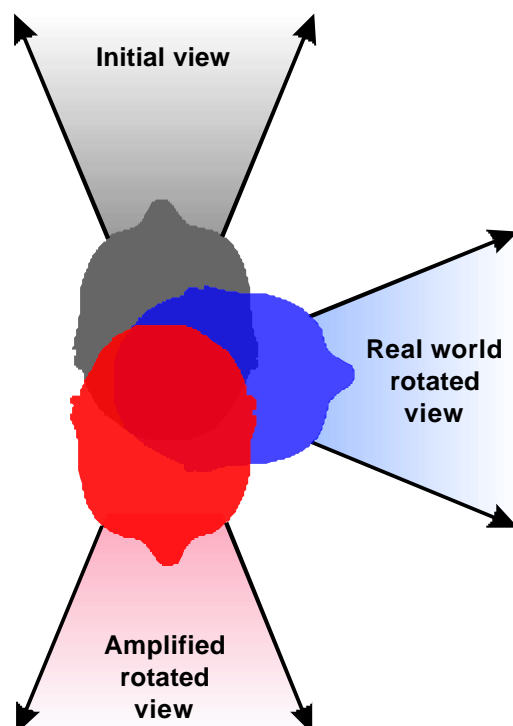


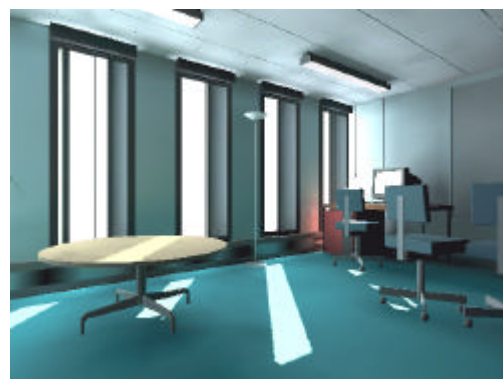
# Amplified Head Movements in Head Mounted Displays

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The head-mounted display (HMD) is a popular form of virtual display, due to its ability to immerse users visually in virtual environments (VEs). Unfortunately, the user's virtual experience is compromised by the narrow field of view (FOV) it affords, which is less than half that of normal human vision.



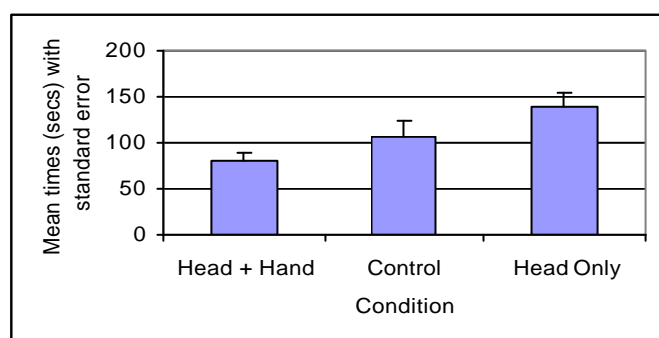
A method of compensating for the lack of peripheral is 'amplifying' the head movement made by the user when wearing an HMD, so that the view direction changes by a greater amount in the virtual world than in the real world.<sup>1</sup>



Test environment

The technique led to a 21% improvement in performance on a timed visual search task, where users had to locate and 'shoot' targets placed around the environment, and questionnaire data indicated that the altered visual parameters the user receives are preferable to those in the baseline condition where movement was not amplified.

The tests also show that the user cannot interact normally with the VE if corresponding body movements are not amplified to the same degree as head movements, which may limit the implementation's versatility. Although not suitable for every application, the technique shows promise, and alterations to aspects of the implementation could extend its use in the future.



<sup>1</sup>Jay, C. & Hubbard, R. (2003). Amplified head movements with head-mounted displays. *Presence*. Page to appear.