Supplemental Information

Sensory processing during viewing of cinematographic material: computational modeling and functional neuroimaging

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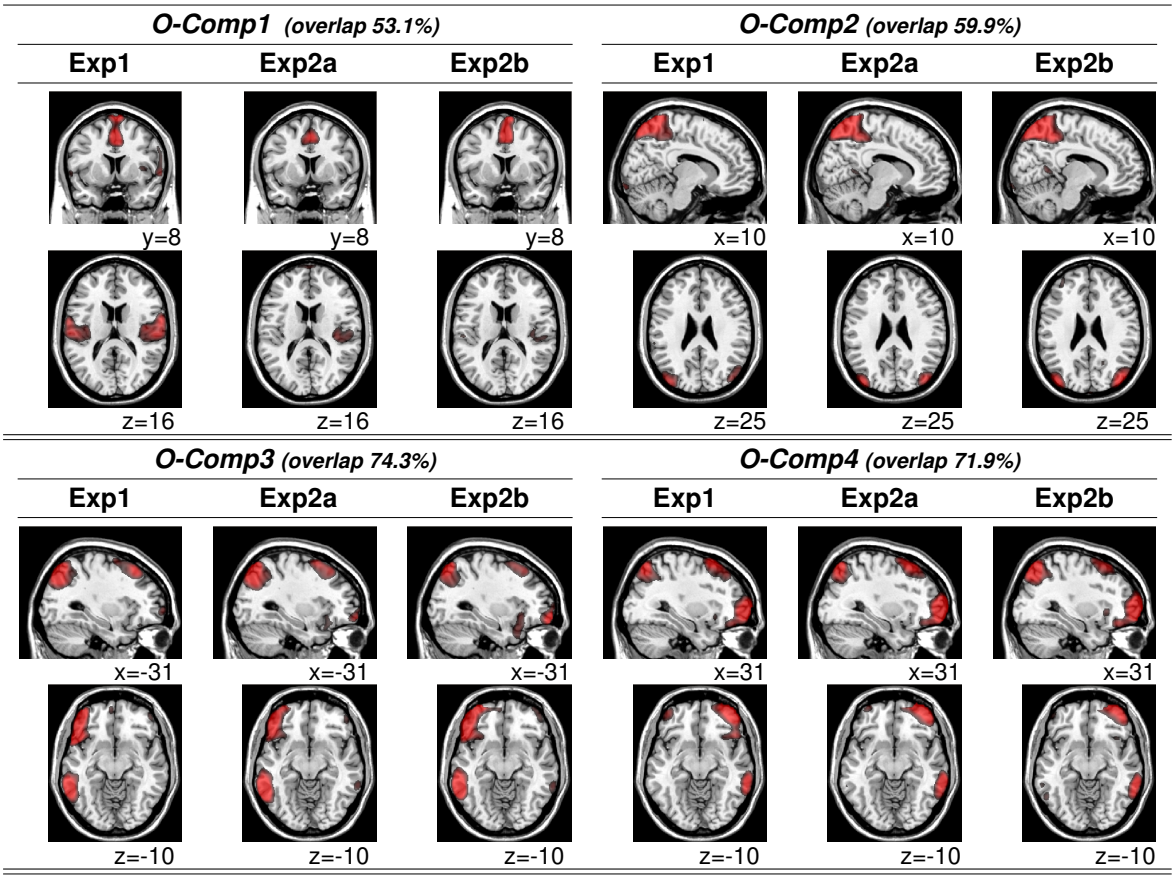

Figure S1. First set of other ICA components (O-comp 1-4) including high-level associative areas that - together with the three sensory components (see Fig. 5) - we could identify consistently in all three datasets. For each component, we report a % overlap index that quantifies the degree of spatial overlap between the three datasets (see Methods, for details). The display threshold is p-unc. = 0.001. Images are in neurological convention.

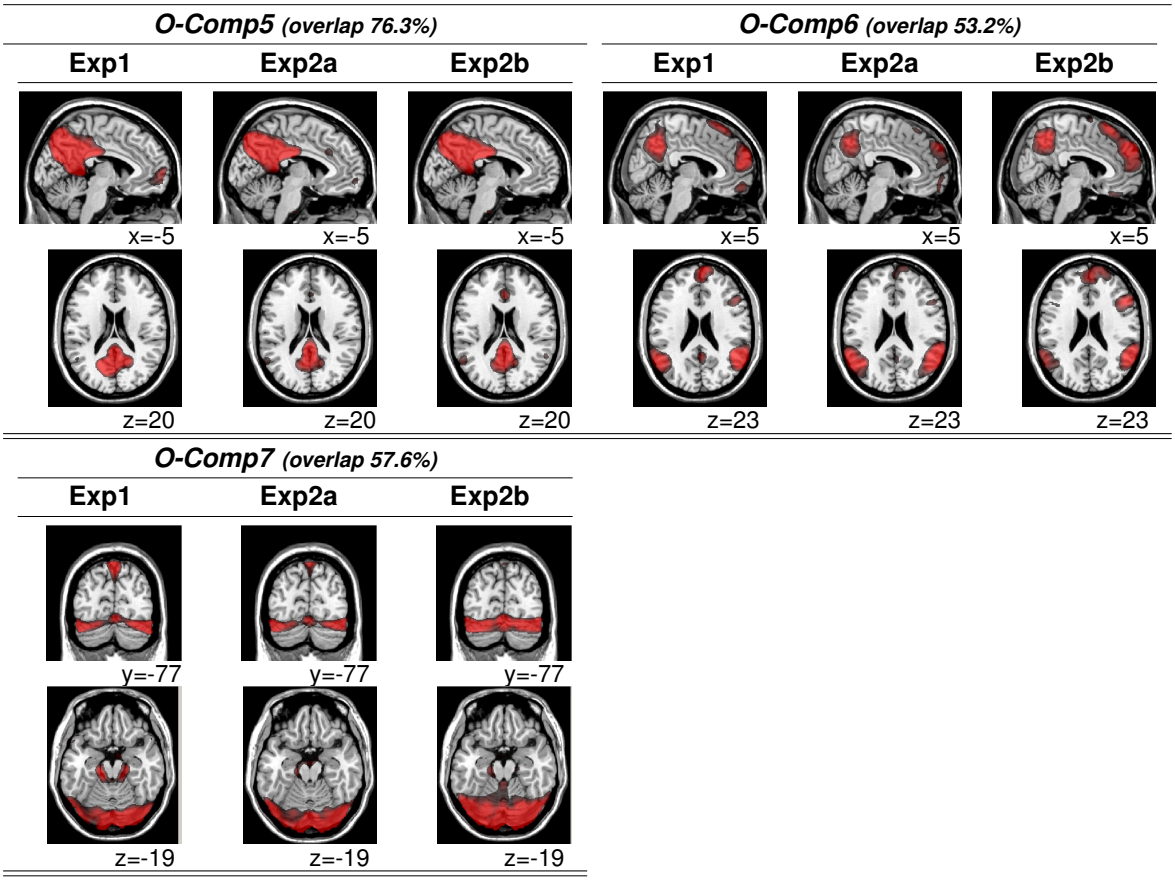

Figure S1bis. Second set of other ICA components (O-comp 5-7).

	Color	Intensity	Orientation	Motion	Flicker
Initial map [1]		[1,2]		[3,4]	[4]
	R-G: (r - g)/max(r, g, b) B-Y: (b - min(r, g))/max(r, g, b)	(r + g + b) / 3		Intensity $_{n - (n-1)}$, shifted by 1 px	Intensity $_{n - (n-1)}$
Gaussian pyramids [2,5]					
	Pyramids levels = 9, sub-sampling by a factor of two: i.e. 2^{sigma}, with *sigma* = 0-8 Gaussian filter: sigma = 1 px; size = 6x6 px				
			Gabor [1,6]: angles = 0^o 45^o 90^o 135^o phase = 0^o 90^o period = 7 px elongation=1 size= 9x9 px sigma= 7/3 px		
Cross-scale subtraction [1,4]					
	Resample to level *sigma* = 4 Subtractions: 5-2, 6-2, 6-3, 7-3, 7-4, 8-4				
Iterative normalization [7] *(not for "un-normalized conspicuity" maps used for fMRI analyses)*					
	Scale to range: 0-10 DoG filter: Number iterations = 4 c_{ex} = 0.5 c_{inh} = 1.5 C_{inh} = 0.02 $sigma_{ex}$ = 1 px $sigma_{inh}$ = 11 px				
Across-scales addition [2]					
	Point-wise sum of normalized *(or un-normalized)* maps				
Weight each feature *(divided by the number of maps for each feature, cf. main text)*					
	1	1	1	1	1
Iterative normalization [7]					
	DoG filter: parameters as above				
Addition [2]					
	Point-wise sum of the normalized conspicuity maps				
Iterative normalization [7]					
	Scale to range: 0-2 DoG filter: parameters as above				

Tab. S1: Visual saliency. Step-by-step description of the visual saliency model, including the specific parameters used in the current study and references to previous work (see list below) reporting the mathematical formulae to compute each step. Filters parameters are given in pixels (px). The labeling of the DoG (Difference of Gaussians) parameters follows the nomenclature used in ref [7]. r/g/b/Y: red/green/blue/Yellow.

	Intensity	**Frequency**	**Temporal**	**Orientation**
Initial map (spectrogram)[8]				
	Sub-sampling (44100 to 22050 Hz) Fast Fourier Analysis Window = 37 ms; overlap = 95 %; frequency band = 100 Hz - 10 kHz			
Gaussian pyramids [5,9]				
	Pyramids levels = 8, sub-sampling by a factor of two: i.e. 2^{sigma}, with *sigma* = 0-7 Gaussian filter: sigma = 1 px, size = 6x6 px			
		Gabor [9,10]: angles = 0° phase = 0° 90° period = 15 px elongation=1 size= 11x11 px sigma = 3 px	Gabor [9,10]: angles = 90° phase = -90° 0° period = 8 px elongation=1 size= 10x10 px sigma =3 px	Gabor [9]: angles = 45°,135° phase = 0° 90° period = 15 px elongation = 1 size= 11x11 px sigma = 3 px
Cross-scale subtraction [9,10]				
	Resample to level *sigma* = 3 Subtractions: 5-2, 6-2, 6-3, 7-3			
Iterative normalization [7,9,11] *(not for "un-normalized conspicuity" maps used for fMRI analyses)*				
	Scale to range: 0-10 DoG filter: Number iterations = 4 c_{ex} = 0.5 c_{inh} = 1.5 C_{inh} = 0.02	For frequency domain: $sigma_{ex}$ = 1 px $sigma_{inh}$ = 1 px	For temporal domain: $sigma_{ex}$ = 6 px $sigma_{inh}$ = 6 px	
Across-scales addition [9]				
	Point-wise sum of normalized *(or un-normalized)* maps			
Weight each feature *(divided by the number of maps for each feature, cf. main text)*				
	1	1	1	1
Iterative normalization [7,9,11]				
	DoG filter: parameters as above			
Addition [1,2,9]				
	Point-wise sum of the normalized conspicuity maps			

Tab. S2: Auditory saliency. Step-by-step description of the auditory saliency model, including the specific parameters used in the current study and references to previous work (see list below) reporting the mathematical formulae to compute each step. Filters parameters are given in pixels (px). The labeling of the DoG parameters follows the nomenclature used in ref [7].

Reference List for Tabs S1-S2

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[9] Kalinli, O., Narayanan, S.S., 2007. A saliency-based auditory attention model with applications to unsupervised prominent syllable detection in speech. In Proceedings of InterSpeech, 1941-1944.

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