

Optimized Parameter	Monkey	SBP	WSBP	LbTCR	TCR	SU	SUH
No. Additional Bins	W	5	5	4	1	5	5
	L	1	1	1	1	4	4
	N ₁ *	4	5	5	0	0	0
	N ₂	5	5	0	0	0	0
Bin Offset	W	0	0	0	0	0	0
	L	0	0	0	0	0	0
	N ₁ *	0	0	0	3	2	3
	N ₂	0	0	3	2	2	2
Threshold	W	-	-	2.40	-	-	-
	L	-	-	2.25	-	-	-
	N ₁ *	-	-	2.20	-	-	-
	N ₂	-	-	2.15	-	-	-

Table S1 | Parameters optimized per dataset for open-loop decoding. Monkey N's dataset 1 (marked by *) was not used for any other analyses, but included here to demonstrate variability in optimal parameters within one animal. “No. Additional Bins” is the quantity of additional historical neural bins, between 0 and 5, that achieved the highest correlation coefficient. “Bin Offset” is the delay, in bins from 0 to 5, between the neural activity and the behavior that achieved the highest correlation coefficient. “Threshold” is the RMS threshold that achieved the highest correlation coefficient.