

Resource Summary Report

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vIST/e

RRID:SCR_001627

Type: Tool

Proper Citation

vIST/e (RRID:SCR_001627)

Resource Information

URL: <https://sourceforge.net/projects/viste/>

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Description: Open source, platform-independent application for the visualization and analysis of complex, high-dimensional imaging data such as Diffusion Tensor Imaging (DTI) and High Angular Resolution Diffusion Imaging (HARDI). It has a plugin-based architecture which allows third parties to develop new plugins to extend the tool. Overview of the many features: * vIST/e is programmed in C++. It uses the Visualization Toolkit for visualization and pipelined data processing, as well as the cross-platform toolkit Qt Framework for an easy-to-use Graphical User Interface. * vIST/e introduces a powerful new plugin system, which allows for modular development with increased extensibility and stability. * Powerful GPU-based visualization techniques allow for smooth, real-time visualization of large data sets. Using custom ray tracing algorithms created with OpenGL, vIST/e can render DTI ellipsoids and HARDI spherical harmonics glyphs up to 4th order. The high frame rates offered by modern GPU technology allows for interactive exploration of this complex data. * Diffusion Tensor Imaging data can be visualized and interactively explored in a number of ways, including multiple cross-sections, volume rendering, and tensor glyphs. Derived scalar volumes, including various different anisotropy measures, can be computed and visualized. Data from other modalities, such as structural MRI, can be shown alongside the DTI data. * Various fiber tracking methods allow for fast and accurate reconstruction of fiber pathways. Interactively defined Regions of Interest (ROIs) can be used for seeding and filtering of fibers. Fibers are visualized either as lines, optionally using a powerful, GPU-based lighting engine, or as 3D structures such as tubes. * Scalar volumes, glyphs, and fibers can be colored using a wide array of coloring option. Customizable color loop-up tables allow for highly flexible visualization of scalar data. * Visualization and processing of various different HARDI formats is supported. HARDI data is interactively visualized using highly detailed glyphs rendered on the GPU. HARDI glyphs can be visualized in combination with DTI glyphs, for a better overview of complex diffusion data. * vIST/e includes support for NVIDIA's Compute Unified Device Architecture (CUDA), which enables highly parallel, GPU-based data processing, allowing for significant speed-up of computationally expensive algorithms.

Abbreviations: vIST/e

Synonyms: DTITool

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

Keywords: diffusion tensor imaging, high angular resolution diffusion imaging, visualization, cross-section, volume rendering, tensor glyph, mri, fiber tracking

Availability: Free, Available for download, Freely available

Resource Name: vIST/e

Resource ID: SCR_001627

Alternate IDs: nlx_153923

Alternate URLs: <http://www.nitrc.org/projects/viste>

License: BSD License

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Ratings and Alerts

No rating or validation information has been found for vIST/e.

No alerts have been found for vIST/e.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 4 mentions in open access literature.

Listed below are recent publications. The full list is available at [nidm-terms](#) .

Oudeman J, et al. (2018) Diffusion tensor MRI of the healthy brachial plexus. PloS one, 13(5), e0196975.

Oudeman J, et al. (2016) A novel diffusion-tensor MRI approach for skeletal muscle fascicle length measurements. Physiological reports, 4(24).

Portegies JM, et al. (2015) Improving Fiber Alignment in HARDI by Combining Contextual PDE Flow with Constrained Spherical Deconvolution. PloS one, 10(10), e0138122.

Tax CM, et al. (2014) Evaluating contextual processing in diffusion MRI: application to optic radiation reconstruction for epilepsy surgery. PloS one, 9(7), e101524.