EpiNav

Epilepsy Navigation

Computer-assisted trajectory planning for keyhole neurosurgery

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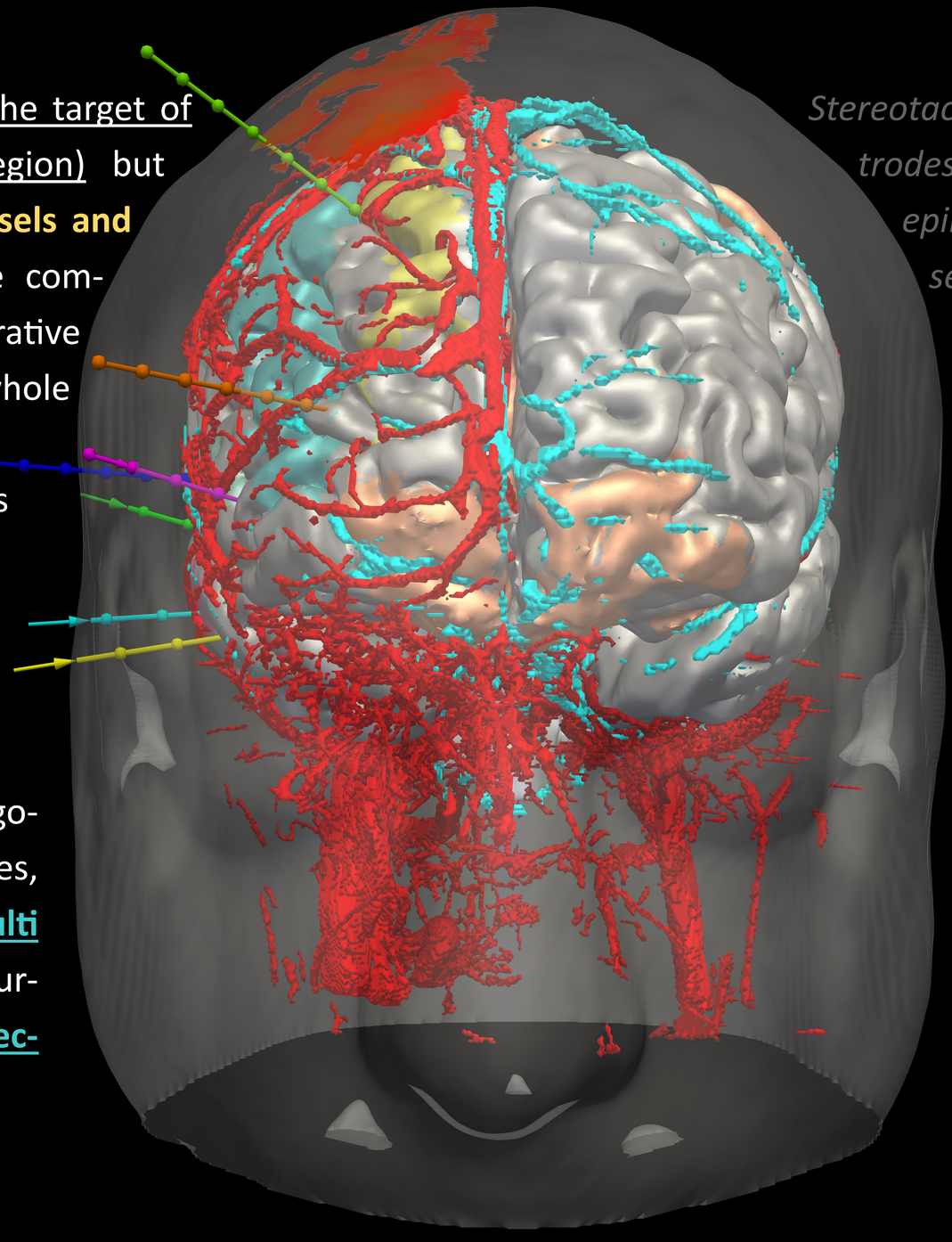
Keyhole brain surgery must reach the target of interest (tumour, epileptogenic region) but **avoid critical structures (blood vessels and eloquent cortex).** Current practice comprises manual inspection of pre-operative images and manual planning of keyhole tool **(depth electrode, biopsy needle, ablation laser)** trajectories which could take ~1 hour/trajectory.

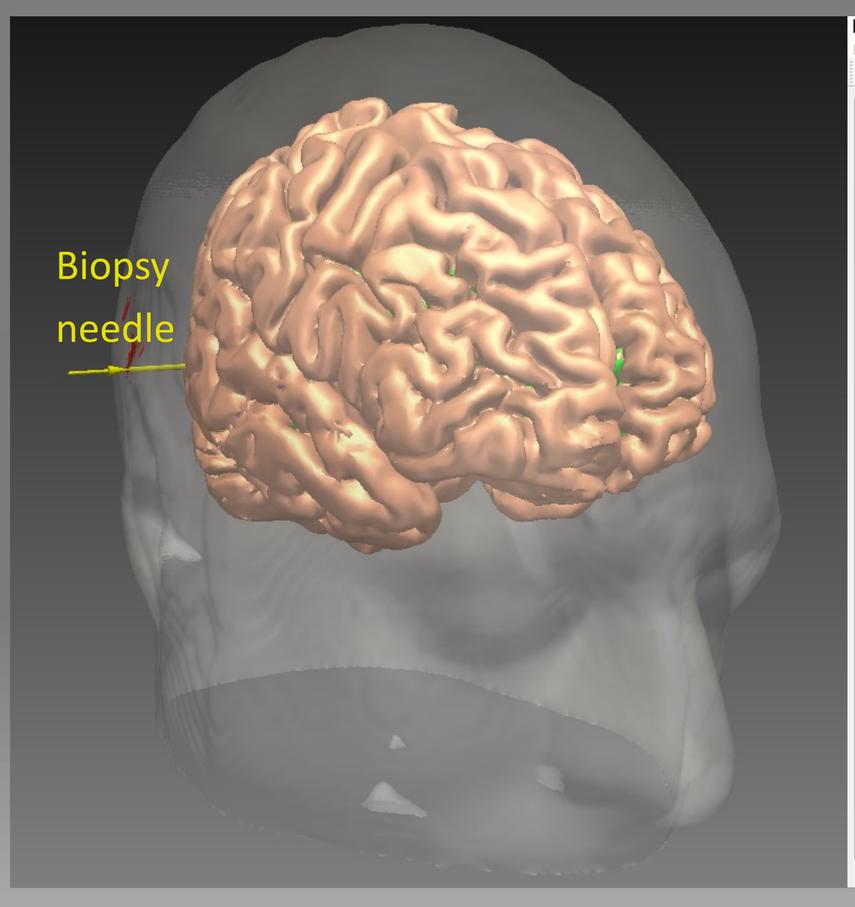


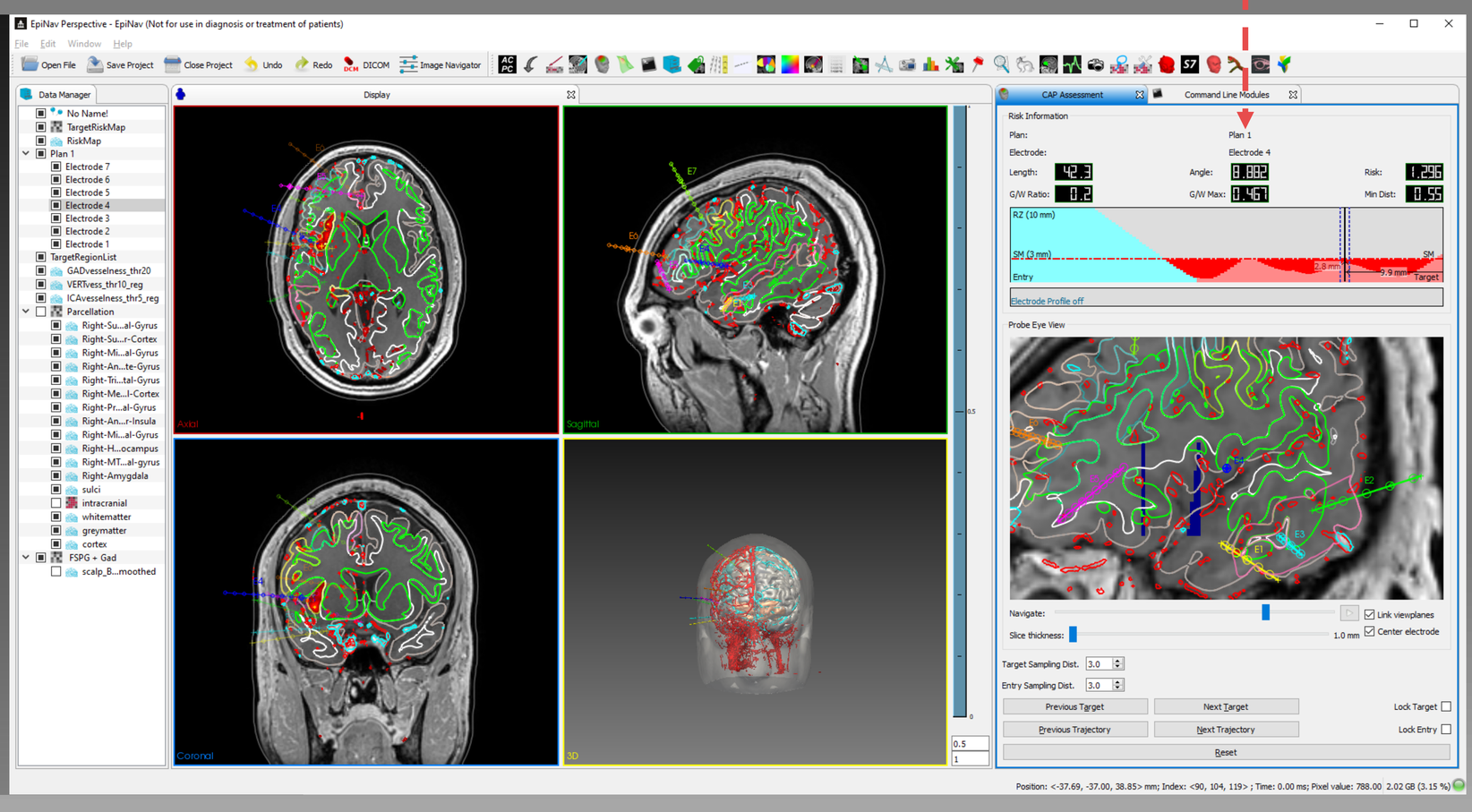
Stereotactic electroencephalography recording electrodes are placed to determine site of onset of epileptic seizures, to plan curative surgical resection.

Using trajectory optimisation algorithms along with MR and CT images, EpiNav offers an **automated** and **multi-modal** approach to keyhole neurosurgery with a **planning time of just seconds/trajectory.**

EpiNav calculates angle crossing through skull, distance from target, depth of keyhole tool, distance from critical structures, risk and many other metrics **not offered by commercial systems.**

This gives clinicians increased confidence during planning and surgery and can improve overall surgical outcome.





References:

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4) Marcus et al., 2020, Computer-assisted versus manual planning for stereotactic brain biopsy: a retrospective comparative pilot study, Operative Neurosurgery, 18