1 Behavioural data analysis

Supplementary Table 1. Hierarchical logistic regressions on accuracy; coefficient standard error displayed in parentheses.

	Dependent variable:	
	Accuracy	
	Behaviour	fMRI
	(1)	(2)
pre-decision coherence	9.21***	7.00***
	(0.74)	(0.70)
Constant	−0.10	−0.01
	(0.09)	(0.08)
Observations	22,500	7,858
Note:	*p<0.05; **p<0.01; ***p<0.001	

Supplementary Table 2. Hierarchical linear regressions on confidence; coefficient standard error displayed in parentheses.

	Dependent variable:			
	Confidence			
	Behav. correct	Behav. error	fMRI correct	fMRI error
	(1)	(2)	(3)	(4)
pre-decision coherence	0.36***	−0.47**	0.41***	−0.29*
	(0.07)	(0.18)	(0.08)	(0.14)
post-decision coherence	0.41***	−1.15***	0.54***	−1.05***
	(0.08)	(0.14)	(0.08)	(0.11)
log(RT)	−0.03***	−0.03***	−0.03***	−0.03*
	(0.004)	(0.01)	(0.004)	(0.01)
pre*post coherence	−0.74***	1.17**	−0.92***	0.92***
	(0.17)	(0.40)	(0.18)	(0.28)
Constant	0.76***	0.78***	0.71***	0.71***
	(0.04)	(0.06)	(0.03)	(0.04)
Observations	19,341	3,159	6,132	1,677
Note:				*p<0.05; **p<0.01; ***p<0.001

2   Computational model parameters

Supplementary Table 3.   Parameter estimates (mean (S.E.M.) across subjects) from Bayesian+RT model

Parameter	Behavioural session	fMRI session
k	5.28 (0.40)	4.98 (0.35)
m	0.00 (0.03)	-0.07 (0.08)
β_{RT}	-0.73 (0.26)	-0.37 (0.22)

3   fMRI data analysis

Supplementary Table 4.   Significant activations for the post-decision motion strength $\times$ accuracy interaction effect from GLM1, thresholded at P < 0.05 FWE with cluster-defining threshold of P < 0.001 uncorrected. N=22 subjects.

Sign	Label	MNI peak	T statistic	Voxels	Laterality
Negative	pMFC	6 18 50	8.64	177	L/R
	Insula	44 14 -6	4.89	87	R

Supplementary Table 5. Hierarchical regression of motion strength on activity in regions of interest; coefficient standard error displayed in parentheses.

	Dependent variable:					
	BOLD					
	pMFC	area 46	FPl	FPm	vmPFC	v. striatum
	(1)	(2)	(3)	(4)	(5)	(6)
accuracy	−0.31***	−0.13**	−0.06	0.10**	0.16***	0.09*
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
pre-decision coherence	0.05	0.03	0.03	−0.01	−0.005	−0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
post-decision coherence	0.07*	0.01	0.02	0.003	0.03	0.002
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
pre*accuracy	−0.07	−0.02	0.01	0.06	0.05	0.07
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)
post*accuracy	−0.11**	−0.02	0.001	0.05	0.04	0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
log(RT)	0.10***	0.05***	0.03	−0.02	−0.05*	−0.002
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Constant	0.26***	0.11**	0.05	−0.08**	−0.13***	−0.08*
	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Observations	7,734	7,734	7,734	7,734	7,734	7,734

Note: *p<0.05; **p<0.01; ***p<0.001

Supplementary Table 6. Confidence-related activations. Significant positive/negative clusters correlating with reported confidence, thresholded at P < 0.05 FWE corrected for multiple comparisons with cluster-defining threshold of P < 0.001 uncorrected. N=22 subjects.

Sign	Label	MNI peak	Voxels	Laterality
Positive	mPFC / temporal lobe / striatum	-2 8 -6	3755	L/R
	Precuneus / medial parietal	-6 -60 18	2357	L/R
	Temporal lobe	-60 -20 -12	566	L
	Temporal lobe	60 -14 -14	917	R
	White matter	-26 -40 18	187	L
	White matter	24 -40 20	328	R
	Inf. parietal	-40 -78 36	289	L
	Sup. occipital	14 -86 34	205	R
	Middle frontal gyrus	22 32 46	106	R
	Precentral gyrus	56 -10 50	528	R
	Middle frontal gyrus	-24 30 46	81	L
	Paracentral lobule	-8 -32 58	385	L/R
Negative	Cerebellum	20 -72 -42	113	R
	Cerebellum	24 -68 -30	1764	R
	Occipital / inf. parietal	-40 -42 40	7272	L
	Lateral prefrontal / insula	-44 0 38	14204	L/R
	Thalamus	-8 -24 -6	1312	L/R
	Occipital / inf. parietal	50 -38 52	5245	R
	pMFC	-8 -36 26	316	L/R

Supplementary Table 7. Split hierarchical regression of confidence on activity in regions of interest; coefficient standard error displayed in parentheses.

	Dependent variable:					
	BOLD					
	pMFC	area 46	FPl	FPm	vmPFC	v. striatum
	(1)	(2)	(3)	(4)	(5)	(6)
Confidence <= 0.5	−0.29	−0.35*	−0.41*	−0.27	−0.07	−0.18
	(0.18)	(0.15)	(0.17)	(0.16)	(0.18)	(0.14)
Confidence > 0.5	−0.47***	−0.24***	−0.12*	0.12**	0.26***	0.11*
	(0.06)	(0.05)	(0.06)	(0.05)	(0.04)	(0.05)
log(RT)	0.07***	0.04*	0.02	−0.01	−0.04*	−0.004
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.38***	0.21***	0.11*	−0.08*	−0.20***	−0.07
	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Observations	7,726	7,726	7,726	7,726	7,726	7,726
Note:					*$p<0.05$; **$p<0.01$; ***$p<0.001$	

Supplementary Table 8. ROI mediation results; coefficient standard error displayed in parentheses with bootstrapped p-values. N=22 subjects.

		area 46	FPl	FPm
		(1)	(2)	(3)
Forward model	Path a	-0.04^*	-0.01	0.04^{**}
		(0.02)	(0.02)	(0.01)
		$p = 0.028$	$p = 0.39$	$p = 0.0067$
	Path b	-0.03^{**}	-0.01	0.02^*
		(0.01)	(0.01)	(0.01)
		$p = 0.0021$	$p = 0.18$	$p = 0.027$
	Direct (c')	0.50^{***}	0.50^{***}	0.50^{***}
		(0.03)	(0.03)	(0.03)
		$p = 5.8 \times 10^{-4}$	$p = 5.8 \times 10^{-4}$	$p = 6.2 \times 10^{-4}$
	Mediation $(a \times b)$	0.002^{**}	$8.5 \times 10^{-4**}$	5.7×10^{-4}
		(5.1×10^{-4})	(3.0×10^{-4})	(3.9×10^{-4})
		$p = 0.0027$	$p = 0.0056$	$p = 0.20$
Control model	Path a	-0.07^{***}	-0.03	0.05^{**}
		(0.02)	(0.02)	(0.02)
		$p = 4.0 \times 10^{-4}$	$p = 0.15$	$p = 0.0033$
	Path b	-0.004	-0.003	0.01
		(0.008)	(0.008)	(0.008)
		$p = 0.58$	$p = 0.68$	$p = 0.24$
	Direct (c')	0.49^{***}	0.49^{***}	0.49^{***}
		(0.04)	(0.04)	(0.04)
		$p = 5.3 \times 10^{-4}$	$p = 4.9 \times 10^{-4}$	$p = 5.4 \times 10^{-4}$
	Mediation $(a \times b)$	3.1×10^{-4}	2.8×10^{-4}	2.9×10^{-4}
		(4.7×10^{-4})	(3.8×10^{-4})	(2.8×10^{-4})
		$p = 0.54$	$p = 0.46$	$p = 0.32$

Note: *p<0.05; **p<0.01; ***p<0.001