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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.

## 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

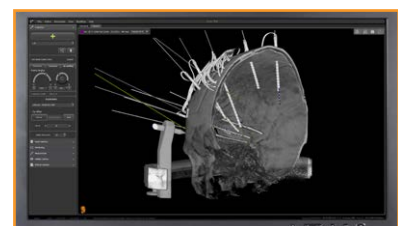
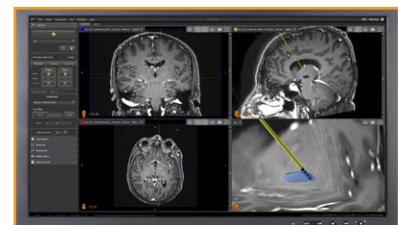
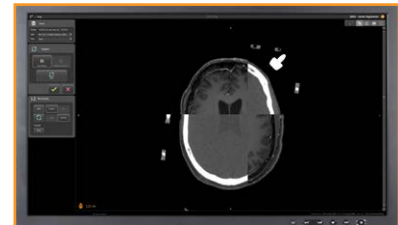
*neuroinspire* can produce an electronic summary of the surgical plan in Adobe® Acrobat® PDF format. This summary lists all of the planned trajectories including their angles and target positions in stereotactic space, patient data and implantable device types.

### 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.



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