Technology Transfer Opportunity

FastTRACT: Tractography for Clinicians

OPPORTUNITY:

Diffusion Tensor Imaging can provide a unique insight into the neuronal architecture of the human brain in-vivo. A significant barrier to the clinical utilisation of tractography is that fibre pathways generated differ from true anatomical connectivity.

FastTRACT is standalone software tool specifically developed in collaboration with consultant radiologists, neurologists and neurosurgeons to address the variability of results and reliability of the reconstructed fibre representations.

Description of Technology:

FastTRACT generates reliable and reproducible representations of tracts in a clinically feasible time-frame. Advanced image processing algorithms provide:

- Ability to deal with ambiguous image data: kissing, crossing and branching fibre tracts.
- Tolerance to noise in images, which can otherwise lead to erroneous reconstructed pathways.
- Connectivity metrics that quantify the likelihood that a path corresponds to a true connection.
- Real-time tract generation post image reconstruction.

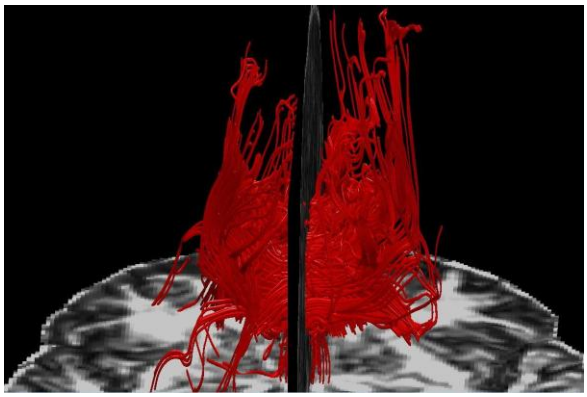
FastTRACT has an intuitive user interface that:

- Requires minimal interaction for the novice user
- Allows an operator to display tracts associated with multiple user defined ROIs in logical combinations.
- Provides automatic 3D anatomical segmentation.

For expert users demanding a higher level of functionality, FastTRACT provides:

- Guided querying of tracts through filtering, streamlining and staining to correctly interpret defined pathways.
- Interactively colour-coded calculated pathways using FA or ADC to quantitatively assess the reliability of projected tracts

FastTRACT can load DICOM and manufacturer dependant DTI data file formats.



DTI neural pathway data superimposed on MRI data.

Value Proposition:

For clinicians wishing to enable the delivery of efficient and accurate planning of neurosurgical procedures, radiological therapy and implantation targeting, FastTRACT combines speed, reconstruction fidelity with an easy to use software platform for Diffusion Tensor Image data.

Market:

MRI Imaging hardware manufactures.
Standalone visualisation tool developers.
Neurosurgical teams.

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Development Team:

Dr. Kathleen Curran, Eoin Murphy, Stephen Meredith and Niall Colgan.

School of Medicine & Medical Science.

Status:

FastTRACT has gone through a Proof of Concept phase of development is currently undergoing early user trials and clinical validation.

Opportunity Sought:

Licensing or development partner opportunity available.

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