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UPGRADING THE PROSTHETIC HAND

The Fluidhand, a lightweight hand with individually powered fingers close around objects, nerves in the amputation stump pick up muscular sensations so that the amputee can use a weaker or stronger grip. The prosthetic developed at the Research Center in Karlsruhe, Germany, provides five different strengths of grip. It is so intuitive that learning to use the device only takes about 15 minutes.

Source: Technology Review
<http://www.technologyreview.com/Infotech/20791/?a=f>

LASER "MICROSCALPEL" TARGETS INDIVIDUAL CANCER CELLS

University of Texas at Austin researchers and colleagues have developed a 15-millimeter-diameter, femtosecond laser "microscalpel" that can remove single cells with high precision in 3-D without damaging nearby cells. And, you can see, with the same precision, what you are doing to guide the microsurgery. Current femtosecond laser systems are too large to be used deep inside the body.

Source: University of Texas at Austin News Release.
http://www.utexas.edu/news/2008/06/23/laser_surgery/

HOW CONVENIENT

Convenience stores pump an estimated 75 percent of all gasoline in the U.S., and in 2005, the industry's 140,000-plus stores rang up \$151 billion in store merchandise. Inside sales are where most stores make their profit.

Source: National Association of Convenience Stores report.

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WORLD POPULATION TO HIT 7 BILLION

Four years from now the world population will reach 7 billion, just 13 years after passing the 6 billion milestone, according to U.S. Census Bureau projections.

The Census Bureau's International Data Base covers 226 countries and other selected geographies and incorporates data on net migration, HIV/AIDS and other factors affecting population-growth projections.

Globally, population growth will slow from 1.2% annually at present to 0.5% by 2050. "However, this growth will be concentrated in less-developed countries," the bureau notes.

By 2050, the proportion of the population over the age of 80 will increase from 1.5% to 5%. In developed countries, that figure will be 10%.

In order to better project countries with increasing numbers of people in the oldest ages, the Census Bureau is in the process of converting their projections to be done by single years of ages up to 100 years and over.

SOURCE: U.S. Census Bureau
<http://www.census.gov/Press-Release/www/releases/>

FACE BECOMES A REMOTE CONTROL

Jacob Whitehill, a UC San Diego computer science Ph.D. student can turn his face into a remote control that speeds and slows video playback. The proof-of-concept demonstration is part of a larger project to use automated facial expression recognition to make robots more effective teachers.

In a recent pilot study, Whitehill and colleagues demonstrated that information within the facial expressions people make while watching recorded video lectures can be used to predict a person's preferred viewing speed of the video and how difficult a person perceives the lecture at each moment in time.

This new work is at the intersection of facial expression recognition research and automated tutoring systems. One of the next steps for this project is to determine what facial movements one person naturally makes when they are exposed to difficult or easy lecture material. From here, Whitehill could then train a user specific model that predicts when a lecture should be sped up or slowed down based on the spontaneous facial expressions a person makes..

Source: PhysOrg.com June 25, 2008
<http://www.physorg.com/news/133590374.html>

FUTURE OF THE INTERNET ECONOMY

New policies to promote innovation, enhance security, and improve communications infrastructure globally were among the chief priorities outlined at the recent OECD Ministerial Meeting on the Future of the Internet, held in Seoul and hosted by the Korea Communications Commission.

The meeting brought together key stakeholders in the Internet's future, all with urgent agendas: The technical community called for policies to promote open standards and protocols; civil society urged protections for freedom of expression; and business called for policies that encourage investment.

This confluence of stakeholders enabled the meeting to uncover key new issue areas that will affect future policy making:

* New communications platforms based on new technologies such as fiber optics that may fundamentally change market dynamics and user behavior.

* The accelerating shift from immobile (PC-based) to mobile access.

* The advent of sensor-based networks that not only require massive new infrastructure capacity, but also raise new privacy and security issues.

Source: Organization for Economic Co-operation and Development http://www.oecd.org/document/18/0,3343,en_2649_34487_40862_162_1_1_1_1,00.html

2008-2013 Targeted Occupations:
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LIFETIME LESSONS OF DNA

Johns Hopkins University researchers and colleagues have found that people's epigenome (the pattern of methyl groups attached to DNA bases that influences how genes function) changes throughout their life, and the way it changes (gaining or losing methyl groups) runs in families.

This shows that these epigenetic (potentially reversible changes that do not alter the actual nucleotide sequence of the DNA but do affect its functioning) features are influenced by our genetic make-up.

Epigenetic changes are thought to be involved in many cancers and other diseases of old age, such as diabetes.

Source: Nature News
<http://www.nature.com/news/2008/080624/full/news.2008.913.html>
