

## Proposal for PhD studentship

Improving specialist surgical techniques: Digital Video analysis and processing for local position tracking of a Medical Device

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Medical Device technology is a major opportunity area for skills of computing and image processing, and this project is working closely with Medical staff and Hospital based scientists to develop technology to improve specialist medical procedures. It is valuable to know the position of a Medical Device, relative to the patient's surface anatomy, for both diagnosis and therapy. For example, hand held detectors are being increasingly used by surgeons to find radionuclides, magnetic particles or fluorescent chemicals in the body. The effectiveness of such interventions will be improved if the local position of the device is known, and this position information may then be combined with the information from the device to improve diagnosis and treatment. Traditional tracking methods use complex and expensive electromagnetic or optical techniques, which have limitations in practical use. This project is to develop image processing and analysis techniques to track a device from video camera images. The project offers challenging and interesting real-world problems, with a definite outcome that has the potential to improve patient's diagnosis and treatment.