ANTS - Advanced Normalization ToolS

RRID:SCR_004757
Type: Tool

Proper Citation

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Resource Information

URL: http://www.picsl.upenn.edu/ANTS/

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Description: Software package designed to enable researchers with advanced tools for brain and image mapping. Many of the ANTS registration tools are diffeomorphic*, but deformation (elastic and BSpline) transformations are available. Unique components of ANTS include multivariate similarity metrics, landmark guidance, the ability to use label images to guide the mapping and both greedy and space-time optimal implementations of diffeomorphisms. The symmetric normalization (SyN) strategy is a part of the ANTS toolkit as is directly manipulated free form deformation (DMFFD). *Diffeomorphism: a differentiable map with differentiable inverse. In general, these maps are generated by integrating a time-dependent velocity field. ANTS Applications: * Gray matter morphometry based on the jacobian and/or cortical thickness. * Group and single-subject optimal templates. * Multivariate DT + T1 brain templates and group studies. * Longitudinal brain mapping -- special similarity metric options. * Neonatal and pediatric brain segmentation. * Pediatric brain mapping. * T1 brain mapping guided by tractography and connectivity. * Diffusion tensor registration based on scalar or connectivity data. * Brain mapping in the presence of lesions. * Lung and pulmonary tree registration. * User-guided hippocampus labeling, also of sub-fields. * Group studies and statistical analysis of cortical thickness, white matter volume, diffusion tensor-derived metrics such as fractional anisotropy and mean diffusion.

Resource Type: Resource, segmentation software, image analysis software, data processing software, software application, software resource, registration software

Keywords: algorithm, atlas application, morphology, segmentation, image registration, temporal transformation, child, pediatric, normalization
Parent Organization: University of Pennsylvania; Philadelphia; Pennsylvania

Funding Agency: NIBIB

Related resources: Segmentation of Hippocampus Subfields, ANTsR

Availability: BSD License

Website Status: Last checked up

Abbreviations: ANTS

Resource Name: ANTS - Advanced Normalization ToolS

Resource ID: SCR_004757

Alternate IDs: nlx_75959

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

Ratings and Alerts

- 5 / 5 (3 votes) Rated at NITRC http://www.nitrc.org/projects/ants

No alerts have been found for ANTS - Advanced Normalization ToolS.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 193 mentions in open access literature.

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


Snoek L, et al. (2021) The Amsterdam Open MRI Collection, a set of multimodal MRI datasets for individual difference analyses. Scientific data, 8(1), 85.


Walsh BH, et al. (2021) Surgery requiring general anesthesia in preterm infants is associated with altered brain volumes at term equivalent age and neurodevelopmental impairment. Pediatric research, 89(5), 1200-1207.


