MUTANT : a new image filtering paradigm for improved parameters determination. Application to myelin water fraction mapping and sodium concentrations imaging

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Theory

- General framework for the nonlocal multispectral filtering, named **MUlT**ispectral qu**ANT**itative filtering = **MUTANT**

  Nonlocal = filtered intensity in a voxel is a weighted mean of all other intensities within image
  Weight $\mu(i,j)$ is proportional to the similarity between two voxels

- Similarity $\mu_k(i,j)$ between voxels i and j in the k-th frame derived from the Bayes theorem

  μ_k can be calculated for any noise pdf = **Genericity**
  The vector of framewise similarities $[\mu_1,\cdots,\mu_K]^T$ carries all the information regarding the similarity between voxels i and j

- A fusion operator g used to combine the multispectral information

  Pave the way for a myriad of context-dependent filters = **Flexibility**
  E.g. *g* = f-min / sensitive to the *f* frames indicating the lowest similarities

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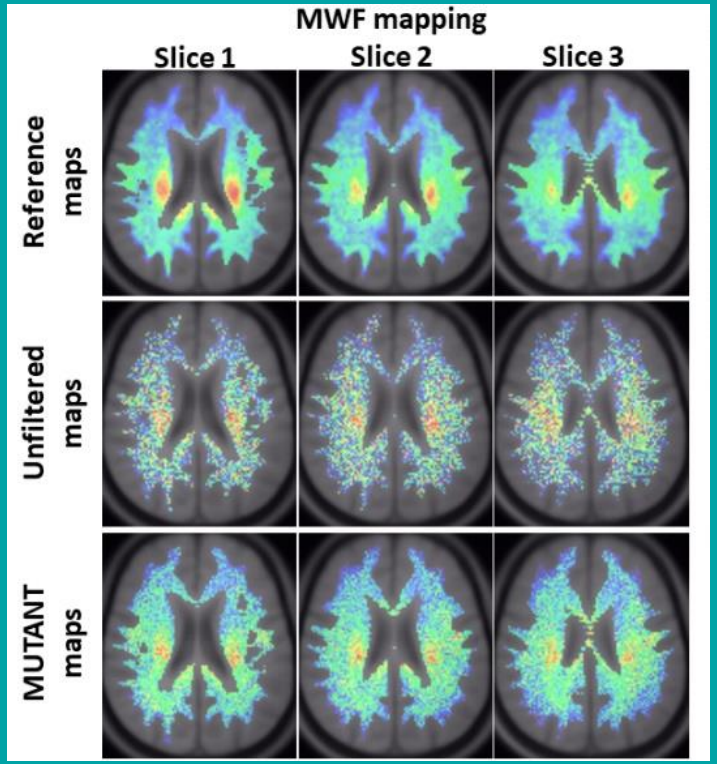
Results

- Gaussian pdf



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