4D Orthogonal Display Tool for MRI

- Fast and objective comparisons of sequentially acquired volumes
- Artifacts produced by local motion of the breast are easily detected and distinguished from true lesions
- Easy to interpret and data can be saved with patient record
- Reduced sampling time

Background

Image analysis in dynamic breast MRI requires a patient to remain totally stationary for a period of up to 30 minutes. Patient movement can hinder detection of a lesion or produce artefacts that can mislead the observer resulting in the wrong identification of a tumour. It is important therefore to be able to assess the quality of alignment in consecutively acquired volumes around the region of interest.

Development

Scientists at ICR have developed a method for rapid assessment of patient motion between scans in breast dynamic MR imaging. Using a temporal domain linogram image (auxiliary 2D images), the method enables fast and objective comparison of sequentially acquired volumes, providing a radiological tool to validate findings. The temporal domain linogram is easy to interpret and it can be saved with the patient data for reporting. The method has been evaluated by applying it to dynamic contrast enhanced MRI measurements within the context of multi-center breast screening study in the UK.

Inventors

Dr Michael Khazen is the principal scientist leading the work at ICR with Professor Martin Leach. Professor Leach is a director of imaging research and cancer diagnosis at the Cancer Research UK Clinical Magnetic Resonance Research Group, ICR and Royal Marsden NHS Foundation Trust.

Key Publications

M. Khazen & M. O. Leach,
"Rapid assessment of motion in dynamic breast MRI using a temporal domain linogram method and an interactive display tool," Not yet published.

The UK MRI Breast Screening Study Advisory Group, "MRI screening in women at genetic risk of breast cancer: imaging and analysis protocol for the UK multi-centre study,"
Mag. Res. Imaging (2000) 18, 765-776

Intellectual Property

ICR has filed a patent application relating to the method and apparatus for image processing which is currently at the PCT stage. In addition The Institute has a considerable body of expertise and know-how
surrounding MRI, which will enable applications of this technology to be progressed rapidly and effectively.

Commercial Opportunity

ICR is currently seeking a partner for licensing and collaboration to undertake further development of commercial products based on this technology through to market. The partner would receive exclusive commercialisation rights to the technology.

ICR The Institute of Cancer Research

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