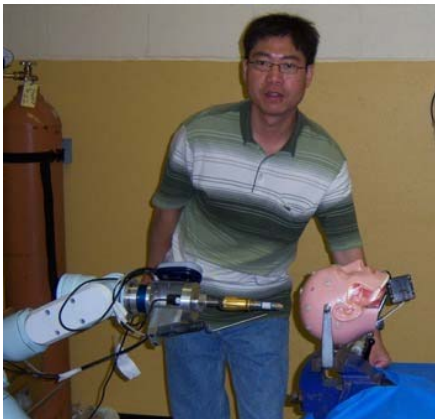


PROJECT FACT SHEET

New Robotic Arm Capable of Performing Neurosurgery

Investigator: Weimin Shen
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Head trauma and some chronic conditions can require drilling into a patient's skull to relieve pressure. The risky surgery is further complicated if patients have to travel longer distances that might aggravate their condition.

Weimin Shen, a graduate student at Dalhousie University, has created a new way of performing this surgery remotely, making it possible for surgeons, patients and important imaging technologies to come together over greater distances. In partnership with Ivar Mendez and Ron Hill in the Brain Repair Center, Mr. Shen has developed an image-guided tele-robotic system for neurosurgery.

"In the future," he says, "surgeons may be able to use machines like this to help perform even delicate surgeries at a distance."

The system has three parts: a "planner," guided by images of the skull; a robotic arm, which performs the surgery; and an optical tracking system, which takes position and orientation measurements to keep the arm on course. Surgeons will determine the robotic arm's course from a series of potential surgical trajectories generated by the planner.

The planner uses Image Guided Surgery information (collected from CT or MRI diagnostic images). "Because these images can be transmitted through telecommunications technology," says Mr. Shen, "effective surgeries can be planned even when resources are far apart."

"The system," he adds, "can enhance delivery of care; save time and money transporting patients to facilities; allow patients to remain close to their family; and enable surgeons to perform surgery more precisely and from greater distances."

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