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INSIDE TECHNOLOGY

Robots nearing key role in physical rehab

JON VAN

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Robots are a manufacturing mainstay, and they are great for exploring inhospitable places like Mars. But their role in health care is less celebrated.

So it was refreshing this week to see an international conference dedicated to robotic contributions to physical rehabilitation held at the Rehabilitation Institute of Chicago.

The event attracted more than 300 researchers, therapists and equipment developers from around the world. Among the attractions was a robot prototype developed by Evanston-based Kine Assist that helps people who have balance problems, such as stroke patients.

Using sensors and computer controls, the device holds onto a patient a bit like a human therapist might, but with a much lighter touch. Although it weighs 500 pounds, it is barely noticed by a patient wearing harnesses attached to the machine that follows as he walks.

"The robot allows the patient to push himself to the limit and then catches him before he falls," said Dave Brown, Kine Assist's founder. "A human therapist won't wait that long."

Brown, educated in physical therapy, started his company more than a year ago without a specific product in mind. He began by asking therapists what technology they use and what kind they'd like to use.

"Mostly they didn't like technology because it's too complex and expensive," Brown said. He got the idea for the walking-assistance robot because it enables the therapist to do more with patients without fear of injury from falls.

Rehab robotics is gaining ground because research has shown that patients benefit from the right kind of repetitive activity that can forge new neural connections in their brains, said James Patton, co-director of the RIC robotics lab.

Earlier studies placed spinal-cord-injury patients on treadmills where therapists moved their legs to simulate walking. These studies established that such exercise can help train some patients to regain walking skills, Patton said.

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It isn't feasible to have four or five therapists working with each patient who needs such exercise, but there now is a robotic device--Lokomat, made by Hocoma, a Swiss company--that enables one therapist to oversee such treatment.

RIC researchers use virtual reality to enable patients to practice such simple activities as reaching for a cup. The advantage of the technology, Patton said, is that it can be programmed to exaggerate mistakes made by the patients, and that in turn helps retrain their brain.

"We wake up the brain," Patton said. "The right kind of practice has beneficial effects on patients."

Change in focus: Companies that have banned camera-equipped mobile phones may want to turn their attention to digital music players.

"The digital player isn't just a cute music machine," said Marcus Rogers, an associate computer tech professor at Purdue University. "It's also a potential criminal tool."

Some music players can store up to 60 gigabytes of information and can be used by thieves who tap into company networks to steal customer information and intellectual property, Rogers said.

Companies may be wise to inform their technology staff about the potential threat and to adopt policies that control the use of "small-form-factor storage devices," including digital music players, he said.

If cybercrime occurs, investigators should include these tiny gadgets when they check out possible perpetrators, he said. "They'll say, 'Gee, there's no evidence on his workstation.' They're right. It's in his pocket!" Rogers said.

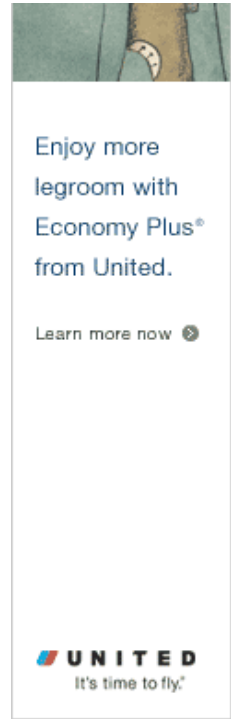
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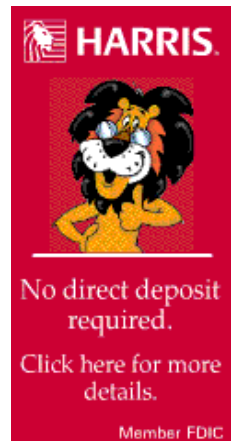
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