

Supplementary Information Guide

Supplementary Figure 1. Comparison of parvocellular LGN neural responses to continuous and 30 Hz raster scanned stimuli.

Supplementary Figure 2. Stimulus delivery depends on stabilization of targeted retinal positions.

Supplementary Methods

Supplementary References

Supplementary Video 1 (9.7 Mb)

Localization of the receptive field of Neuron 1 by manual movement of a large spot of light flashing at 3 Hz. The AOSLO cone image is oriented as in **Fig. 1a** of the main text, with superior retina towards the top, and nasal retina to the left. The cone image was taken with 840 nm wavelength light. During the raster scan, the 840 nm light was turned off when the 680 nm stimulus light was turned on, leaving a dark circle where the stimulus appeared. The stimulus is not visible because of the low power of the 680 nm light used for stimulation compared to the 840 nm imaging light. Audio contains LGN spike events, with an intrinsic response latency of ~45 msec. AOSLO image width ~240 μm .

Supplementary Video 2 (10.8 Mb)

Stimulation of Neuron 1 during stabilized imaging. Same retinal field as in **Supplementary Video 1**, although slightly shifted infero-temporally in the retina. Fiducial crosses (white = on, black = off) in each frame indicate where the center of a 3 μm square stimulus landed while stimulating along a row of locations that passed through the receptive field center. Stimulus locations were probed pseudorandomly, with each site stimulated an equal number of times by the end of the stimulus run. Audio contains LGN spike events, with an intrinsic response latency of ~45 msec. AOSLO image width ~240 μm .