

*“Feature-based attention modulates activity in motion and colour processing brain areas”*

The visual system is constantly flooded with visual stimuli but due to its limited processing capacity some of the competing percepts are favoured and therefore cortically represented so that they reach our awareness (Desimone and Duncan, 1995). This preference may be accomplished by internal goals (Hayden and Gallant, 2005), so that sensory input may be filtered according to what is relevant to us at a certain moment. Whether it is a specific location in our visual field or a specific stimulus feature we focus our attention on, in either case characteristic neural mechanisms enhance the neurons' gain in order to guarantee the preferential processing of relevant visual information (Treue and Martinez-Trujillo, 1999). Visual search in everyday life is often characterised by our predefined knowledge of an object's feature (e.g. a friend with a red coat) without knowing its spatial location (e.g. where in the crowd is he/she). This form of visual selection is called feature-based attention. It has been demonstrated that whereas spatial attention leads to an enhanced firing rate of all neurons in the specific location (Luck et al., 1997), feature-based attention involves the globally enhanced response of neurons which have a preference for the selected feature (e.g. colour or motion) (Saenz et al., 2002).

The aim of this thesis is to determine how feature-based attention modulates brain activity in colour and motion specific areas supported by reaction data as a measure of attentional deployment.

References:

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