Poster presented at the Vision Science Society meeting, Naples, FL.

# Perception of Biological Motion Across the Visual Field.

*Rick Gurnsey, Marouane Ouhnana and Nikolaus F. Troje*

There is conflicting evidence about whether stimulus magnification is sufficient to equate the discriminability of point-light walkers across the visual field. Ikeda, Watanabe and Blake (2005, Vision Research) found that peak noise tolerance was always highest at fixation and concluded that biological motion was unscalably poor in the periphery. By contrast, Gibson et al.(VSS, 2005) found that in the absence of spatiotemporal noise, stimulus magnification was sufficient to equate point-light walker direction discrimination (left vs right, i.e., ±90° from the line of sight) across the visual field. We measured the accuracy with which observers could report the directions of point-light-walkers moving ±4° from the line of sight. Accuracy was measured over a seven-fold range of sizes at eccentricities from 0 to 16°. All observers achieved 100% accuracy at the largest stimulus sizes (20° height) at all eccentricities. The psychometric functions at each eccentricity were shifted versions of each other on a log size axis. Therefore, by dividing stimulus size at each eccentricity (E) by an appropriate $F = 1 + E/E2$ (where E2 represents the eccentricity at which stimulus size must double to achieve equivalent-to-foveal performance) all data could be fit with a single function. The average E2 value was .97 (SEM = .19, N = 3). This value is close to that found by Gurnsey et al. (2006, Journal of Vision) in a structure-from-motion task (E2 = .61) but contrasts with the average E2 value of 3.5 found by Gibson et al. (VSS, 2005). In the absence of spatiotemporal noise, size scaling is sufficient to equate discrimination of biological motion across the visual field. The average E2 in this task is smaller than that found by Gibson et al. (2005), showing that task difficulty has an effect on the magnification needed to compensate for eccentricity-dependent sensitivity loss.