– Figures from the Abstract, not final Version of the Poster! –

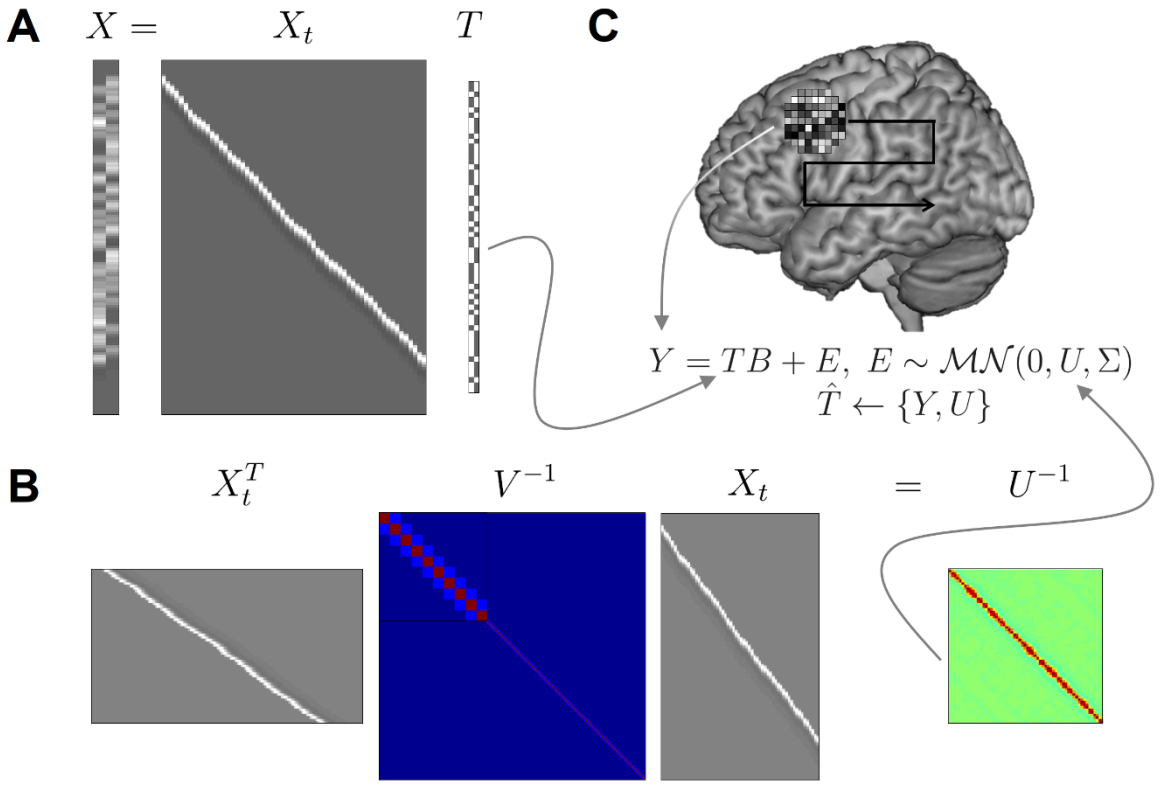

Figure 1. *Mathematical basics of searchlight-based ITEM analysis.* **(A)** The trial-wise design matrix X_t can be related to the standard design matrix X using a trial-level specification matrix T. **(B)** Under this assumption, the trial-by-trial covariance matrix U is a function of the trial-wise design matrix X_t and the scan-by-scan covariance matrix V. **(C)** In ITEM-based searchlight decoding, trial-wise responses Y from all voxels in a spherical volume are described using a multivariate GLM with design matrix T, temporal covariance U and spatial covariance Σ. Inverting this model gives rise to trial-wise predictions $\hat{T}$ of experimental design variables.

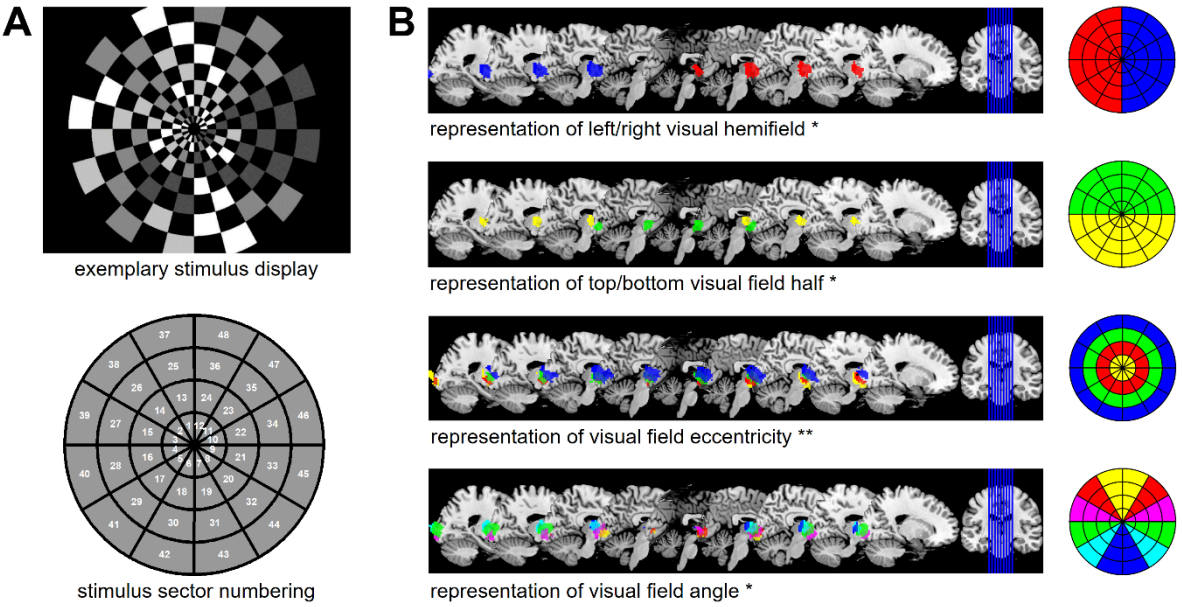

Figure 2. *Empirical validation of searchlight-based ITEM analysis.* **(A)** During fMRI scanning, subjects were stimulated with flickering checkerboard patterns (top) whose illumination intensity changed from trial to trial [7]. The visual field was partitioned into 48 sectors (bottom) organized into 4 rings and 12 segments [2]. **(B)** Trial-wise sector intensities were reconstructed using ITEM-based searchlight decoding. Colored voxels indicate searchlights from which the visual contrast in highlighted sectors could be decoded with average correlation significantly greater than zero (* FWE, $p < 0.05$, $k = 0$; ** unc., $p < 0.001$, $k = 10$).