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# MIT brainiacs put their faith in the future

## Beauty in the Beast

By Sarah Wright

Thursday, October 21, 2010 - Updated 4 days ago

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The brainiacs at the MIT Media Lab . . . the ones who helped bring you “Guitar Hero,” holograms on credit cards, and the electronic ink used in Amazon’s Kindle . . . are at it again.

Now hot in lab-coat circles are new “bio-devices” that could change lives and lifestyles, such as a “Beast” chair that flexes where you need it to, a “Living Wall” that can talk to electronic devices, and a robotic ankle.

“In a hundred years,” said Lab researcher Neri Oxman, “all fabrication will be bio-inspired.



“In the year 3,000, we’ll design with living matter. Buildings may have skins. Our clothes could contain our DNA.”

The Beast is the chaise lounge of the future. Designed to provide for multiple seating positions, it has a 3-D printed surface that responds to skin pressure measurements. New multijet matrix technology deposits materials in different areas of the chair so it gives where flexibility is needed, and stays stiff where support is required.

It will be “like wearing your acupuncturist to work,” Oxman said. One day, biostructures such as the Beast may use “pain mapping” to detect where more or less pressure is needed, as in responsive casts for injuries.

For those tired of hitting switches and pressing buttons to make their gadgets work, Media Lab researcher Leah Buechley offers the Living Wall — wallpaper covered in conductive paint that contains LEDs and Bluetooth, so it can talk to nearby devices. Touch a flower, turn on a lamp!

Researcher Ramesh Raskar plans to improve both rescue operations and colonoscopies by developing cameras that can see around corners, in the world at large or inside the human body, and in near-total darkness. Ultra high-speed femto-photography, which captures light at 1 billion frames per second, will make this possible, he said. Raskar has already developed an affordable cell-phone-based eye test.

Neuroscientist Ed Boyden has developed a powerful new class of tools to reversibly shut down brain activity using different colors of light, that could potentially lead to new treatments for abnormal brain circuitry associated with Parkinson’s, epilepsy and other brain diseases. His work has shown success with mice so far.

Researcher Hugh Herr approached human affliction and ambition in several giant leaps — literally. A double amputee since adolescence, Herr has developed a bio-robotic ankle that allows him to jump up and down. His Biomechanronics research group has already helped the physically challenged: the Variable-Damper Knee Prosthesis has recently been commercialized, and his Active-Ankle Foot Orthosis is getting close. Stroke victims and injured veterans, among others, benefit.

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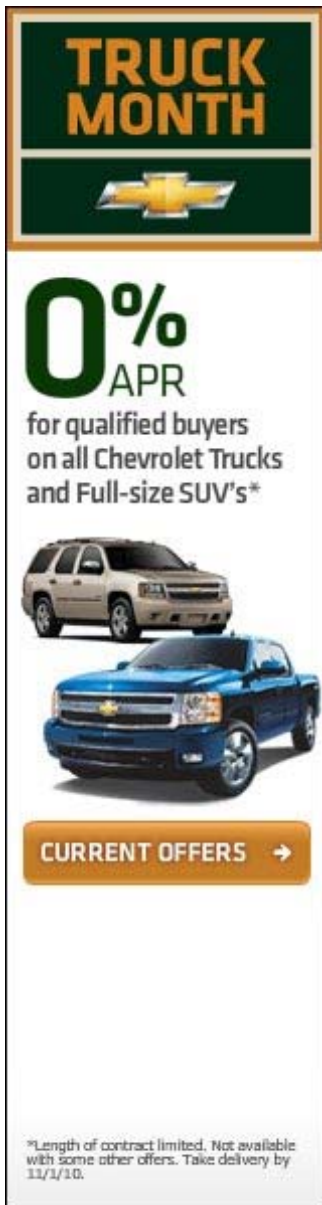
Photo by Nancy Lane

WALL OF ASTOUND: MIT research assistant Jie Qi shows off the 'Living Wall' design at the MIT Media Lab.




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