The research commercialisation office of the University of Oxford, previously called **Isis Innovation**, has been renamed **Oxford University Innovation**

All documents and other materials will be updated accordingly. In the meantime the remaining content of this Isis Innovation document is still valid.

URLs beginning www.isis-innovation.com/... are automatically redirected to our new domain, www.innovation.ox.ac.uk/...

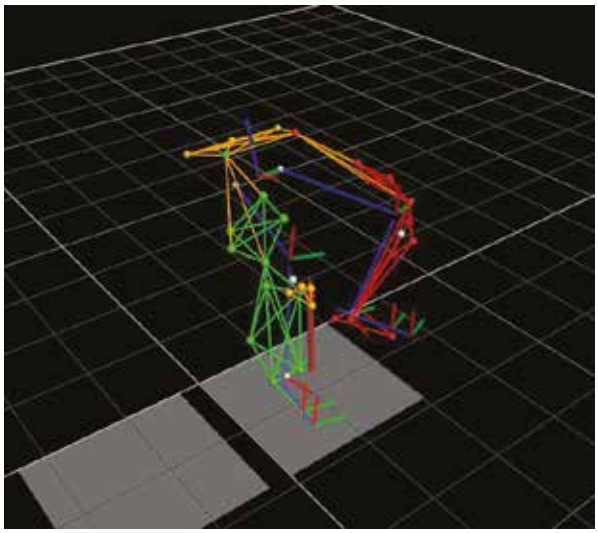
Phone numbers and email addresses for individual members of staff are unchanged

Email : enquiries@innovation.ox.ac.uk

Joint Tracker – Real-time *in vivo* measurements of joint movements

A revolutionary, non-invasive, radiation-free device for measuring kinematics in patients with musculoskeletal conditions.

At £5 billion, musculoskeletal conditions account for the fourth largest NHS budget. It is estimated that 30.6 million working days are lost on an annual basis due to sickness absence caused by a musculoskeletal conditions. The current gold standards of musculoskeletal imaging are MRI and CT, with images traditionally acquired in the rested, supine position. This is clearly far from adequate for assessing patients' functional performance and response to loading. The industry is looking to ultrasound to provide radiation-free, non-invasive solutions.

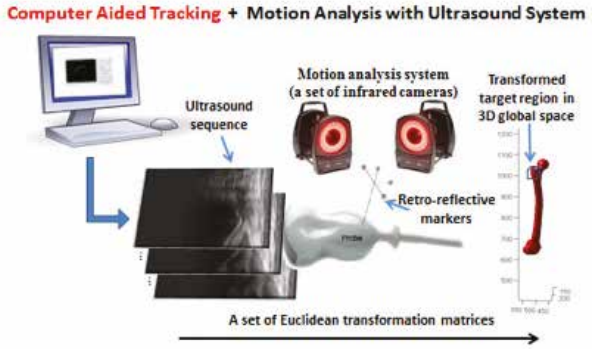


Our patented joint tracker is an innovative technology that allows acquisition of images during dynamic movement with patients undergoing analysis whilst performing activities of daily living, in the upright position by combining ultrasound with motion analysis.

This device will be used to investigate pain associated with joint movements. To date using contemporary imaging techniques (radiographs/fluoroscopy, CT, MRI) there is no described method for directly imaging functional joint movements during activities of daily living (stair climbing, walking etc). Furthermore, ultrasound has the great advantage over other imaging modalities in that it doesn't involve ionising radiation and imaging studies can be acquired on a portable device.

New insights into knee joint mechanics and dynamics in healthy knees have already been made using this device. Baseline data from normal subjects and from patients with developing joint disease have been assessed, and hence new understanding of the mechanical causes underlying osteoarthritis initiation and progression are obtained.

Finally the technology developed will provide a platform for assessing kinematics of the musculoskeletal system during normal movement and will benefit musculoskeletal researchers in neighbouring groups.



Current projects include measuring knee, hip and shoulder joint movements. Potential future applications include understanding the movement of the foot, and also in the use of ultrasound for characterising hand movement in rheumatoid arthritis.

Mr Paul Monk
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