

Mapping and Understanding of Correlated Electroencephalogram (EEG) Responses to the Newsvendor Problem

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Supplementary Material A

Figure SA.1 summarizes the key steps of four main procedure for EEG data analysis, including (A) EEG preprocessing, (B) Quantification of neural correlation across multiple subjects or trials, (C) Quantification of normalized power of CorrCA projection components, and (D) Source localization of correlated neural activity.

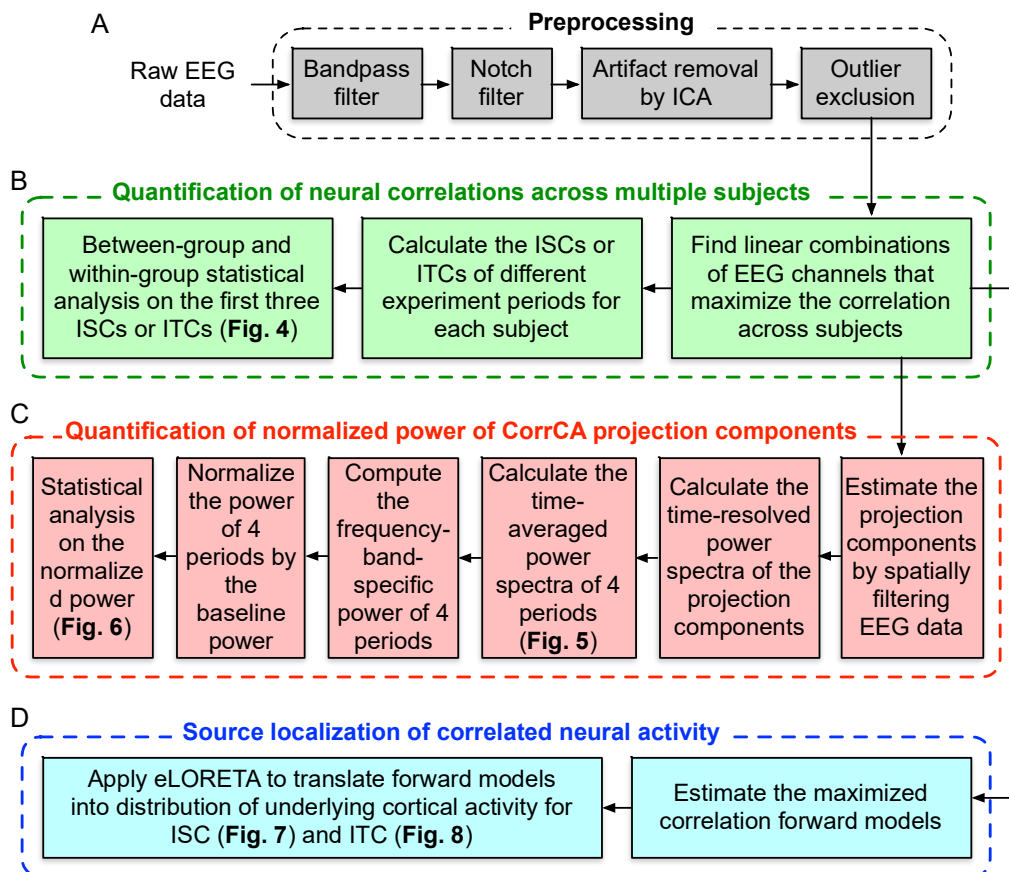


Figure SA.1. Flowchart for EEG data analysis. **(A)** EEG data preprocessing procedure. **(B)** Processing procedure for quantifying neural correlations across multiple subjects or trials. **(C)** Steps for investigating of normalized power of CorrCA projection components. **(D)** Steps for source localization of correlated neural activities.

Supplementary Material B

Tables SB.1 and SB.2 summarize the p-values obtained by the Shapiro-Wilk test of normality of each group for the ISC/ITC and the power data, respectively. Meanwhile, Tables SB.3 and SB.4 depict the p-values of the Levene or Bartlett test of homoscedasticity of the ISC/ITC and the power data, respectively. For all cases, no p-value was less than 0.05. Thus, at the 5% significance level, the data did not provide sufficient evidence to conclude that the data is not from a population with a normal distribution, and the variances from different groups were not significantly different.

Table SB.1 Summary of p-values obtained by the Shapiro-Wilk test of normality of each group for the ISC and ITC data

		DCS		R1		FB		R2	
		LM	HM	LM	HM	LM	HM	LM	HM
ISC	Component 1	0.39	0.9	0.56	0.3	0.54	0.23	0.71	0.58
	Component 2	0.29	0.74	0.89	0.31	0.16	0.43	0.24	0.29
	Component 3	0.65	0.07	0.61	0.28	0.19	0.85	0.06	0.36
ITC	Component 1	0.08	0.07	0.75	0.3	0.08	0.54	0.52	0.91
	Component 2	0.35	0.87	0.82	0.95	0.85	0.77	0.11	0.77
	Component 3	0.82	0.41	0.12	0.94	0.92	0.28	0.23	0.76

Table SB.2 Summary of p-values obtained by the Shapiro-Wilk test of normality of each group for the power data

		Alpha				Beta			
		DCS	R1	FB	R2	DCS	R1	FB	R2
ISC	Component 1	0.07	0.21	0.1	0.26	0.3	0.92	0.43	0.91
	Component 2	0.8	0.56	0.93	0.32	0.6	0.59	0.3	0.94
	Component 3	0.35	0.98	0.93	0.47	0.43	0.63	0.36	0.29
ITC	Component 1	0.75	0.82	0.94	0.88	0.66	0.67	0.63	0.06
	Component 2	0.64	0.13	0.18	0.31	0.76	0.53	0.08	0.51
	Component 3	0.6	0.42	0.64	0.62	0.2	0.91	0.75	0.8

Table SB.3 Summary of p-values obtained by the Levene's test for homogeneity of variance across groups for the ISC and ITC data

ISC			ITC		
Component 1	Component 2	Component 3	Component 1	Component 2	Component 3
0.12	0.4	0.69	0.11	0.39	0.7

Table SB.4 Summary of p-values obtained by the Bartlett test for homogeneity of variance across groups for the power data

	ISC		ITC	
	Alpha	Beta	Alpha	Beta
Component 1	0.61	0.48	0.73	0.33
Component 2	0.75	0.27	0.79	0.14
Component 3	0.96	0.14	0.96	0.77

Supplementary Material C

Figures SC.1 and SC.2 depict the 3D source distributions of the underlying cortical density obtained from the ISC and ITC forward models. The primary sources belong to the lobe noted on the top of each component's result.

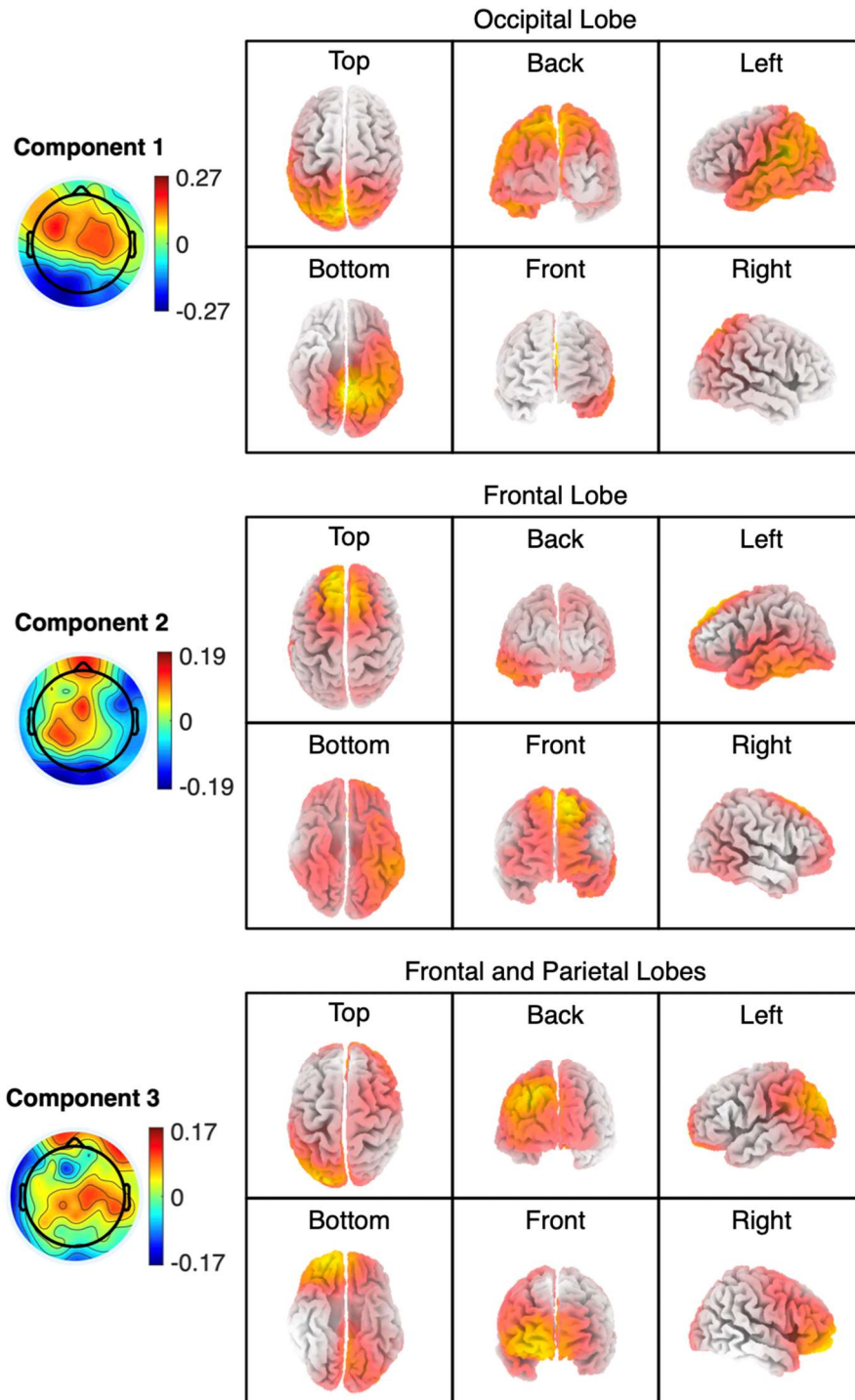


Figure SC.1. 3D source distributions of the underlying cortical density obtained from the ISC forward models

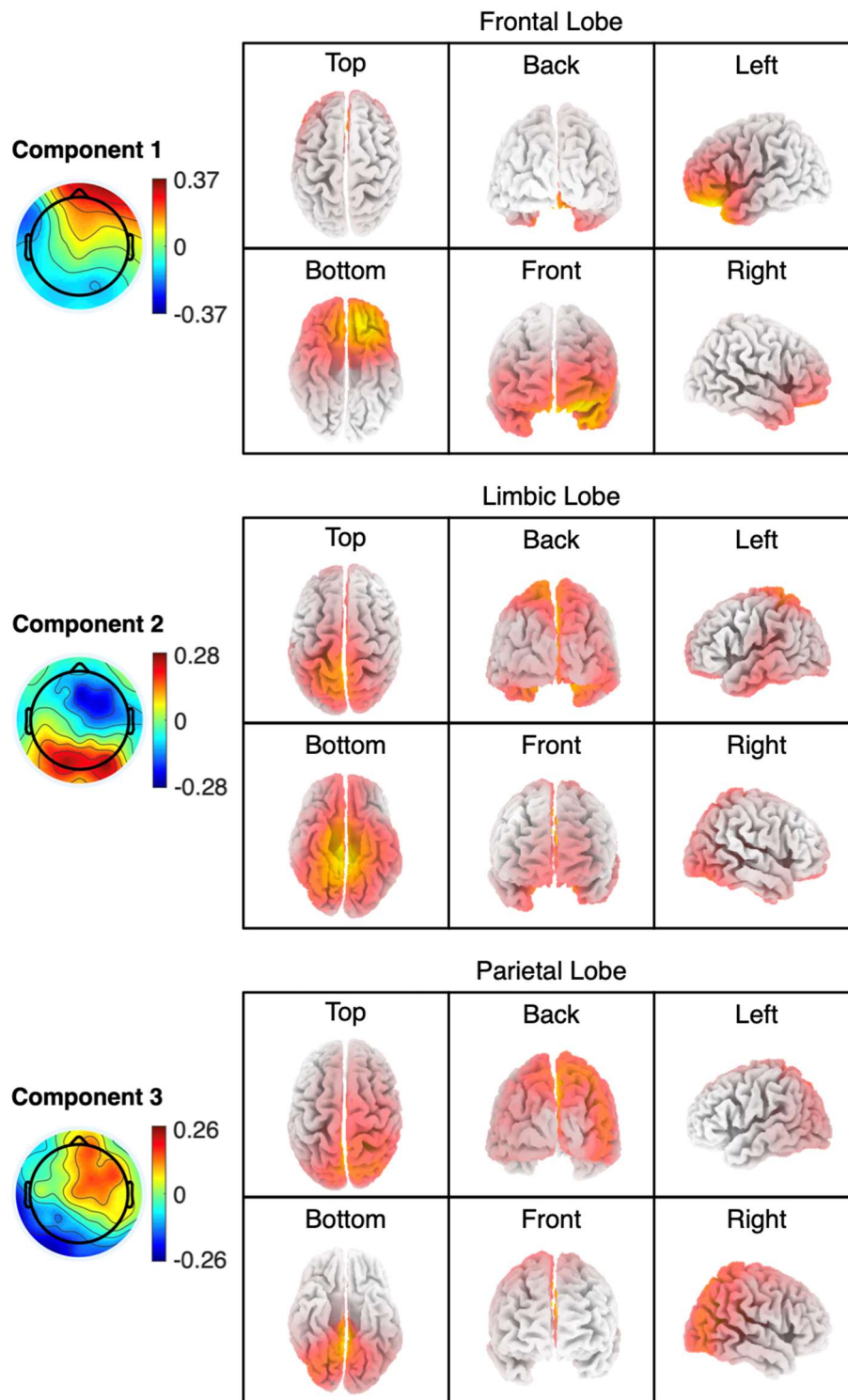


Figure SC.2. 3D source distributions of the underlying cortical density obtained from the ITC forward models