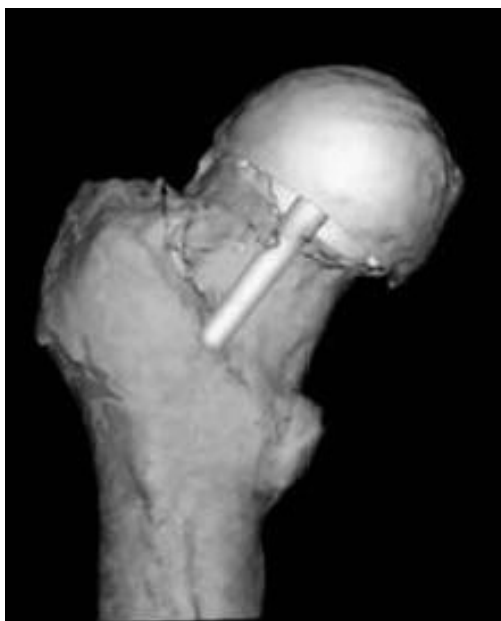


In the Spotlight

■ ACROBOT NAVIGATION shortens patient's suffering

Scientist from Imperial College (London) created medical system that could help end painful repeat hip operations and is making medical undergraduates three times more accurate during practices precision requiring arthroplasty procedures than by using conventional surgical methods. An arthroplasty is a technically demanding method for correcting painful hipbone deformities by coating the femoral head with a cast of chrome alloy. Head of the Bio surgery and Surgical Technology Group at Imperial College London, Professor Justin Cobb conducted the trial of the Acrobot Navigation robot on 32 undergraduate students for over a year. The robot helps the surgeon to navigate during operating: calculates the correct angles for inserting chrome alloy parts needed to repair hip bones and plots correct surgical incisions. It reminds the GPS tracking system.

Clinical trials using the Acrobot are currently being carried out at The Duchy Capió Hospital, Truro; The Bath Clinic; Saint Cross Hospital, Rugby; University Hospital, Coventry; King Edward the 7th Hospital, The London Clinic and Charing Cross Hospital, London. In the UK even up to 5,000 hips resurfacing operations happen each year. Very often repeated operations are needed.

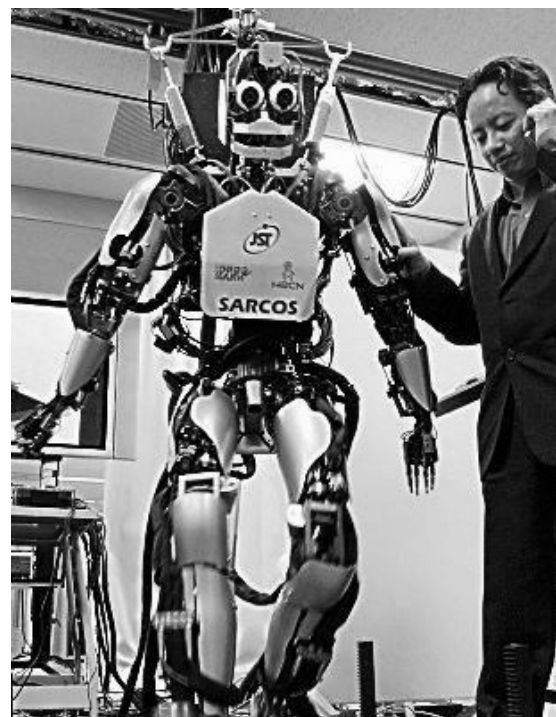


Source: http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_6-2-2008-11-22-14

■ Moves and thinks like a monkey

Japan and American scientists have created the robot that not only walks like a monkey but also is controlled by monkey's brain across the ocean. For the first time in the world at the same time monkey at Duke University in North Carolina, USA, and the humanoid robot in the western Kyoto, Japan, were walking on the treadmill at the same time. The 155-cm-tall and 85-kg-weigh robot with friendly, monkey-like face, grinning like the Cheshire cat, designed by Japan Science and Technology Agency and Carnegie Mellon University in Pittsburgh is called CBi for Computational Brain interface. Robotics company from Salt Lake City, Sarcos, developed the hardware side of the robot. CBi was walking through signals coming into its legs through wires. The activity of the brain's neurons was recorded from their cortex and converted into data that was transmitted via the Internet, scientist said. A live video signal of the robot was relayed back to the animal providing feedback.

The experiment was part of efforts to develop prosthetic limbs that can be mentally controlled by people with disabilities, especially for paralysed patients.



A video of the experiment and interview with Dr. Miguel Nicolelis (Duke University) is available: <http://www.youtube.com/watch?v=L8oAz4WS400>

■ First environmentally powered AVS

The first AVS working for green energy has been travelling crisscrossing the 4,000-meter-deep Virgin Islands Basin between St. Thomas and St Croix more than 20 times since December 2007. Reminding a miniature yellow submarine robot was constructed by researchers and engineers from the Wood's Hole Oceanographic Institute and Webb Research Corporation (Falmouth, Mass.,

USA). The most sensation thing is power supplying - the robot acquires heat energy from the ocean. It can traverse not only long distances but also stay under the sea surface for long periods, up to six months. Water "glider" has wings that generate lift. It is steered horizontally by a vertical tail fin and rudder. The robot's mechanism uses the differences in temperature of seawater between warm (surface) and cold (depth), changing its buoyancy. Heat warms wax-filled tubes inside the engine. Heated wax is expanding, and this heat power is being converting into mechanical energy that is used to push oil from a bladder inside the hull to one outside. At deep water the wax is being cooled that completes all cycle.



Scientists plan to test the glider with a trip from St. Thomas to Bermuda later this spring. Doug Webb, a former WHOI research specialist who founded the Webb Research Corporation, conceived the thermal glider concept in the 1980s. Now WBC wants to reduce the electrical needs of the instruments.

Source: <http://www.whoi.edu>; <http://www.webresearch.com/slocum.htm>

■ IBIS ROBOT

A robot for combat and EOD/IEDD applications. In basic version it weights 290 kg and can works without power supply up to 8 hours. Maximum speed is 8.5 km/h. IBIS is fitted for work with weapon uses by the army and the police. The manipulator protected from damage by three independent systems, including a dynamic analysis of allowed movement range. Rotation range of the manipulator base is 400°. Unique suspension construction guarantees that all six wheels are in continuous contact with the base and optimal power distribution. IBIS is controlled via optic cable or remote control. The operator can display views from many cameras on the control panel (QUAD or PIP modes). On LCD monitor data from sensors in digital and graphic formats are displayed. A negotiation system is integrated with the control panel.

IBIS is fitted for work with the army and the police weapon.



Source: <http://www.antyterrorism.com>