Resource Summary Report

Generated by NIF on Apr 27, 2025

Diffusion Tensor Imaging ToolKit

RRID:SCR_001642
Type: Tool

Proper Citation

Diffusion Tensor Imaging ToolKit (RRID:SCR_001642)

Resource Information

URL: http://dti-tk.sourceforge.net/pmwiki/pmwiki.php

Proper Citation: Diffusion Tensor Imaging ToolKit (RRID:SCR_001642)

Description: A spatial normalization and atlas construction toolkit optimized for examining white matter morphometry using DTI data with special care taken to respect the tensorial nature of the data. It implements a state-of-the-art registration algorithm that drives the alignment of white matter (WM) tracts by matching the orientation of the underlying fiber bundle at each voxel. The algorithm has been shown to both improve WM tract alignment and to enhance the power of statistical inference in clinical settings. A 2011 study published in NeuroImage ranks DTI-TK the top-performing tool in its class. Key features include: * open standard-based file IO support: NIfTI format for scalar, vector and tensor image volumes * tool chains for manipulating tensor image volumes: resampling, smoothing, warping, registration & visualization * pipelines for WM morphometry: spatial normalization & atlas construction for population-based studies * built-in cluster-computing support: support for open source Sun Grid Engine (SGE) * Interoperability with other popular DTI tools: AFNI, Camino, FSL & DTIStudio * Interoperability with ITK-SNAP: support multi-modal visualization and segmentation

Abbreviations: DTI-TK

Resource Type: data processing software, image analysis software, software toolkit, software resource, software application

Keywords: dti, visualization, segmentation, resampling, smoothing, warping, registration, spatial normalization, atlas construction, analysis, atlas application, intersubject, image-to-template, analyze, nifti-1, macos, linux

Funding: NIBIB 1R03EB009321-01

Availability: Available for download

Resource Name: Diffusion Tensor Imaging ToolKit

Resource ID: SCR_001642

Alternate IDs: nlx_153914

Alternate URLs: http://www.nitrc.org/projects/dtitk

License: GNU General Public License

Record Creation Time: 20220129T080208+0000

Record Last Update: 20250426T055452+0000

Ratings and Alerts

No rating or validation information has been found for Diffusion Tensor Imaging ToolKit.

No alerts have been found for Diffusion Tensor Imaging ToolKit.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 22 mentions in open access literature.

Listed below are recent publications. The full list is available at NIF.

Rogge B, et al. (2023) Changes in brain structure in subjects with resistance to thyroid hormone due to THRB mutations. Thyroid research, 16(1), 34.

Koo DL, et al. (2023) More extensive white matter disruptions present in untreated obstructive sleep apnea than we thought: A large sample diffusion imaging study. Human brain mapping, 44(8), 3045.

Firbank MJ, et al. (2022) Investigation of structural brain changes in Charles Bonnet Syndrome. NeuroImage. Clinical, 35, 103041.

Toller G, et al. (2022) Right uncinate fasciculus supports socioemotional sensitivity in health and neurodegenerative disease. NeuroImage. Clinical, 34, 102994.

Azad A, et al. (2021) Microstructural properties within the amygdala and affiliated white matter tracts across adolescence. NeuroImage, 243, 118489.

Prasad JD, et al. (2021) Long-term coordinated microstructural disruptions of the developing neocortex and subcortical white matter after early postnatal systemic inflammation. Brain, behavior, and immunity, 94, 338.

Nguyen VT, et al. (2020) Magnetic Resonance Imaging and Micro-Computed Tomography reveal brain morphological abnormalities in a mouse model of early moderate prenatal ethanol exposure. Neurotoxicology and teratology, 77, 106849.

Ben-Soussan TD, et al. (2020) Correlates of Silence: Enhanced Microstructural Changes in the Uncinate Fasciculus. Frontiers in psychology, 11, 543773.

Zhang Y, et al. (2020) Diffusion tensor tractography of brainstem fibers and its application in pain. PloS one, 15(2), e0213952.

Kim WH, et al. (2019) Cerebrospinal fluid biomarkers of neurofibrillary tangles and synaptic dysfunction are associated with longitudinal decline in white matter connectivity: A multi-resolution graph analysis. NeuroImage. Clinical, 21, 101586.

Leshem R, et al. (2019) Inward versus reward: white matter pathways in extraversion. Personality neuroscience, 2, e6.

Garibay-Pulido D, et al. (2019) Parametric subtracted post-ictal diffusion tensor imaging for guiding direct neurostimulation therapy. Hippocampus, 29(5), 468.

Frost CP, et al. (2018) Childhood Emotional Abuse Moderates Associations Among Corticomotor White Matter Structure and Stress Neuromodulators in Women With and Without Depression. Frontiers in neuroscience, 12, 256.

Fuchigami T, et al. (2018) Zero-shot fMRI decoding with three-dimensional registration based on diffusion tensor imaging. Scientific reports, 8(1), 12342.

Thayyil S, et al. (2017) Hypothermia for encephalopathy in low and middle-income countries (HELIX): study protocol for a randomised controlled trial. Trials, 18(1), 432.

Rae CL, et al. (2017) Deficits in Neurite Density Underlie White Matter Structure Abnormalities in First-Episode Psychosis. Biological psychiatry, 82(10), 716.

Piervincenzi C, et al. (2017) White Matter Microstructural Changes Following Quadrato Motor Training: A Longitudinal Study. Frontiers in human neuroscience, 11, 590.

Timmers I, et al. (2015) White matter microstructure pathology in classic galactosemia revealed by neurite orientation dispersion and density imaging. Journal of inherited metabolic

disease, 38(2), 295.

Lally PJ, et al. (2015) Magnetic Resonance Biomarkers in Neonatal Encephalopathy (MARBLE): a prospective multicountry study. BMJ open, 5(9), e008912.

Duarte-Carvajalino JM, et al. (2013) A Framework for Linear and Non-Linear Registration of Diffusion-Weighted MRIs Using Angular Interpolation. Frontiers in neuroscience, 7, 41.