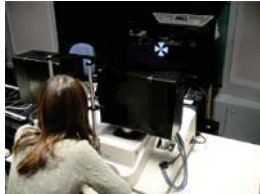
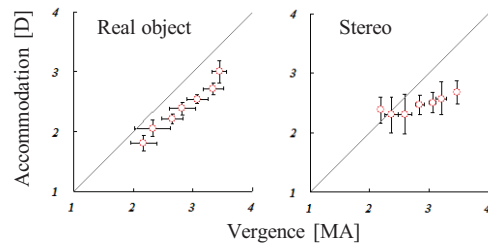


### Visual function to 3D images

#### Measurement of visual function

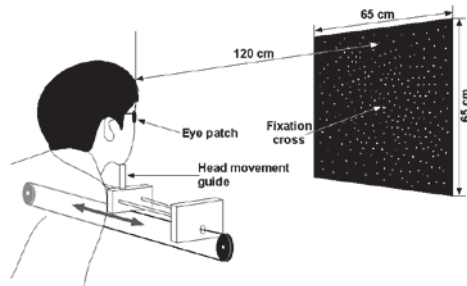


#### Accommodation and vergence to real objects and stereo images

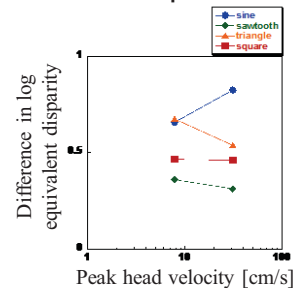


### Depth and motion perception from motion parallax

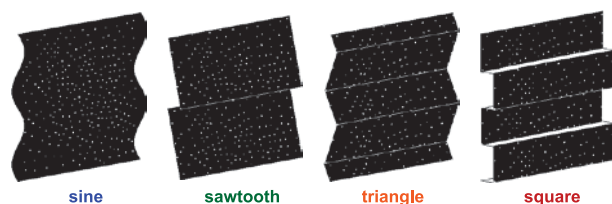
#### Motion parallax accompanied with head movement



#### Stability zone of motion parallax



#### Simulated surfaces



Our main research interest is human visual processing while viewing various types of 3D images. We examined visual function (mainly accommodation and vergence) to real objects, stereo images, and 3D images produced by novel techniques, by means of objective measurements. We found that accommodative responses are different between real objects (natural viewing) and stereo images. Novel 3D techniques (super multi-view and holography for now) can induce natural accommodative responses, which means that these display techniques are promising for human-friendly 3D image presentation. We also examined individual difference of visual function and susceptibility to 3D images. Besides binocular stereopsis, motion parallax accompanied with head movement is monocular depth cue and can produce unambiguous depth perception. We can perceive stable depth from motion parallax in daily life, but not in laboratory environment. We found that disparity gradient plays critical role for stable depth perception from motion parallax. A final goal of our research will be to find out human-friendly 3D presentation technique based on human visual function and characteristics of depth perception.

Keywords: human vision, psychophysics, 3D displays

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