Resource Summary Report

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TRACULA

RRID:SCR_013152
Type: Tool

Proper Citation

TRACULA (RRID:SCR_013152)

Resource Information

URL: http://surfer.nmr.mgh.harvard.edu/fswiki/Tracula

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Description: Software tool developed for automatically reconstructing a set of major white matter pathways in the brain from diffusion weighted images using probabilistic tractography. This method utilizes prior information on the anatomy of the pathways from a set of training subjects. By incorporating this prior knowledge in the reconstruction procedure, our method obviates the need for manual intervention with the tract solutions at a later stage and thus facilitates the application of tractography to large studies. The trac-all script is used to preprocess raw diffusion data (correcting for eddy current distortion and B0 field inhomogenities), register them to common spaces, model and reconstruct major white matter pathways (included in the atlas) without any manual intervention. trac-all may be used to execute all the above steps or parts of it depending on the dataset and user""s preference for analyzing diffusion data. Alternatively, scripts exist to execute chunks of each processing pipeline, and individual commands may be run to execute a single processing step. To explore all the options in running trac-all please refer to the trac-all wiki. In order to use this script to reconstruct tracts in Diffusion images, all the subjects in the dataset must have Freesurfer Recons.

Abbreviations: TRACULA

Synonyms: TRACULA - TRActs Constrained by UnderLying Anatomy, TRACULA: TRActs Constrained by UnderLying Anatomy, TRActs Constrained by UnderLying Anatomy

Resource Type: data processing software, software resource, software application

Defining Citation: PMID:22016733

Keywords: tractography, white matter tract, white matter pathway, diffusion weighted image, diffusion magnetic resonance imaging, white matter, brain, reconstruct, diffusion tensor imaging

Related Condition: Aging

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NCRR P41-RR14075;
NCRR U24-RR021382;
NIBIB R01-EB006758;
NIA R01-AG022381;
National Center for Complementary and Alternative Medicine RC1-AT005728;
NINDS R01-NS052585;
NINDS R21-NS072652;
NINDS R01-NS070963

Resource Name: TRACULA

Resource ID: SCR_013152

Alternate IDs: nlx_143919

Record Creation Time: 20220129T080314+0000

Record Last Update: 20250423T060709+0000

Ratings and Alerts

No rating or validation information has been found for TRACULA.

No alerts have been found for TRACULA.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 15 mentions in open access literature.

Listed below are recent publications. The full list is available at FDI Lab - SciCrunch.org.

Maffei C, et al. (2023) Automated detection of axonal damage along white matter tracts in

acute severe traumatic brain injury. NeuroImage. Clinical, 37, 103294.

Hung Y, et al. (2022) Memory retrieval brain-behavior disconnection in mild traumatic brain injury: A magnetoencephalography and diffusion tensor imaging study. Human brain mapping, 43(17), 5296.

Berger M, et al. (2022) Free water diffusion MRI and executive function with a speed component in healthy aging. NeuroImage, 257, 119303.

Krieger D, et al. (2021) Symptom-Dependent Changes in MEG-Derived Neuroelectric Brain Activity in Traumatic Brain Injury Patients with Chronic Symptoms. Medical sciences (Basel, Switzerland), 9(2).

Muñoz Maniega S, et al. (2019) Spatial Gradient of Microstructural Changes in Normal-Appearing White Matter in Tracts Affected by White Matter Hyperintensities in Older Age. Frontiers in neurology, 10, 784.

Gharaylou Z, et al. (2019) Longitudinal Effects of Bumetanide on Neuro-Cognitive Functioning in Drug-Resistant Epilepsy. Frontiers in neurology, 10, 483.

Jung M, et al. (2019) Sex Differences in White Matter Pathways Related to Language Ability. Frontiers in neuroscience, 13, 898.

Goodrich-Hunsaker NJ, et al. (2018) Age- and sex-related effects in children with mild traumatic brain injury on diffusion magnetic resonance imaging properties: A comparison of voxelwise and tractography methods. Journal of neuroscience research, 96(4), 626.

Yeatman JD, et al. (2018) A browser-based tool for visualization and analysis of diffusion MRI data. Nature communications, 9(1), 940.

Levar N, et al. (2018) Verbal Memory Performance and Reduced Cortical Thickness of Brain Regions Along the Uncinate Fasciculus in Young Adult Cannabis Users. Cannabis and cannabinoid research, 3(1), 56.

Borsodi F, et al. (2017) Multimodal assessment of white matter tracts in amyotrophic lateral sclerosis. PloS one, 12(6), e0178371.

Saygin ZM, et al. (2016) Connectivity precedes function in the development of the visual word form area. Nature neuroscience, 19(9), 1250.

Sprooten E, et al. (2016) A comprehensive tractography study of patients with bipolar disorder and their unaffected siblings. Human brain mapping, 37(10), 3474.

Delli Pizzi S, et al. (2015) Structural Connectivity is Differently Altered in Dementia with Lewy Body and Alzheimer's Disease. Frontiers in aging neuroscience, 7, 208.

Madhavan KM, et al. (2014) Superior longitudinal fasciculus and language functioning in healthy aging. Brain research, 1562, 11.