

Intelligent robots for better surgeries

PhD opportunities

Robotics has started and will continue revolutionising surgeries, improving patient outcomes like smaller incisions, fewer infections, and quicker recovery time. Surgical robots have been one of the most successful inventions that have been used in clinical practice. However, most current surgical robots still lack sensing capabilities and autonomy, limiting the operability of the systems. Here at UNSW, we are developing smarter robots for the next generation of robotic surgery.

Projects:

1. Autonomous sensing and compliant control of surgical robots for safer operation

This project investigates how we can monitor and estimate the interaction between a surgical robot and its surrounding environment when operating in a confined space and how a compliant control can be designed and implemented to enable safer operation.

2. Ultrasound-guided robotic system for spinal injection

This project aims to develop a robotic system using ultrasound guidance for spinal injection, to replace the X-ray guidance that is currently used but exposes both patients and surgeons to radiation hazards.

There might be other topics available (medical and industrial). Feel free to reach out to have a further discussion.

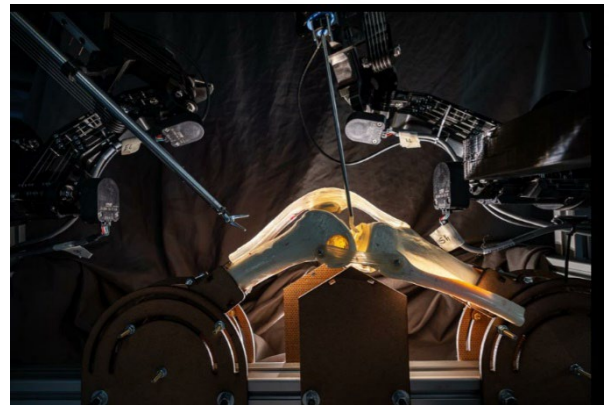
Ideal candidate:

Potential applicants will have a relevant background in mechatronics engineering and/or computer science. Applicants with good hands-on skills and a passion for robotics would be highly desirable. The student will work in a supportive team, have access to the most advanced equipment in the field, and collaborate closely with clinical experts. The student will also be supported for domestic and international travels to attend top robotics conferences.

Contact for further information:

Welcome to contact Dr Leo Wu via liao.wu@unsw.edu.au for a further chat.

Also, welcome to check Leo's webpage: <https://sites.google.com/site/wuliaothu/>



SnakeRaven – A macro-micro dexterous robot for knee arthroscopy
[T-RO 2022]