

Figure S1. Raw data traces for a subset of tall (blue) and short (green) motion-defined bar trials. The open-loop stimulus oscillated at 1 Hz and moved $22.5^{\circ}$ in each direction from its starting position at $\pm 45^{\circ}$ from visual midline (angular speed $=90^{\circ} \mathrm{s}^{-1}$ ). Tall bar and short bar height were 120 and $30^{\circ}$, respectively, and width was kept constant at $30^{\circ}$. For each fly, we show the average response for an object for 12 trials on the fly's right (thick line), in addition to a subset of raw traces (thin lines).


Figure S2. Top: Colormap of pre-saccade error in azimuth vs. saccade amplitude for a short, dark bar. $0^{\circ}$ is the fly's visual midline. Bottom: Probability histogram of pre-saccade error angles. $n=5$ animals, 80 trials total.

