

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Monkey N center-out task using a BCI with the variance-only OLE decoder. This movie was reconstructed using cursor positions recorded during online closed-loop control. The movie shows one block of 11 consecutive trials from day 3, including 8 successful trials (one for each target) and 3 failed trials (one failed center-hold and two failed target-hold). This block is one of those that have fewer failed trials ($n < 4$; 19% of all OLE blocks) and contain both center-hold and target-hold errors. Note that the task was designed to reset the cursor to the center at the start of each trial.

File Name: Supplementary Movie 2

Description: Monkey N center-out task using a BCI with the Direct Regression decoder. All 8 trials (one for each target) in this block of the experiment were successful. This block was randomly chosen from those blocks with no failed trial (19% of all blocks using the Direct Regression decoder).

File Name: Supplementary Movie 3

Description: Monkey N center-out task using a BCI with the ANN decoder. All 8 trials (one for each target) in this block of the experiment were successful. This block was randomly chosen from those blocks with no failed trial (42% of all blocks using the ANN decoder).