

ABSTRACT

Brain tumor resection guided by ultrasound Initial experience at the Neuro

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A new prototype neuronavigation system has been developed in Dr Louis Collins' research laboratory over the past decade. Called Interactive Brain Imaging System (IBIS) the system allows planning and navigation on preoperative medical image data (MRI, CT, fMRI, PET, etc.) as well as navigation with intraoperative 2D and 3D ultrasound. One unique feature of the system is its ability, when needed, to improve the ultrasound-MR alignment in order to allow a direct comparison between the two modalities. The comparison can be done by viewing the data side-by-side or blended together.

The current prototype has been tested in 14 adult brain tumor cases. Using this clinical data, its precision and accuracy have been evaluated and will be briefly discussed. A few brain tumor case examples that illustrate the specific advantages of using intraoperative ultrasound will be presented.