Sim 17 Simulations README

This README provides information for navigating the results for Simulation 17 on github: https://github.com/AlexBowring/Contour_Inference_2019/tree/master/Sim_17_results

Results have been filed in the format:
/{effect_size}_effect_size/{smoothing}_smoothing/Figures/
{bootstrap_type}_{variance_estimator}_{distribution_type}_{boundary_dimensions}_{effect_size}_{smoothing}.pdf

For example:
/02_effect_size/1_smoothing/Figures/
mult_bootstrap_cohen_var_abs_max_dist_10_square_dim_02_effect_1_smo.pdf

This table provides a description on what each of these parameters mean and the values of each parameter explored in the simulation:

In all simulations, for N subjects (N = 30, 60, 120) a constant signal was generated over a 2D square grid of size (10x10/60x60/124x124), and Gaussian noise was added smoothed with a (1, 3, 5, 7) voxel FWHM Gaussian kernel. 30,000 Monte Carlo simulations were generated to obtain the empirical maximum, minimum, and absolute maximum distribution. 10,000 bootstrap samples were used to obtain the same distributions with a couple of our proposed methods. I then found the 95 percentile of the abs. max distribution, 97.5 percentile of max, and 2.5 percentile of the min distribution for the monte carlo and bootstrap methods over all subject sizes.

Parameter	Description	Values explored
effect_size	The constant 'true' effect size generated for all subjects	μ = 1, 2, 0.2, 5, 0.7
smoothing	The smoothing FWHM used for the Gaussian kernel to smooth the noise	1 voxel FWHM 3 voxel FWHM 5 voxel FWHM 7 voxel FWHM
bootstrap_type	Which bootstrap type was used in the simulations	Mult_bootstrap (multiplier bootstrap, bootstrapped residuals) t_bootstrap (t-bootstrap, bootstrapped residuals divided by bootstrap standard deviation)
variance_estimator	The variance estimator used to standardized the residuals before the bootstrap.	cohen_var (Variance of cohens d, 1 + d^2/2) SNR_var (Variance of Fabians SNR residuals)
distribution_type	The distribution from which the quantile values have been obtained	abs_max (Absolute maximum, 95%-ile) max (Maximum, 97.5%-ile)

		min (Minimum, 2.5%-ile)
boundary_dimensions	Dimensions of the square grid for which the constant signal was generated over	10_square_dim (10 x 10 grid, i.e boundary length of 10^2) 60_square_dim (60 x 60 grid, i.e. boundary length of 60^2) (124x124 grid, i.e boundary length of 124^2)