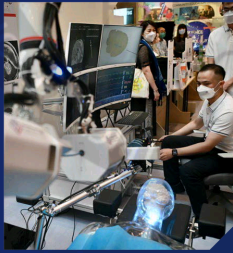


- Industrial robots / Surgeons

DID YOU KNOW? The average thickness of a male's skull is 6.5 millimetres, while it's 7.1 millimetres in females

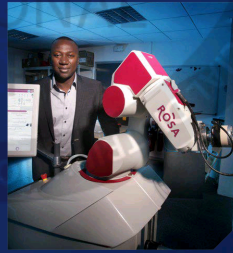
ROBOT SURGEONS

The technology helping to make the world's most complex surgeries a little simpler



AI ASSISTANTS

In the not-so-distant future, surgeons in Hong Kong could have an artificially intelligent helper in the operating theatre. At the Centre for Artificial Intelligence and Robotics (CAIR) in China, researchers have successfully tested a robot called MicroNeuro that uses AI to deliver ultra-accurate control for precise brain surgeries on cadavers. The tests demonstrated that MicroNeuro could complete surgical tasks while reducing brain tissue damage by at least 50 per cent.



ROBOTIC SURGICAL ARM

Lending a surgical hand, the Robotic Surgical Assistant (ROSA) is a robotic arm that surgeons can work with to precisely move through the brain. Almost like a GPS for the brain, ROSA can help navigate through the complex composition of the brain and provide feedback in real time on the precise position, depth and angle of surgical instruments. ROSA can be used for many different types of neurosurgery, such as DBS and laser treatment.



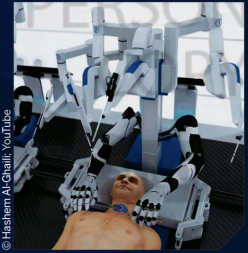
OPERATING REMOTELY

Massachusetts Institute of Technology engineers have developed a telerobotic system that allows surgeons in one hospital to treat stroke or aneurysm patients in another, tackling emergencies in a crucial window of opportunity when surgical invention is most critical. The system lets surgeons perform life-saving endovascular surgery using a modified joystick in one hospital and a robotic arm in the other. The joystick controls a magnet at the end of the robotic arm to guide a soft magnetic wire through the arteries and vessels in the brain to tackle blood clots.



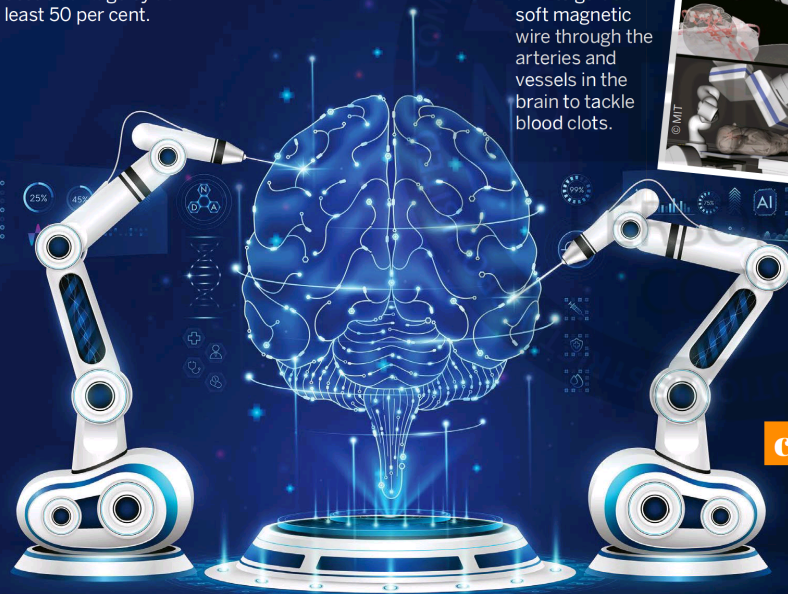
THE RENAISSANCE ROBOT

Named after one of the most influential minds of the Renaissance, the da Vinci Surgical System is a technological work of art. Boasting four surgical arms, all of which are guided by an endoscope camera, the da Vinci robot allows surgeons to operate from an adjacent booth. The da Vinci robot translates the movements of a surgeon's fingers in real time, while they're sitting in a booth with a camera feed and their hands slotted into the controls. The 'EndoWrists' at the end of each arm have seven degrees of freedom – much more than the human wrist – which gives surgeons more flexibility and precision.



THE NOT-SO-REVOLUTIONARY ROBOT

In May 2024, social media was awash with audiences wondering if the 'world's first head transplant system' could be real. In a video released by Yemeni science communicator Hashem Al-Ghaili, 'BrainBridge' is a concept system that integrates advanced robotics and artificial intelligence to execute complete head and face transplantation procedures. The video shows two bodies 'undergoing treatment', with an army of robotic arms wielding needles and scalpels to remove one head and reattach it to another body. Despite its glaring biological and technological issues, the project gained millions of views online, leaving many stunned by the futuristic science. However, researchers confirmed that BrainBridge "is not a real company – it's not incorporated anywhere".



"Surgeons in one hospital can treat stroke or aneurysm patients in another"