

DANIEL BURRUS'

TECHNO TRENDS

June 2013
VOL. XXIX, NO. 6

THE BIG IDEAS THAT ARE
CHANGING EVERYTHING

In This Issue

**Stop Being Ordinary -
Choose to be Extraordinary**

Test Tube Hamburger

**Remote Control Passenger
Plane**

Electronic Nose

**DNA Sequencing for the
Masses**

Expanded Wireless

**Augmented Reality Gets
Real**

No-Flash Camera

Adjustable Pain Relief



www.burrus.com



Stop Being Ordinary - Choose to be Extraordinary

By Daniel Burrus, CEO of Burrus Research

Every now and then we hear about people who are doing extraordinary things. It could be a world leader saving millions of lives, a businessperson revolutionizing an industry, or even the person down the street helping to make life much better for underserved people in the community. When we hear of these extraordinary people, the vast majority of people think, "I could never do that because I'm just an average, ordinary person."

In reality, we can all be extraordinary. The key is to realize that being extraordinary is a personal choice. And it doesn't matter whether you're rich or financially struggling, whether you're male or female, whether you're old or young, or whether you fit into any other categories. Anyone can choose to be extraordinary.

Of course, the thought of choosing to be extraordinary can be overwhelming. After all, where do you start? What do you do? Do you write a best-selling book? Star in a movie? Start a business? How in the world can you be extraordinary?

The answer is: You take it one step at a time. The old saying that a journey of a thousand miles begins with a single step is so true.

Every day, make the choice to be extraordinary at whatever it is you're planning to do. It's a daily decision. For example, if you're a student, you might ask yourself each morning, "What would an extraordinary student contribute today given the subject we're discussing in class? What kind of questions would an extraordinary student ask instead of asking ordinary ones?"

continued on page 6

Know What's Next Magazine



In today's world of technology-driven change, it has never been more important to Know What's Next!

Technology is transforming how we sell, market, communicate, collaborate, innovate and educate.

Also available on:



www.burrus.com

TECHNOLOGY NEWS HIGHLIGHTS

Test Tube Hamburger

The most expensive burger in history is expected to be served up someday soon at an event in London. The five-ounce, lab-grown patty was created at a whopping cost of



\$325,000 (thanks to an anonymous donor) from about 20,000 thin strips of cultured muscle tissue.

Why grow a hamburger patty in the lab? By 2020, there could be as many as a billion people entering the lower middle class in developing regions of the world, and they will want more meat in their diet. Because there is limited land for growing cattle on a massive scale, scientists are working on new ways to fill that near future need.

But don't expect in vitro meat to hit restaurants and store shelves any time soon. The current process uses stem cells grown in a medium containing fetal calf serum, which will need to be replaced with non-animal derived plant materials to make commercialization practical. Even then, it remains to be seen whether lab methods can reduce energy, land and water use enough to provide a cost-effective alternative to traditional farming methods. And finally, there's the question of whether large populations from around the world will want to eat meat grown in a laboratory, even if it is the only way to get meat in their diet.

For information: Mark Post, Maastricht University, CARIM School for Cardiovascular Diseases, P.O. Box 616, 6200 MD Maastricht, The Netherlands; phone: +31-(0)43-388-4003; fax: +31-(0)43-367-0916; email: m.post@maastrichtuniversity.nl; Web site: www.maastrichtuniversity.nl

Remote Control Passenger Plane



The first in a series of flight trials aimed at developing technology for unmanned passenger air travel was recently completed in the U.K. Commanded by a ground-based pilot and under control of the National Air Traffic Control Services (NATS), the specially-adapted Jetstream research aircraft flew 500 miles from Warton, Lancashire to Inverness, Scotland.

The work is part of a program known as ASTRAEA (Autonomous Systems Technology Related Airborne Evaluation & Assessment), an industry consortium that focuses on making unmanned aircraft safe for routine travel as autonomous vehicles become a part of our everyday lives. In addition to proving the technology, trials such as this one will aid in developing the systems, facilities, procedures and regulations needed to integrate it into our transportation infrastructure.

For information: Lambert Dopping-Hepenstal, BAE Systems (Head Office) Stirling Square, 6 Carlton Gardens, London SW1Y 5AD, United Kingdom; phone: +44-(0)1252-373232; Web site: www.baesystems.com or www.astraea.aero

Electronic Nose



Researchers in Spain and Sweden have developed an electronic device for distinguishing smell, the first step in creating multisensor systems that can differentiate complex mixtures of volatile substances such as methane and butane. In this experiment, the electronic nose was able to distinguish between the odors emitted by apples and pears.

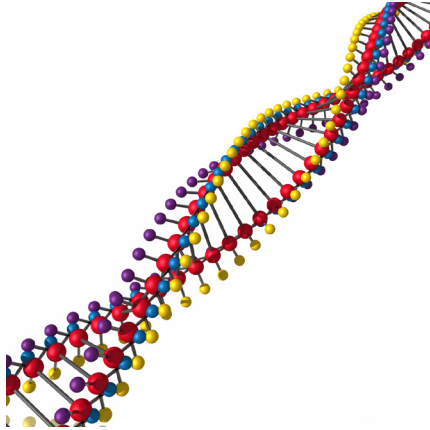
Samples of the chopped fruit were placed into a tower-shaped chamber that was injected with air. A series of 32 sensors, each capable of identifying a specific compound, measure the concentrations and feed the data into a software algorithm, which classifies the information and presents the results on a 3-dimensional graph.

One obvious application for the device is in the wine industry, where the ability to more precisely determine the type and quality of grapes, or the vintage of a specific wine, would be helpful. But other research is focused on medical applications for the technology. For example, recent studies have shown that trained dogs may be able to "sniff out" cancer by smelling a person's breath, indicating that an electronic nose could be developed to allow for earlier diagnosis and treatment of certain diseases.

For information: Jose Pelegri Sebastia, Polytechnic University of Valencia, Higher Polytechnic School of Gandia, c/ Paranimf, 1, 46730 Grao de Gandia, Gandia, Spain; phone: +34-96-284-9333; fax: +34-96-284-9309; email: informacion@upv.es; Web site: www.upv.es/

DNA Sequencing for the Masses

In 1983, I predicted that scientists would sequence the human gene code by the year 2000. The project started in 1990, and by 2000, and a price tag of \$32 billion, and the cooperative efforts of thousands, researchers were able to sequence the first human genome. Now a new bench-top device, called the Ion Proton™ Sequencer System, has brought the cost of sequencing a complete genome down to \$1,000 – and it can be completed in a matter of hours, making it possible to bring this important diagnostic modality into the mainstream of patient care.

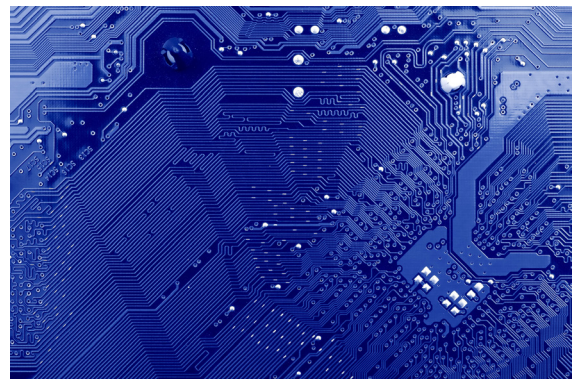


DNA sequencers use disposable semiconductor chips packed with electronic sensors that match samples of a patient's DNA with known templates. The key to low cost, speed and accuracy is getting all of the data on a single chip, and recent advances in semiconductor technology have finally reached the point where that's possible. The new chips are literally thousands of times more dense than previous versions, containing about 500 million sensor "wells."

This will allow doctors to more effectively and affordably screen for genetic conditions or assess the likelihood of a patient's response to certain drug therapies.

For information: Life Technologies, 3175 Staley Road, Grand Island, NY 14072; phone: 800-955-6288; fax: 800-331-2286; Web site: www.lifetechnologies.com

Expanded Wireless



Although silicon germanium (SiGe) hybrid chips have been around for some time, IBM scientists have continued to improve on the technology, and recently announced the fifth generation. Called 9HP, the new process will allow chip designers to create new devices that take advantage of expanded frequencies including millimeter wave wireless communications.

In the data communications industry, spectrum is the key to high volume and faster speeds and, as mobile device use continues to increase at an explosive pace, spectrum shortages and conflicts result in reduced quality across the board. At frequencies of 30GHz to 300GHz, millimeter waves (sometimes known as extremely high frequency or EHF) occupy the spectrum between microwaves and infrared waves and can relieve the bottleneck that's being created by high wireless usage. In addition to provide lots of room for expansion,

millimeter waves can support data rates of 10Gbits or more. The availability of circuitry that works at these wavelengths will open up a whole new world of wireless that has already been dubbed WiGig (Wireless Gigabit).

For information: IBM Corporation, 1 New Orchard Road, Armonk, NY 10504; phone: 914-499-1900; Web site: www-03.ibm.com/technology/

Augmented Reality Gets Real



A new augmented reality (AR) authoring platform allows programmers to more easily integrate programmed content with “real world” video. Known as the ARmedia 3D Tracker, it can identify and track objects independent of their complexity or scale, and also adjusts well to changing lighting conditions.

In a recent demonstration, the platform was used to create an AR app describing how to maintain a Ford automobile engine, including changing the oil and topping off the fluids. Future demonstrations, for both mobile and desktop platforms, will illustrate the tracker working on everything from real world buildings to small-scale equipment.

For information: Inglobe Technologies, Via G. Matteotti, 103-03023 Ceccano (FR), Italy; phone: +39-0775-1881600; Web site: www.inglobetechnologies.com/en/ or <http://arblog.inglobetechnologies.com/?p=1155>

No-Flash Camera



A new imaging sensor, that's more than a thousand times more sensitive to both visible and infrared light than today's cameras, makes it possible to take clear, sharp pictures even in dim light without the need for a flash. It's made of graphene – a one atom thick layer of graphite with a honeycomb structure that's flexible, highly conductive and heat resistant.

The high photosensitivity is a result of the fact that the nanostructures are capable of trapping light and holding onto the electrons generated for a longer period of time than traditional imaging sensors, which use metal-oxide semiconductors as a base. The stronger than usual electrical signal can then be processed into a clearer, sharper image. And because it eliminates the need for a flash, battery life can be increased.

In addition to the obvious benefits for mobile phone users, the new technology will greatly enhance the efficiency of surveillance and satellite cameras.

For information: Wang Qijie, Nanyang Technology University, School of Electrical and Electronic Engineering, 50 Nanyang Avenue, Singapore 639798; phone: +65-6790-5431; email: ojwang@ntu.edu.sg; Web site: www.ntu.edu.sg

Adjustable Pain Relief



For the estimated 116 million American adults who suffer from chronic pain, neurostimulation systems offer an alternative to medications for long-term relief. They work by interrupting pain signals before they reach the brain, but changes in body position necessitate adjustments in the intensity of stimulation as the spinal cord moves closer to or further away from the stimulation site.

Early neurostimulation systems included a handheld programming device that allowed patients to manually adjust these levels, but more recent advancements (such as AdaptivStim™ with RestoreSensor™) incorporate the same motion sensor technology found in cell phones and gaming controllers to automatically adapt to changing posture. A built-in accelerometer can distinguish between sitting, standing and lying down, and the device stores this information to provide feedback for clinicians. In one clinical study, 86.5 percent of patients reported better pain relief and/or more convenience using AdaptivStim, in addition to functional improvement and greater comfort when changing position.

For information: Medtronic, Inc., 710 Medtronic Parkway NE, LC-110, Minneapolis, MN 55432; phone: 763-514-5400; Web site: www.medtronic.com

Choose to be Extraordinary

continued from page 1

Or suppose you're a business professional and you are thinking of launching a new product. Before you take action, ask yourself, "What would an extraordinary business professional or CEO do to launch this product successfully?"

Or let's say you're a salesperson and you're about to go on a sales call. Before you meet with the prospect, ask yourself, "What would an extraordinary salesperson do? What would the very best of the best say to the prospect?"

Take a few minutes each day to think about what an extraordinary person in your situation would do. Then, take that action rather than what you were going to do. Soon, people will look at you and think, "Wow! That person is extraordinary!"

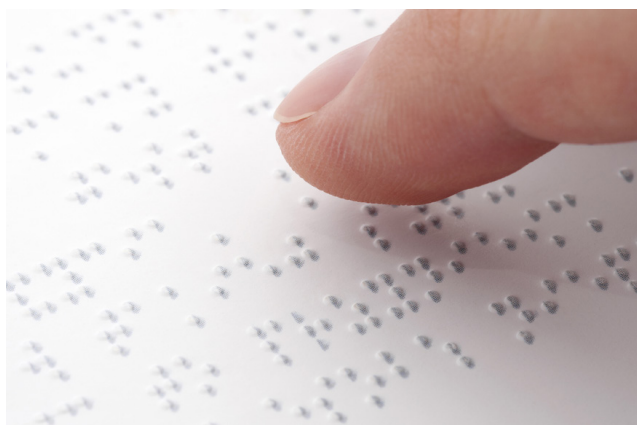
Nothing is Beyond Your Means

Sometimes when you ask that question—"What would an extraordinary person to do?"—the answer you come up with is something you feel is beyond your means, whether it be financial, intellectual, physical, or otherwise. In these situations, you need to lift the bar on yourself.

Realize that most people underestimate what they can do—probably even you. The fact is that we are all capable of doing so much more than we think. For example, even if you are not blind, you have probably touched Braille at some point in your life. If you haven't, go to an elevator and feel those bumps on the keypad. What did you think the first time you touched Braille? You probably thought what every other seeing person thought: "How can anyone read this? It's just a bunch of bumps!"

But blind people can read those bumps quite well. Do

they have different fingers? No. Do they have a different sense of touch? No. They simply developed something within themselves that might seem impossible to you, but it's really not.



Of course, this example is simple in that it focuses on just one of our senses. In reality, we're all underutilizing all our senses, as well as our brain and our capabilities. And when you think you can't do something, you usually don't even try. That's why you need to ask yourself, "What would it take to do it?" not "Can I do it?"

Realize that you are more than you think you are. You're capable of more than what you think you can do. Whatever limitations or challenge you think you have, none of them are keeping you from being extraordinary, so skip them. In other words, if you think you don't have the money to be the extraordinary person you want to be, skip the money issue, put it to the side. That's not the real problem anyway. Ask yourself, "What would it take to do this without using money?" By skipping what you perceive as the problem or limitation, you are free to discover what's really holding you back. Therefore, forget about what you think is the problem. If that issue simply didn't exist, what would you do to be extraordinary in your life or your business? Once you see what's really



holding you back, you can find a way to get around it or to come up with a better solution.

Choose Your Future

It's time to raise the bar on yourself and see what you really can do. It's time to be a better version of yourself—to be extraordinary. So ask yourself, what would it take to be an extraordinary boss ... salesperson ... engineer ... student ... doctor ... teacher ... wife ... husband ... parent ... sibling ... friend?

Every day you can do extraordinary things in both your personal and professional life if you just ask yourself the right question. You have the power to elevate your life and the lives of those around you. It's simply a matter of identifying what an extraordinary person would do, and then doing it. Pretty soon you'll find yourself being extraordinary. It's a daily choice. Give it a try now. Ask yourself, "What would an extraordinary (insert your job title) do today?" Then go do it!



(A great new book on how to be extraordinary is Fred 2.0 by Mark Sanborn)



*Technotrends is published 12 times a year by Burrus Research, Inc., a research and consulting firm that monitors global advancements in science and technology and their direct impact on business and consumers. Mary Norby, Editor P.O. Box 47, Hartland, WI 53029-0047. To subscribe, call **262-367-0949** or email office@burrus.com. ©2013 Burrus Research, Inc.*

