LabDays: Robotinity

Saturday, May 14 & Sunday, May 15, 2011 / 10 AM-6 PM / Ars Electronica Center Linz

(Linz, May 11, 2011) The Ars Electronica Center cordially invites you to its 4th LabDays this coming Saturday and Sunday, May 14 and 15. Experts on hand especially for this event will offer insights into the fascinating world of state-of-the-art robotics. Venues include the new RoboLab, Deep Space and the "What Machines Dream Of" exhibit. This promises to be a fun, entertaining way for kids and grown-ups alike to learn all kinds of interesting stuff about the robots that are already in use today and those that we'll be living and working alongside of in the very near future.

LabDays: Robotinty / The Program

Innovative Arm Prosthetics – Target Muscle Reinnervation

Saturday, May 14, 2011, 2 PM / Deep Space / Duration: 45 minutes

A conventional prosthetic arm allows three motions: open/close the hand, rotate the hand inward/outward, and bend/stretch the elbow. The movements can only be performed one-after-the-other. They have to be laboriously initiated and consciously carried out in what turns out to be quite a strength-sapping procedure that doesn't even result in precise, fluid movements. The Otto Bock Company's "prostheses of the future" offer major improvements: these intelligent devices can directly implement mental commands, and the joints can also be moved simultaneously. Dr. Christian Hofer of Otto Bock will explain exactly how they work in the Ars Electronica Center's Deep Space.

High-tech in Your Ear: Cochlear Implants

Saturday, May 14, 2011, 3 PM / Deep Space / Duration: 45 minutes

A cochlear implant—a quantum leap beyond a conventional hearing aid—consists of an audio processor worn behind the ear and an implant positioned just beneath the scalp. A processor converts sound waves into digital information and sends it wirelessly to the implant. From there, a highly flexible electrode leads all the way to the innermost recesses of the cochlea, the spiral-shaped part of the inner ear. The electrode stimulates the nerve structures of the cochlea at the precise point naturally meant for the particular sound's pitch, and the auditory nerve transmits these signals on to the brain. This makes hearing possible—by children who are born deaf as well as by adults who have lost their ability to hear. Dr. Thomas Keintzel is head of the Ear, Nose and Throat Department at the Wels-Grieskirchen Clinic and a leading cochlear implants specialist. At this LabDays session, he'll explain how we hear, the importance of hearing, and what it means to lose the ability to hear. Then, he'll show how modern cochlear implants can enhance the quality of life of people with hearing loss.

Robotic Surgery

Sunday, May 15, 2011, 3 PM / Deep Space / Duration: 45 minutes

The future of surgery is robot-assisted. And this future has already arrived at Linz's Sisters of Mercy Hospital. Since 2008, staff surgeons here have been using the da Vinci surgical robot to perform highly complex operations with utmost precision. The surgeon no longer stands at the operating table; he/she is positioned at a console and directs the procedure from there. The da Vinci features four robotic arms that are inserted into the patient's body through 1- to

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2-cm incisions. On the ends of the arms are two tiny cameras and fine surgical instruments that can be maneuvered three-dimensionally. In Deep Space at the Ars Electronica Center, Dr. Wolfgang Loidl of Sisters of Mercy Hospital Linz will demonstrate how he and his colleagues perform such operations.

LabDays Tour of "Robotinity" and "What Machines Dream Of"
Saturday, May 14 & Sunday, May 15, 11:30 AM / 4 PM (Start in the Lobby)

Nanorobots that patrol our blood vessels, telecommunications androids, a talking piano and a World Machine—this LabDays Tour is an exciting excursion through the world of robotics.

Steering Robots with Your Thoughts
Saturday, May 14 & Sunday, May 15, 2:30 & 4:30 PM / BrainLab

Hexapods (Greek: *Hexa*, six; *pod*, foot) are mobile machines with six legs. These robots are as swift and agile as spiders. There are different ways to control the hexapods. LabDays visitors in the Ars Electronica Center's RoboLab will be able to try out pretty far-out variant—an electroencephalograph (EEG) and a brain-computer interface transform the visitor's own brain waves into digital data, which can then be used to steer the hexapods.

Do-It-Yourself Prostheses!
Saturday, May 14 & Sunday, May 15, 10 AM-6 PM / RoboLab

In the Ars Electronica Center's RoboLab, tinkerers—both young and young-at-heart—can use LEGO NXT robot components to build their own prosthetic hands. And then comes the good part: myoelectric sensors let you hook the device up to your own muscles and physically control its operation.

Mini Beasts
Saturday, May 14 & Sunday, May 15, 10 AM-6 PM / RoboLab

Dutch artist and physicist Theo Jansen is famous for his "beach beasts"—several meters tall, the impressive constructions use wind-powered locomotion to stilt-walk, roll and shove themselves along the sand. In RoboLab, you can build miniature versions of these behemoths.

SWITCH
Saturday, May 14 & Sunday, May 15, 10 AM-6 PM / RoboLab

At first glance, "SWITCH" looks like an ordinary picture applied to slats (like a closed venetian blind). But a small sensor inside the picture frame registers every sound and movement nearby. When it's activated, the slats flip as if by magic and reveal a different picture. At the Ars Electronica Center's RoboLab, visitors can design their own interactive image.

LabDays at the AEC: http://new.aec.at/center/tag/lab-days/

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