



TECHNO

THE BIG IDEAS THAT
ARE CHANGING EVERYTHING

TRENDS

NEW TOOLS FOR ADVERTISING

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



Digital technology continues to provide marketers with new ways to find and reach better audiences.

SMART ADS

Smart ads are electronic ads that are automatically matched to an individual consumer's needs based on demographics and on-line behavior. The result is highly relevant advertising at a low cost. For example, United Airlines has increased on-line ticket sales by matching destinations and special fares to people based on their search behavior. Ask Yourself: Could we use smart ads to increase the effectiveness of our on-line ad campaigns?

SPARK ADS

Spark ads are relevant electronic ads that are automatically sent to consumers immediately after they perform a search based on the content of their search. For example, a person might type in the phrase "diet cereal" and get a pop-up ad for Special K on the next page they visit. Ask Yourself: Could we use spark ads to increase the effectiveness of our on-line ad campaigns?

AUDIENCE MODELING DATABASES

Audience modeling databases use powerful on-line databases to create targeted audiences

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NEW AD TOOLS *(continued from page 1)*

based on specific buying behavior. For example, AC Nielsen merged its Homescan database with Yahoo!'s user database to create Consumer Direct, an on-line service that allows advertisers to create highly targeted audiences for their products. Procter & Gamble, Pepsi, Cadbury-Schweppes, Johnson and Johnson, Nestle, and General Mills have all experienced success that can easily be measured with this tool. Ask Yourself: Could we use audience modeling databases to increase the effectiveness of our on-line ad campaigns?

SURVEY-BASED AUDIENCE MODELING

Survey-based audience modeling allows marketers to create custom audiences using on-line surveys to identify people's attitudes and interest. For example, Nestle Purina ran surveys on Yahoo! to determine what type of pet people were interested in and their attitudes and interests regarding pets. Yahoo! used the audience profiles derived from the surveys to create a customized audience for each Purina market segment. The result was superior ad performance measured by increased engagement, action and sales. Ask Yourself: Could we use survey-based audience modeling to increase the effectiveness of our on-line ad campaigns?

TECHNOLOGY NEWS HIGHLIGHTS

SHAPE-SHIFTING PLASTICS

Researchers have developed a new class of materials that change shape as they change temperature. The new plastics can assume up to three different configurations depending on the amount of heat applied, and could revolutionize a wide range of industrial processes by creating automated self-assembling devices. For example, a changeable fastener may start out as a straight piece for easy insertion, but when heated, it could grow an "arm" to attach itself to another component. More heat might cause it to lock itself into place. The whole process could also be reversed to make disassembly easier than ever.

For information: Robert Langer, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, MA 02139; phone: 617-253-3107; email: rlanger@mit.edu; Web site: www.mit.edu

WORLD'S THINNEST LCD

A new LCD panel that's no thicker than a credit card (0.82 mm) will soon be available in a variety of ultra-thin mobile devices. It incorporates a technology called "iLens," which not only minimizes the thickness of the display, but also resolves the problem of sunlight reflection by eliminating the need for a reinforced protective plastic panel. The display features qVGA resolution (240x300 pixels), a brightness rating of 300nit and a contrast ratio of 500:1. It will be available in 2.1- and 2.2-inch diagonal formats. Production is scheduled to begin later this year.

For information: Samsung Electronics Co., Ltd., 250 Taepyung-ro 2-ka, Chung-ku, Seoul 100-742, Korea; Web site: www.samsung.com

RECUPERATING ROBOT

A team of researchers has created a robot that can regain mobility after it's been damaged. About the size of a human hand, the innovative machine – which resembles a four-legged starfish – can analyze the shape of its own body and compensate for changes due to "injury." When one of its limbs was pulled off, the robot generated a new "image" of itself by swiveling its limbs and recording the resultant changes in body angle. It then re-programmed its actuators to develop a new algorithm for moving forward. Further development of technology like this could someday lead to fully autonomous mobile robots.

For information: Joshua Bongard, University of Vermont, Computer Science Department, Votey Building 329, Burlington, VT 05405; phone: 802-656-4665; email: josh.bongard@uvm.edu; Web site: www.uvm.edu

REUSABLE "PAPER"

A new printer that uses plastic "paper" could help reduce carbon emissions as well as the amount of paper that companies consume. The B-SX8R printer uses thin sheets of polyethylene terephthalate (the same plastic used for soft drink bottles) that

have been treated with heat sensitive pigments. Under different conditions, the pigments turn white or black making it possible to write and rewrite black and white text or graphics on the same sheet of paper. This revolutionary technology is designed for use in documentation applications where permanent copies are not needed. It can generate 12 pages per minute with a resolution of 300 dots per inch. The “paper” costs about \$10 per sheet and can be used up to 500 times.

For information: Toshiba, 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan; phone: +81-3-3457-4511; fax: +81-3-3456-1631; Web site: www.toshiba.co.jp

BIODEGRADABLE SMART CARDS

Smart cards, which are used for e-money services, company IDs, prepaid phone cards, and many other applications, are now available in an eco-friendly version. Using a base composed of 51 percent plant material, manufacturing the new “biomass” cards generates 20 percent less greenhouse gas than conventional plastic cards, and they will dissolve in soil. Until ready for disposal, the new material will also reportedly hold up under conditions of high temperature and humidity.

For information: Mitsubishi Plastics, Inc., 5-2, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-0005, Japan; phone: +81-3-3283-4006; fax: +81-3-3213-4095; Web site: www.mpi.co.jp

ROBOT THAT WILL HOUSE-SIT YOUR HOME

The Japanese home will soon have an anti-crime robot that monitors information from multiple wireless sensors built into the windows and doorways. While a house is unattended and at the first sign of a break-in, the robot lights up and makes noise to scare off the intruder, while it sends a message to the homeowner’s phone. It can also be set up to simultaneously transmit video to a security company using its built-in camera.

For information: Japan Pana-Use, 5-12, Minato-ku 3-chome, Osaka 552-0021, Japan; phone: +81-6-6573-2101; fax: +81-6-6573-3488; Web site: www.jpu.co.jp

HYDROGEN-PRODUCING SOLAR CELLS

Researchers are continually looking for more efficient ways to produce hydrogen for fuel. Water photolysis – the use of solar energy to convert water into hydrogen and oxygen – is one method that holds promise as a means of generating renewable fuel. However, current solar systems use only the ultraviolet wavelengths (about 5 percent of the total light available as sunlight) so their efficiency is limited. Recently, researchers found a way to harvest energy from the full spectrum of visible light. By replacing the typical titanium oxide catalyst with gallium nitride and zinc oxide, they were able to tap into wavelengths of 400-500 nanometers, effectively utilizing up to 50 percent of the sunlight spectrum and greatly increasing efficiency.

For information: Kazunari Domen, University of Tokyo, Department of Chemical Engineering, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan; email: domen@chemsys.t.u-tokyo.ac.jp; Web site: www.u-tokyo.ac.jp

HIGH-PURITY HYDROGEN FROM ETHANOL

Later this year, an experimental facility is scheduled to begin proof-of-concept testing on a new process for converting ethanol to high-purity hydrogen. It uses a proprietary catalyst and a CO₂ absorbing composite to produce hydrogen that is 99.9 percent pure. The new technology also reduces carbon monoxide content to about 0.1 percent, which will translate into higher performance in fuel cells. The amount of energy required for the conversion process is comparable to generating hydrogen from natural gas, and can further reduce dependence on fossil fuel if biomass ethanol is used.

For information: Toshiba Corp., Komukai Toshiba-cho, Saiwai-ku, Kawasaki-shi, 212-8582, Japan; phone: +81-44-549-2056; Web site: www.toshiba.co.jp

“VIRTUAL PATIENT”

A new tool called CAVEman gives doctors a detailed 3-dimensional look inside the human body, which can be used to plan complex surgeries or help patients better understand their disease. The computer-generated image is viewed in a virtual reality booth (called the CAVE[®]) with 3D glasses. It incorporates more than 3,000 body parts – including skin, bones and muscles – and can be manipulated to focus on specific areas. Diagnostic data from MRIs, CAT scans,

or x-rays can be layered onto the image to provide a unique representation of specific patient conditions. It can even simulate the passage of time to help visualize the progression of disease. The image can also be downloaded to a regular computer for viewing off site. The developers are working on adding the element of touch to make it even more interactive as well as developing a version to sell to hospitals.

For information: Christoph Sensen, University of Calgary, Sun Center of Excellence for Visual Genomics, HS-1150, 3330 Hospital Dr. NW, Calgary, Alberta, Canada T2N 4N1; phone: 403-210-9543; Web site: www.visualgenomics.ca

GAMES THAT READ YOUR MIND

The next big thing in video gaming is brain-wave-reading-controllers. Some have already started to hit the consumer market, which will revolutionize “gaming” as we know it. The basic technology uses electroencephalography (EEG) to measure brain activity related to mental states such as concentration, relaxation, anxiety, etc. These signals may be combined with other parameters like muscle and eye movements to make gaming more stimulating and realistic. In some applications, the signals are used to control performance. For example, one system makes it impossible for drivers in a racecar game to reach maximum speed unless they are focused. Eventually, players may be able to control the games using only their thoughts. Although developed for the entertainment industry, these complex biofeedback systems may have medical applications as well. Some researchers believe they could be used to improve mental focus in people with attention deficit disorder, or allow a person with obsessive-compulsive disorder to fine-tune their medications by measuring their anxiety levels. The technology could even be adapted to help paralyzed patients control a wheelchair just by thinking about it.

For information: Neurosky, 225 Airport Parkway, Suite 638, San Jose, CA 95110; Web site: www.neurosky.com; Emotive Systems, 600 Townsend-Penthouse, San Francisco, CA 94103; phone: 415-503-3601; fax: 858-777-7085; Web site: www.emotiv.com; CyberLearning Technology, 663 S. Rancho Santa Fe Rd., Suite #663, San Marcos, CA 92078; phone: 706-208-1706; fax: 206-600-6166; Web site: www.smartbraingames.com

LAB-GROWN MEAT

Researchers in The Netherlands are working on a way to produce meat without raising and slaughtering animals. The goal is to develop a process that is not only animal-friendly, but also environmentally conscious by eliminating the additional burden that feed, land use, transportation, and methane production put on the environment. Isolated muscle stem cells are provided with nutrients and exercised with electric current to stimulate growth. The result is a thin layer of cells that is essentially identical to the meat you would get from an animal. The next step will be finding a way to add bulk by layering the thin sheets of cells to more closely resemble a pork chop or steak. Similar research is under way at NASA to determine whether meat can be grown in space to feed astronauts during long missions.

For information: Bernard Roelen, Utrecht University, Institute of Veterinary Research, P. O. Box 80163, NL-3508 TD Utrecht, The Netherlands; phone: +31-30-253-4855; fax: +31-30-253-4800; Web site: www.vet.uu.nl

MEDICAL ROBOTIC CATERPILLAR

A tiny robot called HeartLander has been developed to provide a minimally invasive way to treat heart disease. Less than an inch long, the device resembles a caterpillar that crawls along the surface of the heart at a speed of up to seven inches per minute. Its “feet” are two suction cups, which are attached to a vacuum line. A joystick is used to control the HeartLander’s movements, and surgeons can also monitor its position using x-ray video or a magnetic tracker. One possible application for the device is delivering drugs directly to the heart tissue. The researchers are also looking to add a radio frequency probe that will be used to treat arrhythmias by selectively destroying malfunctioning cells.

For information: Cameron Riviere, Carnegie Mellon University, Robotics Institute, 500 Forbes Avenue, Pittsburgh, PA 15213; phone: 412-268-3083; email: criviere@andrew.cmu.edu; Web site: www.cmu.edu

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