Supporting Materials for Q-GGMRF Code

Assume that the voxel update is given by



We use a surrogate function for the function .

Let  and , then the surrogate function is given by



We use the following approximation for the second derivative at origin.



Then the voxel update is given by



Written in a simpler form,



Then the solution to  is given by



Code instruction:

*Solve.m*: This function computes the updated voxel value, .

*Compute\_Surrogate\_Prior.m*: This function computes the coefficient for the quadratic term of the surrogate prior, i.e., 