

# ANTX

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ANTX stands for **A**tlas **N**ormalization **T**oolbox using elasti**X**. It is a MATLAB toolbox for image registration of mouse magnetic resonance imaging data developed for research laboratories/departments.

## Requirements

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- Windows (successfully tested with Windows 7)
- MATLAB (successfully tested with R2015b)

## Installation

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- download the ANTX-toolbox
- save the toolbox to your preferred drive/path
- **!! unzip the three files "ANO.nii.zip" "AVGT.nii.zip" and "FIBT.nii.zip" in the subfolder mritools/ant/templateBerlin\_hres !!**
- open Matlab, in Matlab set current path to the location of ANTX-Toolbox
- type and evaluate antlink.m in command window to temporally add all necessary paths to the matlabpath (these paths are temporally added and will be lost after restarting Matlab).
- alternatively you can create a hyperlink that occurs each time Matlab is started (select this hyperlink to temporally add all necessary paths of the toolbox). To do this, you can copy the startup.m file (located in the ANTX-directory) to the matlab-root-path (in Matlab type: matlabroot to obtain your matlab-root-path, see also: <https://de.mathworks.com/help/matlab/ref/startup.html?requestedDomain=de.mathworks.com>). Finally, in this startup.m-file you have to set your ANTX-path.

### Study path

set matlab's current path to your mouse data use `cd studypath`, where `studypath` is the current study-folder or navigate to this path via MATLAB's current path (edit field in MATLAB's main window).

### Start ANTX

- type `ant` in Matlab editor to start ANT-GUI

The right figure shows the main panel, containing:

- an upper listbox to display information & parameters
- a left listbox to display all mouse-folders, i.e. subfolders in the `edat1`-directory, data of each mouse is stored in its own folder
- a right listbox main warping functions)
- some buttons (with tooltips)
- a menu-bar with functions and instant help if mouse pointer is hovered over a menu-bar-item (function's help is displayed in the lower help figure)

## Users

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ANTX was created and is used in the Department of Experimental Neurology at the Charité - University Medicine Berlin, Germany since 2015.

If you use it and find it useful please give us a note.

## Included software

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ANTX uses the packages [SPM](#), [elastix](#), [mricron](#), [PCNN3D](#), [nii](#), [cbrewer](#), [screen capture](#), [windowapi](#) and the [Allen mouse brain atlas](#), which are included in this repository. Please respect the licenses and copyright of these software packages.

Scripts in the freiburgLight directory using SPM functions underly the GNU General Public License version 2 or (at your opinion) any later version. All other scripts in the FreiburgLight directory are owned by the Department of Radiology, Medical Physics, University Medical Center Freiburg and are free for academic and non-commercial use. Redistribution without consent of Department of Radiology, Medical Physics, University Medical Center Freiburg (contact persons [Marco Reisert](#) and [Dominik von Elverfeldt](#)) is not permitted.

ANTX also includes the pvmatlab package of Bruker BioSpin GmbH, which is intended for Bruker users only. Please respect the legal issues in the manual within the pvtools\_bruker directory and request permission to use the package by Bruker's preclinical MRI [software customer support](#) before using ANTX. Otherwise please delete the directory pvtools\_bruker.

## Citation policy

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When using ANTX in publications you are obliged to cite the following primary publications:

*Koch et al. "Atlas registration for edema-corrected MRI lesion volume in mouse stroke models ", JCBFM, 2017*

*Hübner et al. "The connectomics of brain demyelination: Functional and structural patterns in the cuprizone mouse model", Neurolmage, 2017, Volume 146, Pages 1-18*

*Lein et al. " Genome-wide atlas of gene expression in the adult mouse brain", Nature, 2006, Volume 445, pages 168-176*

## License

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