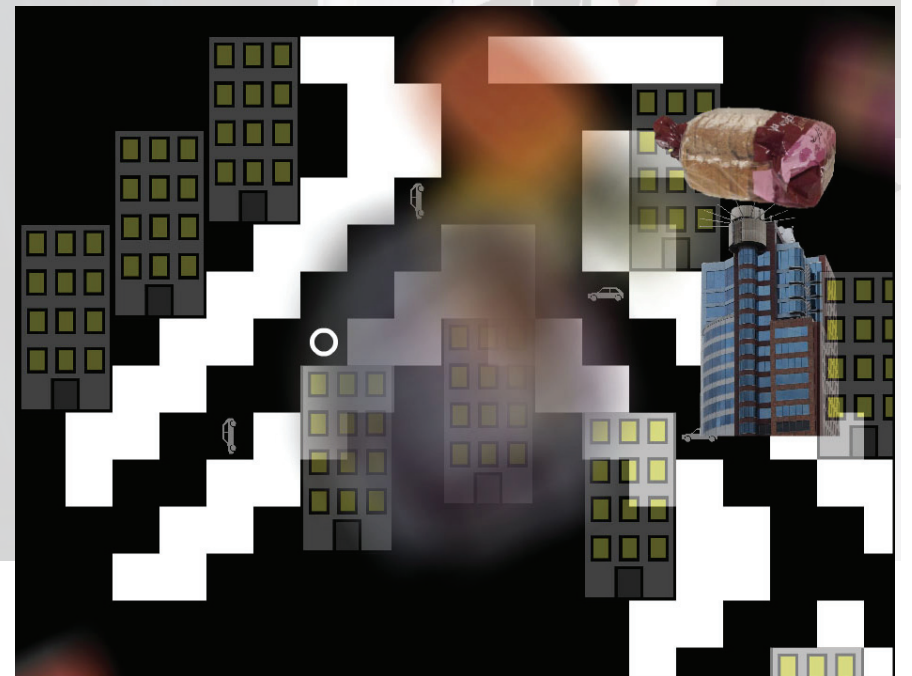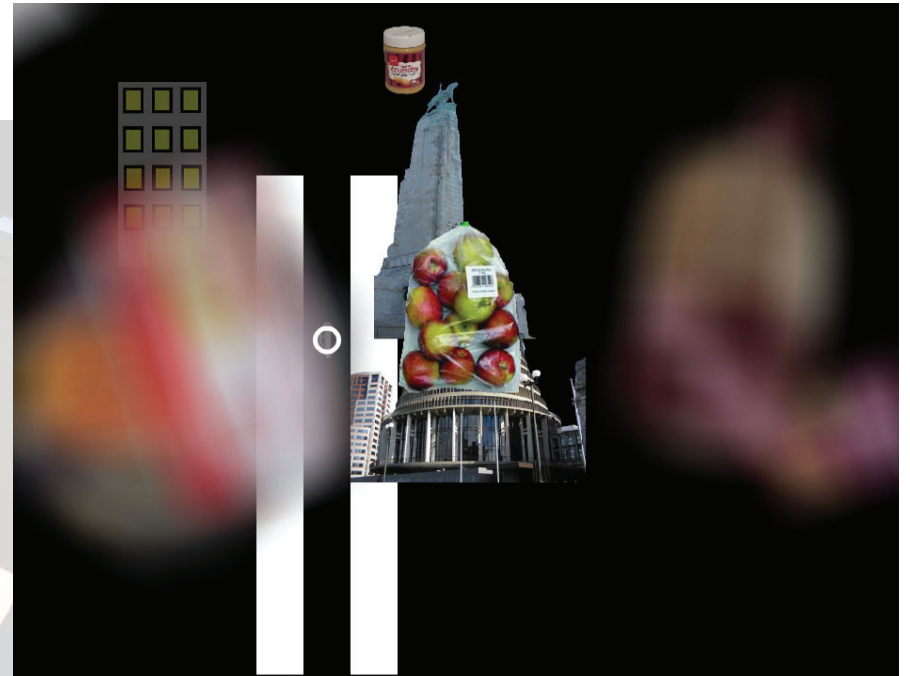
To that end through my final prototypes I adopted a point-of-view video walkthrough of the Victoria School of Architecture and Design as my "maze". The loci of my "maze" became individual people the unseen avatar interacts with in the corridors of the school. I refined my persona to specifically be concerned with remembering faces – an important aspect of life, but one which some people have difficulty with. Following the watching of the video walkthrough the player is asked to select out of a group of twelve faces the six comprising those the avatar interacted with. In testing my subjects found this very straightforward, with a few caveats: the continuity of movement and narrative along with directness of the interactions, I found, determined the success at planting memories.
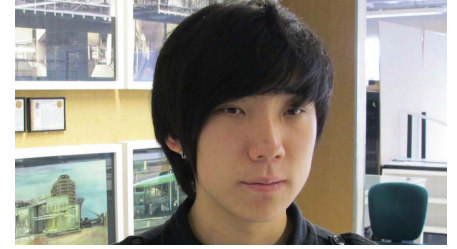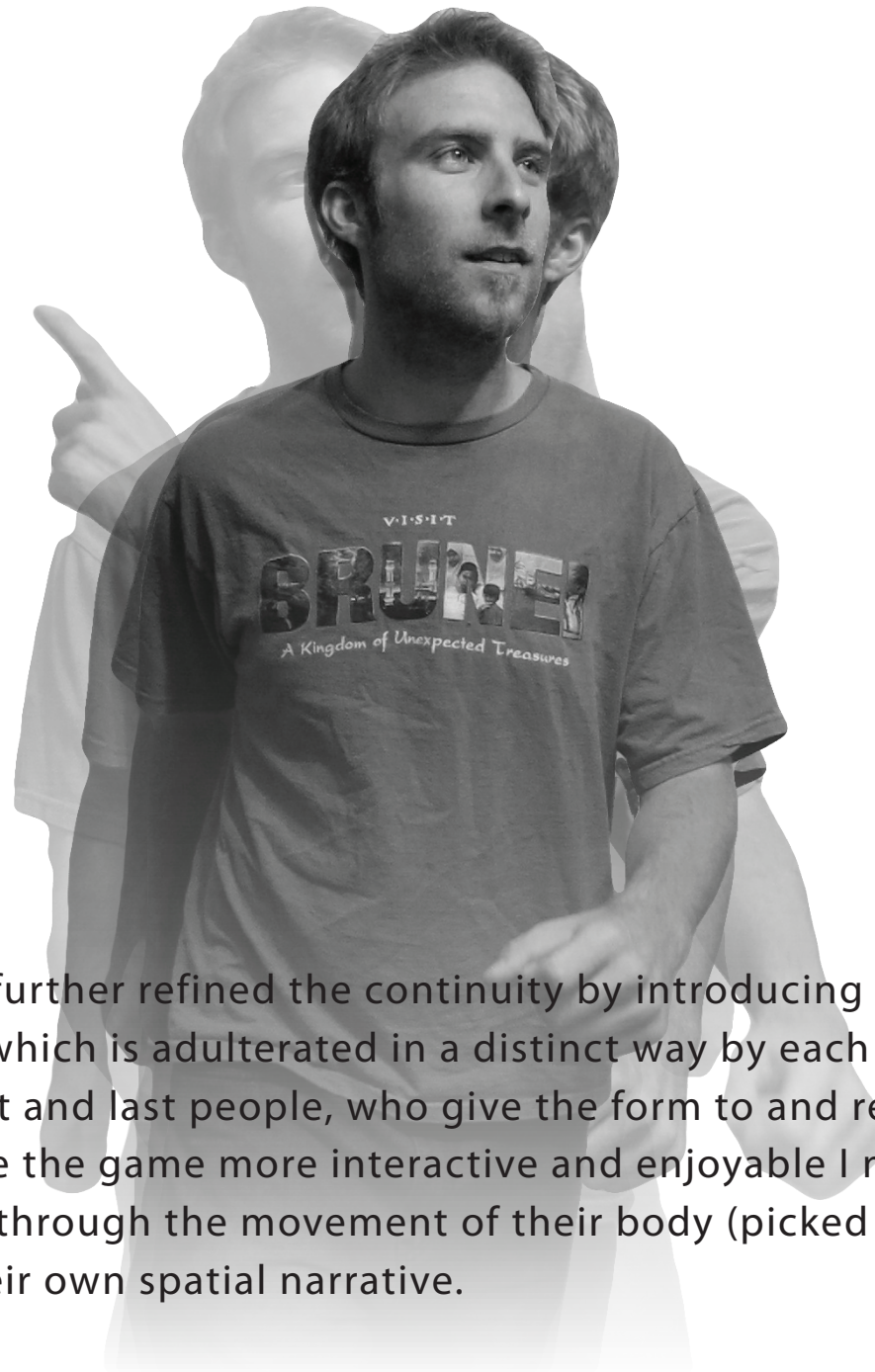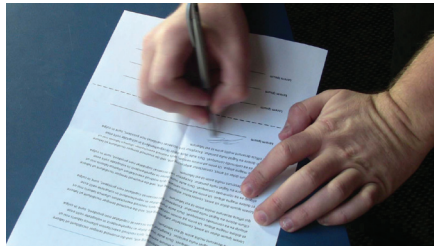
In my final interaction I further refined the continuity by introducing the narrative device of a form carried by the avatar which is adulterated in a distinct way by each person interacted with in the video, except the first and last people, who give the form to and receive the form from, the avatar respectively. To make the game more interactive and enjoyable I made the player to control the speed of the video through the movement of their body (picked up via a webcam), thus allowing them to create their own spatial narrative.