



11th Image Analysis Group Meeting

Friday April 30, 2004 at 3:00pm in CS&S 4310

Quantitative Image Analysis Strategies for Diffusion Tensor MRI

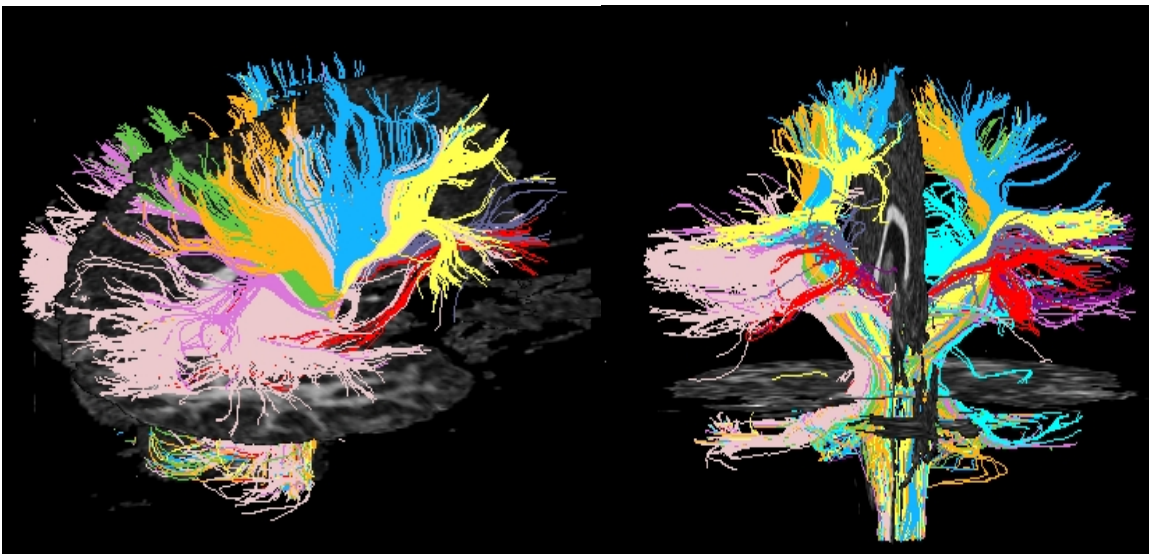
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Diffusion Tensor MRI is a powerful, non-invasive imaging method that is promising for detecting and characterizing brain pathology. The diffusion tensor is a mathematically elegant model of water diffusion in brain tissues, which contains information about the magnitude, anisotropy and orientation of the diffusion. The diffusion tensor properties are modulated by subtle changes in the microstructural properties of the tissues with aging, tissue organization, and pathology. Thus, diffusion tensor MRI has found a broad spectrum of applications including stroke, brain tumors, neurodegenerative disease, psychiatric disorders, and developmental disorders. In diseases where gross pathology or abnormalities are not present, quantitative methods are required to measure differences between subjects or groups. In this presentation, I will summarize the model, acquisition and general image analysis of diffusion tensor image data, and provide a few application examples. I will then compare the strengths and weaknesses of different strategies of quantitative image analysis for comparing diffusion tensor image data between individuals or groups.

Everyone is welcome. If you like to give a talk or be on the mailing list, please contact Moo Chung mchung@stat.wisc.edu.