

TASC Talk Nov 2019 –Using of Virtual Reality (VR) in Medical Research

Beth & Mark Baker

November's talk was given by Beth and Mark Baker, two of our Science Club members. They also had a little help from "yours truly" in some of their demonstrations.

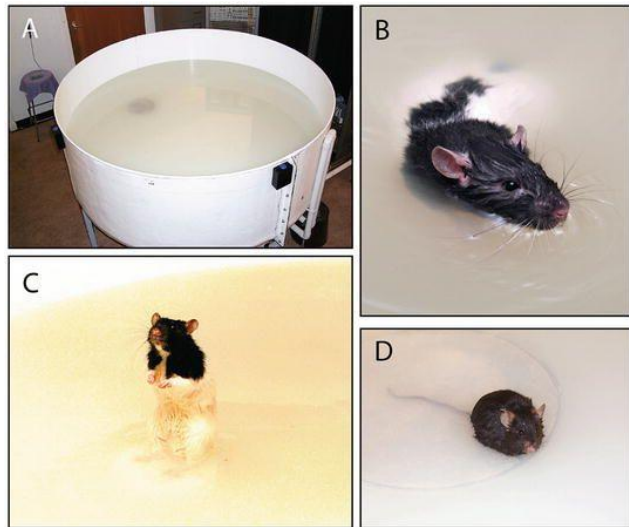
The talk was about the "The Use of Virtual Reality (VR) in Medical Research".

Beth's company, HVS Image, is actively researching the use of Virtual reality in medical research, rehabilitation, treatment and prevention of diseases. Their main aim currently is to develop ways to aid people with neurological disorders by the use of VR and to also promote its use to actively encourage the over 50's in new and effective ways of exercising and keeping fit.



She brought over her own VR system, developed right here in Adstock which is used specifically for the above purposes. She explained how it is currently being used in testing a wireless brain implant at Harvard University hospital, and is also being used to research learning difficulties at Vanderbilt University Medical School and also why it's considered a "must have" for dementia patients in the US Department of Veterans Affairs.

The Harvard study was to see if people who have issues with spatial awareness are able to, with the help of a newly developed brain implant, navigate their way back to a particular starting position after being moved to another random location, by using visual environmental clues. This is similar to experiments originally carried out on rats swimming in a tank of coloured water. They had to firstly find a hidden submerged platform. Once they had found this they were relocated to a new position and were allowed to re-find the platform. They were expected to use visual clues placed at a distance around the water tank to help them to find the platform. Rats with spatial learning problems took longer to complete the task. Obviously you can't go around experimenting on people in quite the same way as you would with rats so a VR experiment was developed which simulated the same environment as that of the rats, the scientists could then evaluate if a positive effect was had on the patient's ability to spatially orientate themselves using the visual clues provided.



Some of us had the opportunity to try out some of the virtual environments programmed into Beth's computer system, I hasten to add without having a chip implanted into our brains. I must say that it was absolutely absorbing, you really did feel totally immersed in the virtual worlds being demonstrated.

I tried the water tank experiment, but, to start off with, I couldn't find the hidden platform in the time allocated, so maybe I'm a good subject for their implant. I also tried out the skiing environment but had to be careful I didn't topple over especially when I went over the edge of a virtual mountain. I must admit, that judging by the laughs coming from my unseen audience I probably looked quite funny hunkering down and pushing off with madly flaying arms trying to pick up speed by using my virtual skiing poles. By the way this is me



during my VR skiing demonstration, now you can understand the audience's reaction. All good fun but with the serious intention of using technology to help those less able to navigate in difficult environments.

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