

**Faculty of Business, Law and Social Sciences**

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| **Proposed Title:**  Investigating Object Perception Using Virtual Reality |
| **School:**  **Social Sciences** |
| **Proposed Supervisory Team:**  **Dean Petters (DoS), Ian Williams (School of Computing and Digital Technology, BCU), and Martin Juttner (Department of Psychology, Aston University)** |
| **Abstract:**  Aims: This PhD project will develop research tools using virtual reality technology to accomplish research in visual object recognition  Rationale: A typical visual object recognition experiment might involve a participant being shown an image on a computer monitor and being required to press a keyboard key in response. However, this traditional experimental protocol greatly simplifies the way we perceive objects in our natural environment. Instead in real life, objects are often moving and also we are moving and acting upon the world whilst perceiving objects. So instead, in this proposal, visual objects will be presented in VR. This will lead to more ecologically valid results because virtual objects can move and be movable in a more natural 'real life' manner that additionally maintains very precise experimental control and measurement of movements.  Methods:The work will be undertaken in a series of phases:  Phase 1 – Studies will be conducted that use static images which are rotated stimuli, and virtual reality 3D objects which are rotated passively, to test the effect of rotation on recognition and categorisation for different types of object.  Phase 2 – the virtual reality 3D presented object experiments will be extended so that instead of being passively rotated participants will be able to reach out and rotate target objects themselves, with the same kind of recognition and rotation occuring.  Phase 3 – eye tracking and variable response interval experiments will be used to validate the results from phase 1 ad 2  The PhD Studentship is funded by Birmingham City University |
| **Research Environment:**  Birmingham City University has invested massively in research by moving the Department of Psychology into a new building, with newly equipped laboratories for experiments.  The department is equipped with state of the art eye-tracking, electroencephalogram (EEG)  and further equipment and is further investing in obtaining transcranial direct –current stimulation (tDCS) and Biopac equipment. The PhD student on this project will benefit from close interactions with another 10 PhD students in Psychology. The Department of Psychology holds regular seminars and research cluster meetings that the PhD student can participate and benefit from interaction of research ideas. |
| **Applicant Requirements:**  The project would be suitable for individuals with interests in cross-disciplinary research, working across applied and core areas of psychology, and using tools and concepts from social and cognitive psychology. The student will be supported to obtaining the PG Cert in L&T. The candidate should possess: First degree in BSc Psychology or equivalent with a 2:1 or above. |
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