

Virtual 3D shape and orientation discrimination using point distance information

S Maidenbaum¹, R Arbel¹, S Abboud¹, D R Chebat¹, S Levy-Tzedek^{1,2}, A Amedi^{1,2}

¹Department of medical neurobiology, Institute for Medical Research Israel-Canada, Faculty of Medicine,

²The Edmond and Lily Safra Center for Brain Research,

The Hebrew University of Jerusalem, Haddasa Ein-Kerem, Jerusalem, ISRAEL

¹*shachar.maidenbaum@mail.huji.ac.il*, ²*amira@ekmd.huji.ac.il*

¹*brain.huji.ac.il*

ABSTRACT

Distance information is critical to our understanding of our surrounding environment, especially in virtual reality settings. Unfortunately, as we gauge distance mainly visually, the blind are prevented from properly utilizing this parameter to formulate 3D cognitive maps and cognitive imagery of their surroundings. We show qualitatively that with no training it is possible for blind and blindfolded subjects to easily learn a simple transformation between virtual distance and sound, based on the concept of a virtual guide cane (paralleling in a virtual environment the “EyeCane”, developed in our lab), enabling the discrimination of virtual 3D orientation and shapes using a standard mouse and audio-system.

Full papers will be published in the Conference Proceedings and will be available to delegates at the conference on Sept. 10.

Full papers will be released on-line in the ICDVRAT archive on March 15.