

Diffusion Tractography: Technical Considerations for White Matter Mapping

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SYLLABUS

Target audience: Clinicians and researchers who use diffusion MRI tractography

OUTCOME/Objectives: Learners will have a better understanding of the many technical approaches to white matter tractography, and some of the assumptions and potential pitfalls with these methods.

PURPOSE: To give a broad overview of technical fiber tracking methods and results.

SUMMARY: Diffusion MRI fiber tracking has been widely applied for neurosurgical planning, especially for preoperative assessment of functionally relevant white matter anatomy. The main technical challenge is accurately modeling crossing fibers in the human brain. The main translational challenge may be defining which tracts are important for surgery, from the thousands of fibers traced. We will survey technical approaches from the literature for addressing these open issues. This talk will focus on several crucial white matter tracts and will aim to give intuition into the technical state of the art, validation studies, and potential pitfalls.