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neuroinspire™ surgical planning software – key features

About *neuroinspire* software

The *neuroinspire* surgical planning software allows planning of targets and trajectories for stereotactic neurosurgery. *neuroinspire* can be provided on a laptop or desktop computer, enabling planning to be carried out from the office, home, while on the move, or in collaboration with colleagues. *neuroinspire* software can integrate with the *neuromate*® stereotactic robot for consistent, rapid and precise targeting during stereotactic procedures. Alternatively, *neuroinspire* can be used as a stand-alone planning tool in conjunction with conventional arc systems.

Key features

- Load DICOM (classic and Enhanced) and IMA formatted CT and MR series including angiographs to help to locate and avoid key blood vessels during your surgical planning.

- Automatically fuse both CT and MR images to benefit from the lower distortion of CT with the higher contrast of MR.

- Default windowing setting for viewing bone in CT series.

- Place targets and trajectories together with a safety zone to determine whether a trajectory passes too close to key anatomy.

- Assign a virtual standard electrode to a trajectory and align

a particular contact to the trajectory's target point.

- Visualise your planned trajectory, rotate for an all around view and redefine entry and target points.

- Reconstruct images into the AC-PC plane and turn any planning view from a set of 2D slices into a 3D volume.

- Automatic detection of Elekta Leksell Stereotactic System® MR and CT indicator markers and Radionics® CRW™ BRW and Luminant localiser markers.

- Choose the stereotactic arc configuration that best suits the surgical plan and determine whether a trajectory is suitable for the current arc configuration.

- Use of livewire segmentation allows quick and intuitive delineation of anatomical features.

- 3D meshing of user-defined complex/concave regions of interest.

- Auto-recovery of plans to minimise data loss in the event of a power failure.

- Full training and support are provided to ensure seamless integration of the software into your clinical workflows.

- *neuroinspire* surgical planning software is a CE marked and FDA cleared medical device and may only be used in countries where the product is approved for sale.

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Planning workflow

Planning

neuroinspire can automatically find and fit the Elekta Leksell and Radionics CRW stereotactic coordinate systems. Whether fitting the frame to the patient prior to planning, or post-planning prior to surgery, neuroinspire is flexible enough to support both workflows.

Co-registration

Co-registration of patient imagery facilitates downstream multi-modality planning. *neuroinspire* provides four methods of co-registration, ranging from automatic to manual. The resulting co-registration can be visually verified using a checkerboard pattern, or by varying the opacity between the images.

AC-PC

Optionally, the AC-PC coordinate system can be defined in order to facilitate functional planning.

Trajectory planning

Trajectories are defined through the use of a target and entry point. Optionally, a virtual representation of the implantable device or tool can be added to each trajectory so that targeting can be conducted knowing the size of the instrumentation. When using a DBS electrode, this has the advantage of targeting to specific contact positions.

The path that the trajectory takes through the brain can be checked using reconstructed surgeon-eye and trajectory views. A safety corridor can be set around each trajectory so that it can be determined if the trajectory passes too close to key anatomy.

Reporting

neuroinspire can produce an electronic summary of the surgical plan in Adobe® Acrobat® PDF format. This summary lists all of the planned trajectories including their angles and target positions in stereotactic space, patient data and implantable device types.

Trajectory verification

Peri or post operative imagery can be loaded into *neuroinspire* and co-registered against the pre-operative plan in order to verify the delivered position of each trajectory against its planned position.

Additional modules

- **Region of interest based automatic registration** - Limit the automatic series registration method to using a definable region of interest of the series.

- **PACS Connectivity** - Query and retrieve patient data directly from the hospital network.

- **Cerefy® Electronic Clinical Brain Atlas -** Display target points on the 2D Cerefy Electronic Clinical Brain Atlas, derived from Schaltenbrand G, Wahren W. Atlas for Stereotaxy of the Human Brain.

- *neurolocate* **frameless patient registration** – For use in conjunction with the *neuromate* stereotactic robot. There are two variants of the *neurolocate* module; *neurolocate* 2D (registration with X-ray images) and *neurolocate* 3D (registration with CT images).

- **Ultrasound patient registration** - An alternative frameless patient registration method for use with the *neuromate* robot.

- **Neuroendoscopy** – Allows you to plan a neuroendoscopic procedure for delivery using the *neuromate* stereotactic robot.

For worldwide contact details, visit www.renishaw.com/contact