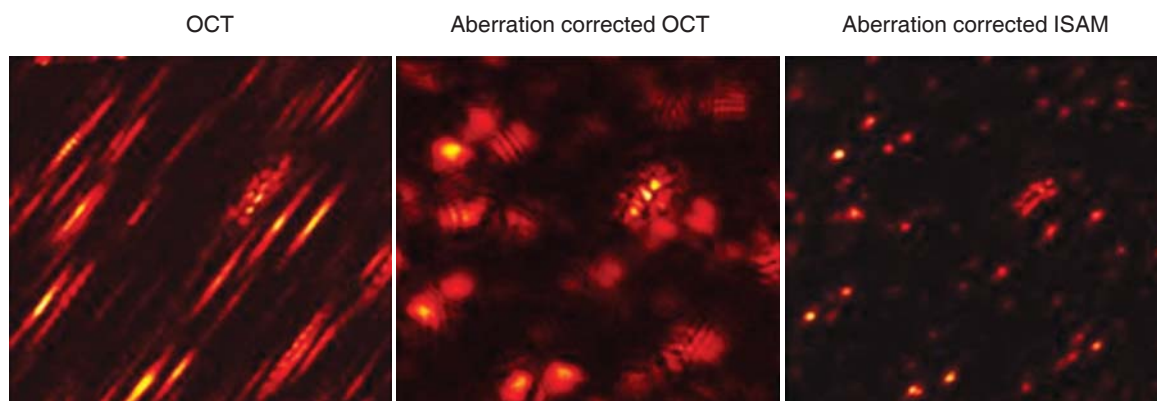


New Products and Processes

Section Editor: **Dr Ramandeep S Virk**

COMPUTING THE BEST HIGH-RESOLUTION 3D TISSUE IMAGES

Real-time, 3D microscopic tissue imaging could be a revolution for medical fields, such as cancer diagnosis, minimally invasive surgery and ophthalmology. University of Illinois researchers have developed a technique to computationally correct for aberrations in optical tomography, bringing the future of medical imaging into focus.



Aberrations in imaging can make points appear as slashes or blurs. Click on image to see image corrected by computational adaptive optics developed by U of I researchers (Credit: Graphic by Steven Adie).

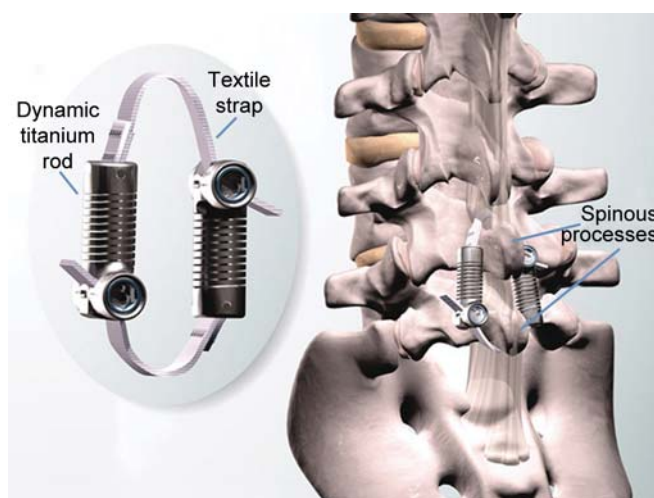
The computational technique could provide faster, less expensive and higher resolution tissue imaging to a broader population of users. The group describes its technique this week in the online early edition of the Proceedings of the National Academy of Sciences. A complex system of mirrors smooth out the scattered light before it enters the lens. Medical scientists have begun applying adaptive optics hardware to microscopes, hoping to improve cell and tissue imaging. Therefore, instead of using hardware to correct a light profile before it enters the lens, the Illinois team uses computer software to find and correct aberrations after the image is taken.

For more details read: <http://www.sciencedaily.com/>

SIMPIRICA'S LIMIFLEX SPINAL STABILIZATION SYSTEM

Conceived of by a team of engineers at Stanford's Biodesign Innovation Program, Simpirica's LimiFlex device addresses spine stabilization from an entirely different direction than more common interspinous spacers. Rather than guarding against extension—the backward bending of the spine—LimiFlex's strap system limits the spine's ability to bend too far forward.

For more details read: <http://www.medicaldevicestoday.com/2012/04/can-simpirica-simplify-spine-stabilization.html#more>



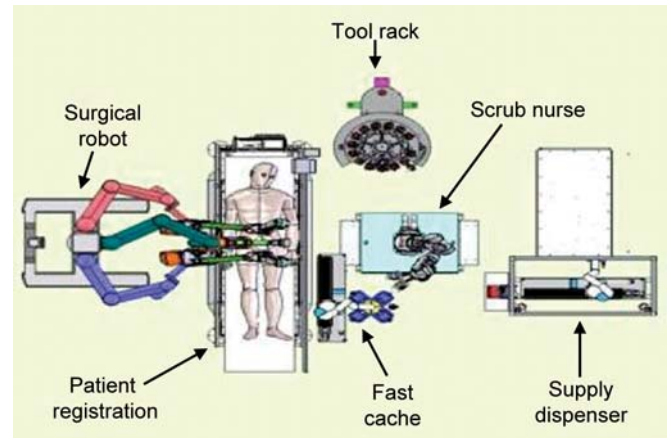
3WIN NV COCHLEAR IMPLANT

Technology originally developed for one of the most sophisticated and advanced active implantable medical devices—cochlear implants—has been key to the development of 3WIN NV's deep brain stimulation (DBS) device. This neurostimulator synapse is designed to reduce collateral stimulation through the precise delivery of an electrical charge; as well as record the neural response to better target therapy for movement disorders. Currently, the main indication for DBS is in movement disorders, such as Parkinson's disease, dystonia and tremor.

TRAUMA POD

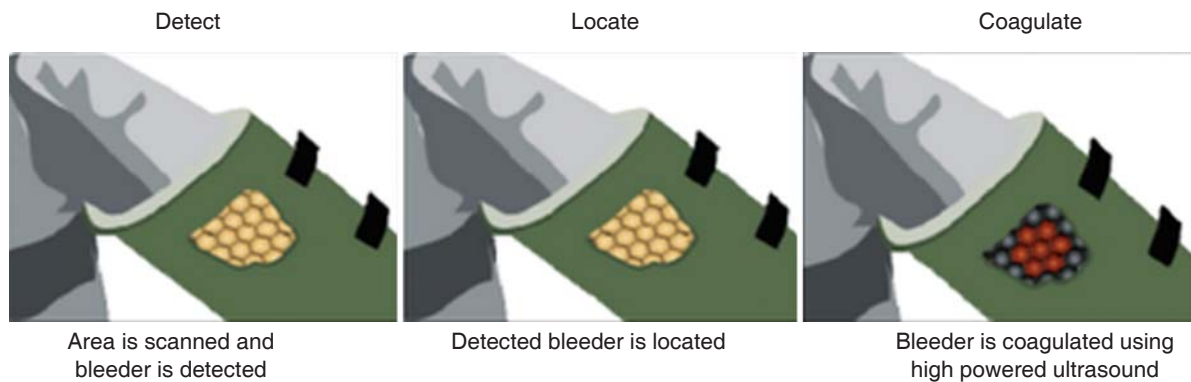
It is a self-contained suite of robots that would allow for remote emergency surgery. The robots in the Trauma Pod will try to keep the patient's airway clear, stop any life-threatening bleeding, and take CT scans for diagnosis, using a combination of autonomous operation, surgical tools and remote guidance from a human surgeon.

For more details read: <http://www.popularmechanics.com/science/health/4220228>



DEEP BLEEDER ACOUSTIC COAGULATION

This powered cuff will wrap around a patient's limb and use ultrasound to both diagnose and treat the injury. This is a very specific device, designed to autonomously find and seal so-called 'bleeders'. Low-intensity ultrasound scans for injured vessels by imaging the blood flow.



When it finds what appears to be a serious interruption, it hones in on that area, and creates a 3D model of the severed vessel. Then, things get spooky: The system hits the vessel with high-intensity focused ultrasound, triggering coagulation within 30 seconds. The deep bleeder acoustic coagulation (DBAC) device will do everything autonomously, from diagnostics to targeted hemostasis.

For more details read: <http://www.popularmechanics.com/science/health/4220228>

SIMPLIFIED AUTOMATED VENTILATOR

This slimmed-down, straightforward ventilator is smaller and lighter than a standard automated model, weighing just 3.1 pounds (compared to 13 to 14 pounds). It is operated with a single knob which turns the simplified automated ventilator (SAVE) on, and allows you to mute the low-battery alert, turn off the LED lights or shut both functions off (presumably for stealth operations). The device runs for 3.5 to 6 hours per charge or it can be plugged in.

For more details read: <http://www.popularmechanics.com/science/health/4220228>

