

operating at 60Hz. The background luminance was  $0.28\text{cd/m}^2$ . The visual stimulus presentation was controlled by *VideoSync* software (*Reflective Computing*) running on a dedicated PC with a 1024x768 VGA video controller (*Computer Boards*). The PC was a slave device to the PC used for experimental control and data acquisition. Since there is an inherent time limitation in DLP projectors (both the vertical refresh rate and the vertical sync pulse) one photodiode was placed on the top left corner of the screen and a second photodiode was placed on the lower right corner of the screen. Both photodiodes sent signals (a TTL pulse) to the experimental PC within 1ms, providing an accurate measure of stimulus onset and offset.

*Behavioral task and electrical stimulation.* Monkeys performed memory-guided and visually-guided delayed saccades (Figure 2). In the delayed saccade task, initially a centrally located visual spot appears and monkeys are required to fixate this spot. After a random time of 500-1500ms, a peripheral spot appears somewhere in the visual field. After another delay (800-1200ms), the fixation spot is removed and this serves as a cue for the monkeys to make a saccade to the visual spot located in the periphery (Figure 2b). The memory version of this task (Hikosaka and Wurtz 1983c) is identical except that the spot located in the visual field appears only transiently (200ms). Monkeys must remember the location and make a saccade to that memorized location when the central spot disappears (Figure 2a). Memory-guided and visually-guided saccade trials were randomly interleaved. The target for the saccade appeared at one of eight possible locations throughout the visual field (Figure 2d). The location of the target was