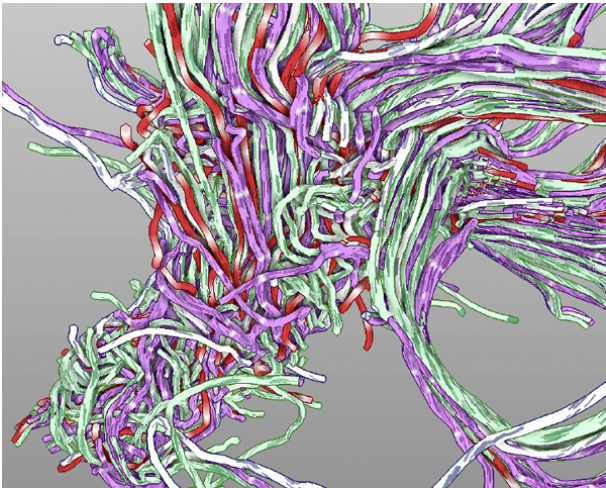


Uncertainty Visualization of Brain Fibers

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Diffuse Tensor Imaging (DTI) is an acquisition method based on Magnetic Resonance (MR) that provides information on the white matter fiber pathways in the living human brain. Such knowledge is crucial for understanding the way different parts of the brain work and how they interact with each other. The reconstruction of fiber tracts, however, depends on a number of parameters that introduce a degree of uncertainty in the data. Together with the parameter setting, other elements such as noise, motion, partial volume effects, or image artifacts increase the uncertainty. Therefore, fiber tracking algorithms may produce

misleading results. Visualizing such uncertainty is important to avoid taking wrong decisions in medical environments. In this paper we present a set of techniques that provide a better understanding on the visualization of brain fibers by means of textures, silhouettes, ambient occlusion, and animation.