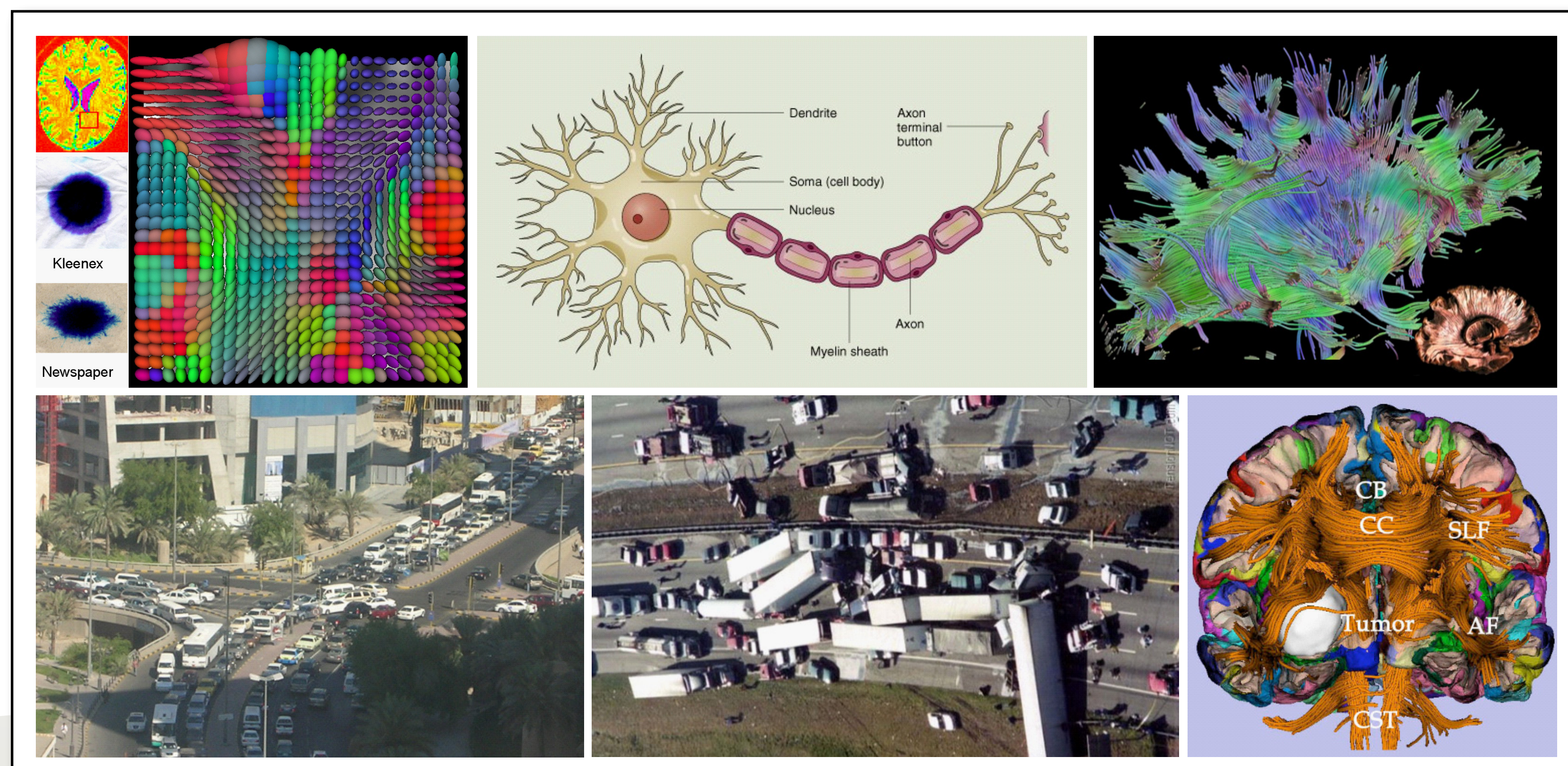# Uncertainty Analysis and Visualization of Diffusion Tensor Magnetic Resonance Imaging

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## 1. What is Diffusion Tensor Magnetic Resonance Imaging

Diffusion Tensor Magnetic Resonance Imaging (DT-MRI) is an imaging technique that enables one to measure diffusion priorities of water molecules in a fibrous tissue. It is primarily used to reveal the white-matter fibers structure of the brain, as well as structures of muscle fibers.
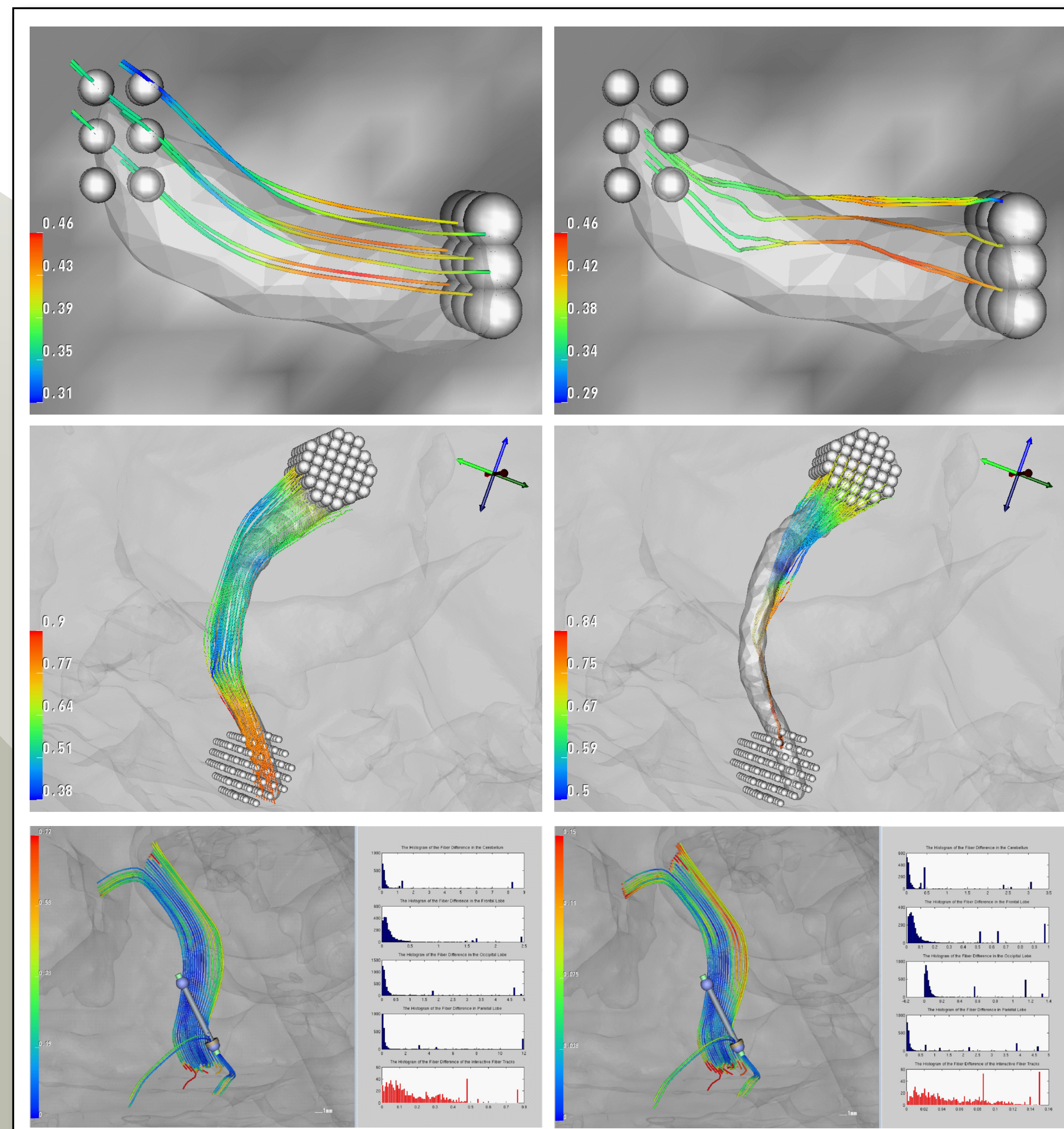


## 2. High Order Tensor Decomposition
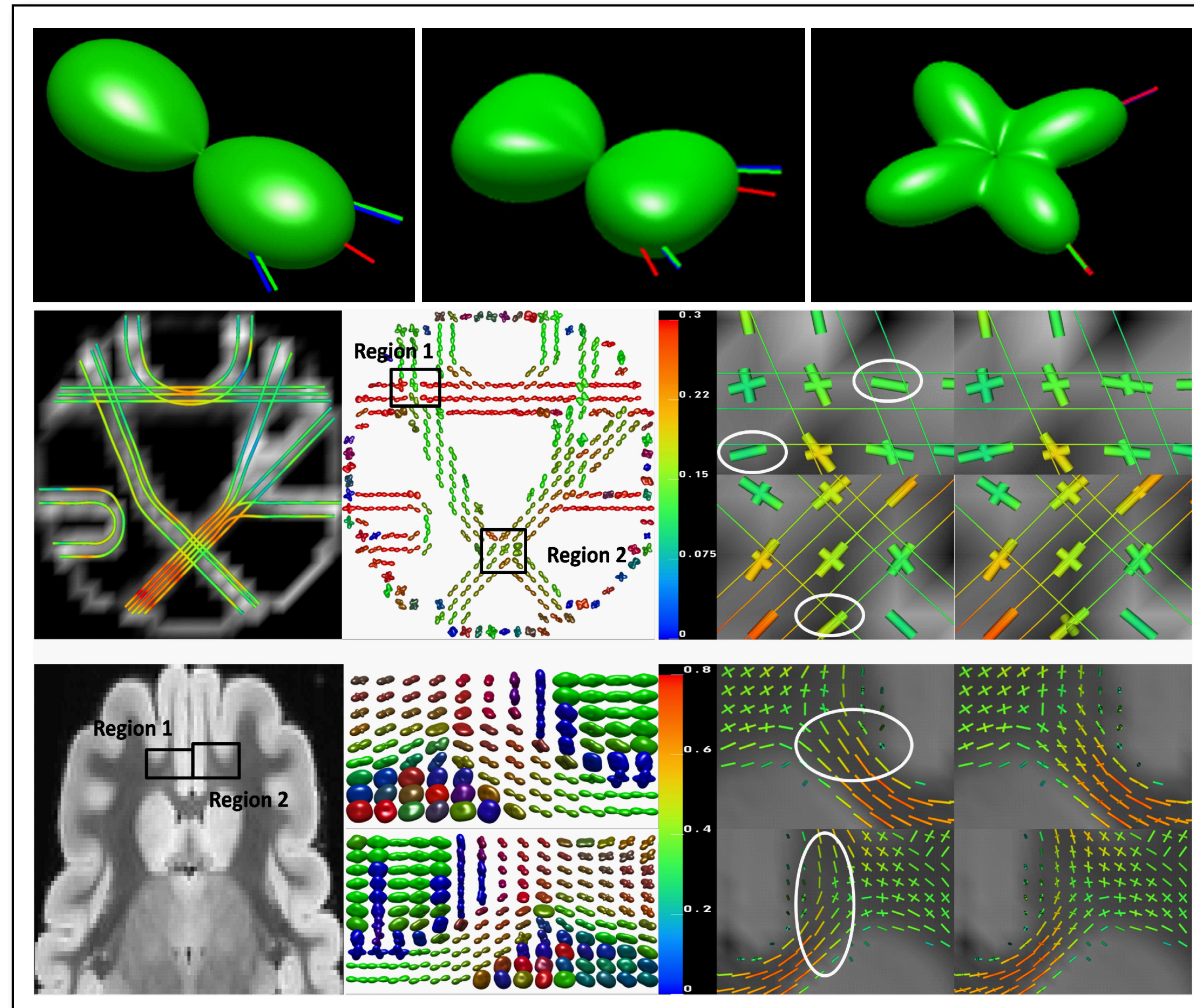


## 3. Uncertainty of High Order Tensors
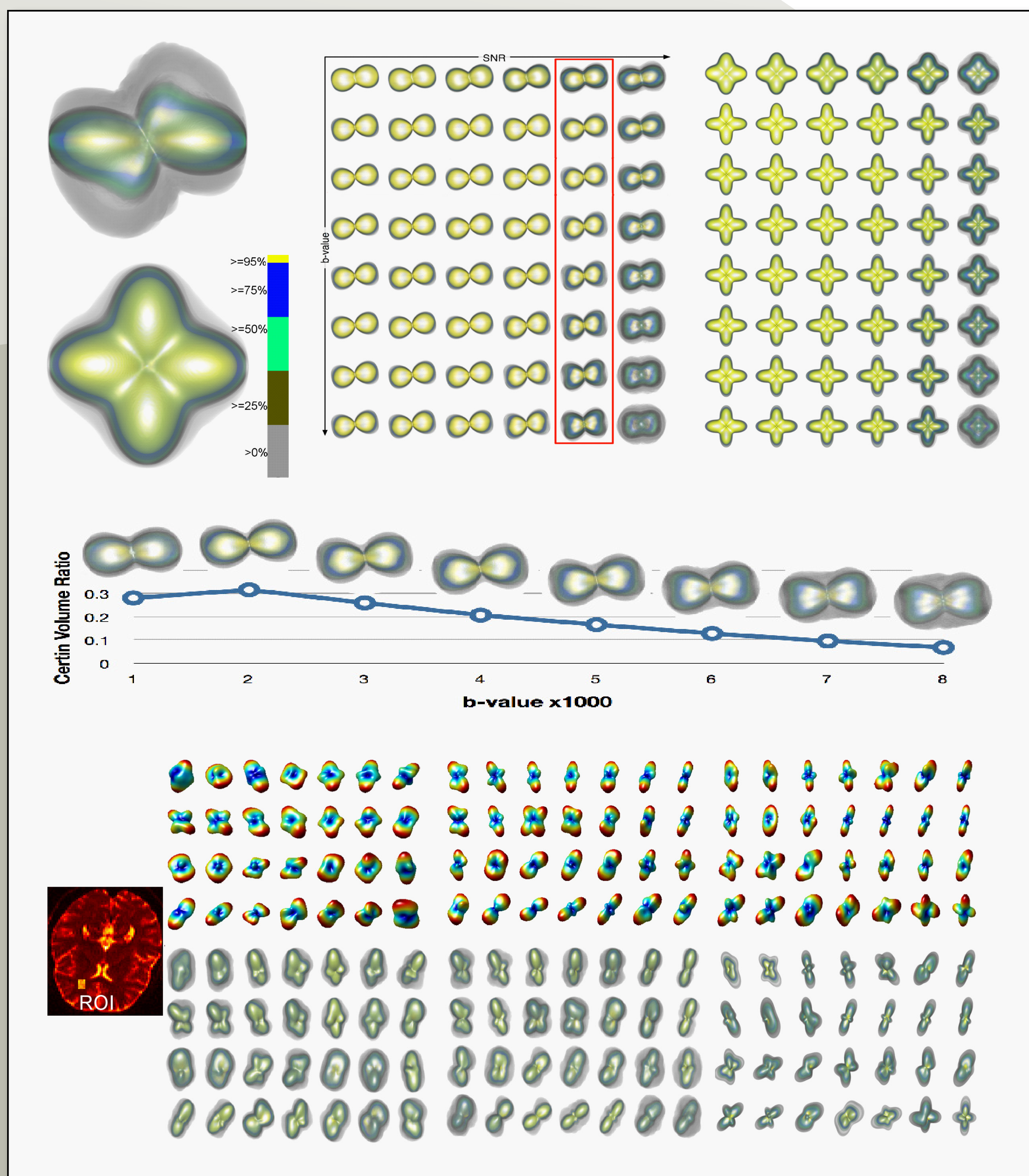


## 4. Uncertainty of Fiber tracks



## Conclusion

In this framework, we present an uncertainty analysis and visualization pipeline from the voxel based uncertainties to the fiber track uncertainties, which is the crucial step toward the validation of DT-MRI technique.