Medical and Healthcare Robotics Group

Background

Medical robotics is an application area within the Australian Centre for Robotic Vision (ACRV).

"There is a huge need for improved productivity in the health sector. Hospital operations require significant amounts of transport of patients, drugs, meals, linen, samples and so on. Already there are some applications of robotics to transport within hospitals, e.g., Aetheon’s Tugs, which take hospital trolleys where they are needed, rather than relying on porters. Another area where robots can improve productivity is in assisting surgeons. The demand for Minimally Invasive Surgery such as arthroscopy is increasing around the World, restricted by the supply of specialised surgeons. Presently surgeons use their own vision to manipulate surgical robots to perform certain procedures. This requires the surgeon to perform like a "one-man-band" where they use both hands and feet to operate the robot. We are seeking to develop a robotic tool to take care of manipulation tasks while the surgeon takes care of the decision-making. In particular, the research will develop robotic vision systems that are capable of mapping joints in real-time via arthroscopically sourced video streams. The research will also explore control schemes that allow robots to hold and manipulate both the arthroscope and the surgical tools using robotic vision in the control feedback loop (visual servoing)." - ACRV Annual Report 2014, page 37

Group presentation

Our vision

A world in which robotics technology enables affordable medicine for all

Our mission

To develop robotic vision techniques and associated technologies to assist medical practitioners in driving down the cost of medicine

Team

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