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Daniel Burrus'

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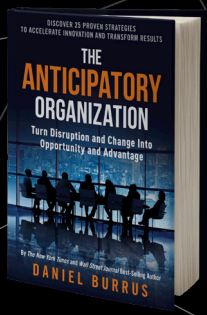
TECHNOTRENDS® NEWSLETTER

The biggest ideas that are changing everything

IN THIS ISSUE

MY NEW BOOK



Innovation leads to disruption, not being disrupted.

Learn more with my new book, The Anticipatory Organization, now available at www.TheAOBook.com

www.DanielBurrus.com

Protecting Your Ideas, Products and Brand

By Daniel Burrus, CEO of Burrus Research

The technology change curve continues to steepen, with an increasing number of entrepreneurs developing innovative processes, services and products.

When you create and drive growth on a global basis, it's imperative that you capture and protect your intellectual property (IP). In fact, how well you protect your intellectual property could ultimately be a major key to success.

So why do so many entrepreneurs fail to adequately protect the results of their creativity? It's simple: Sometimes we forget to protect the intangible because we are so busy producing the tangible (the products or services we provide).

Protecting Value

If you're asking yourself, "How valuable can protecting IP really be?" consider this: Protecting your IP basically provides you with a type of market monopoly to make, sell, use, import, export and license your property.

Said another way, if your IP has value in the marketplace, then the monopoly IP protection provides will have a similar value times the length of the monopoly.

> *Your intellectual property may be protected in a number of ways, depending on its nature.*

Three Types of Innovations You Must Protect (and Why):

Your intellectual property may be protected in a number of ways, depending on its nature.

1. Trade Secrets Are Your Competitive Advantages

Knowledge-based competitive advantages like trade secrets are best protected by documents such as confidentiality agreements and employee contracts. In the food industry, secret ingredients such as spices and herbs would be covered under a trade secret.

2. Patents Protect Your Concepts + Functions

If the advantage of your product is its function, the best way to protect it is with a patent or design registration. Patents can protect concepts, including software and business plans. The distilling process for a beverage could also be covered by a patent.

3. Trademarks Allow You to Own Your Brand

If the look of the product is your advantage, you should get a design registration that protects shapes and patterns. Brands, including words, shapes, sounds, logos and colors, can be protected with a trademark.

Overlap in IP Types

A special embossing on a surface would be covered by a design registration; the shape of a product, if unique and distinctive, could be protected by a trademark. Keep in mind that patent and design registrations can only be obtained for products that

continued on page 8

TECHNOLOGY NEWS HIGHLIGHTS

Real-Life Tricorder

Last year's winner of the Qualcomm Tricorder XPRIZE is reportedly preparing to submit their product — known as DxtER — for FDA approval, with hopes of marketing it directly to consumers. The contest was originally launched in January 2012 and offered up to $7 million to the team that could develop a portable, noninvasive, medical device capable of diagnosing 13 medical conditions while continuously streaming five basic vital signs, including blood pressure, heart rate, oxygen saturation, respiratory rate and temperature. The single, portable package could also weigh no more than five pounds. While no team was able to capture the grand prize, DxtER was named the winner, earning its developers $2.6 million in funding to continue development.

The product consists of a suite of Bluetooth sensors and a tablet computer that runs a proprietary app. The app instructs the user on how to apply the sensors and returns a diagnosis (or an indication that no illness was detected) within minutes. Although the company has developed sensors and algorithms for diagnosing 34 separate health conditions, only half of those were used for the competition, including diabetes, atrial fibrillation, chronic obstructive pulmonary disease, sleep apnea, pneumonia, tuberculosis and urinary tract infection. The system can also pull together information from personal and family medical histories to enhance diagnostic accuracy.

As healthcare continues to progress toward a consumer-driven paradigm, technology will enable better outcomes through accurate and timely diagnosis. The company plans to market DxtER through Lowe's at a retail cost of about $200.

For information: Basil Harris, Basil Leaf Technologies, LLC, Paoli, PA; email: info@basilleaftech.com; website: http://www.basilleaftech.com/

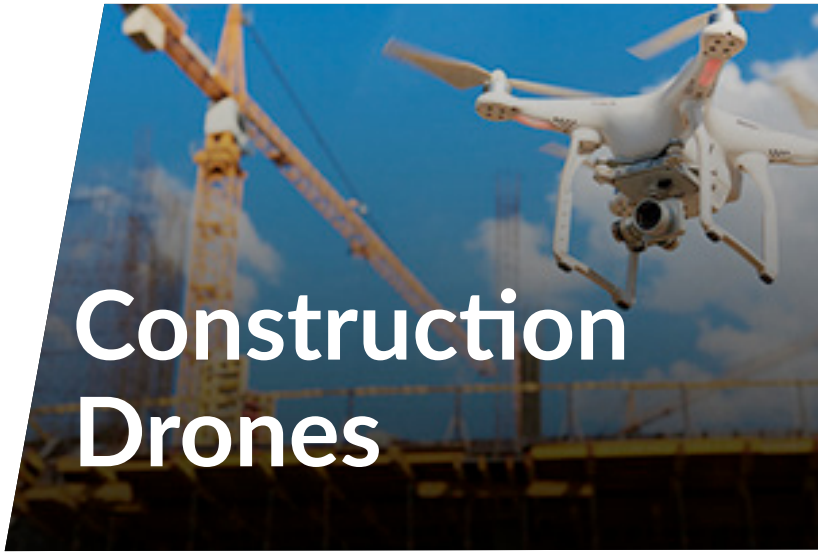
Self-Duplicating AI

Researchers recently published a novel method for creating artificial intelligence (AI) that evolves on its own. This concept of self-duplicating programs is sometimes referred to as a "quine" in the computing world, and when applied to neural networks, it would allow AI agents to not only improve but to create new versions of themselves through deep learning.

The new method exploits one of the greatest strengths of neural networking — predicting patterns. Current systems use individual components to perform specific tasks, then compare the data across many layers. The network improves over time by combining the knowledge generated by each agent over multiple iterations. In the newly proposed system design, agents within the neural network predict what they will look like once they've learned new information and create new versions of agents based on the results. So instead of needing to program layer upon layer of data, it's done automatically.

All of this raises some important questions about creating a system that, since it's not under any direct control, could eventually be resistant to future efforts to delete it or scale it back. Clearly, the full impact of such technology warrants further research.

For information: Oscar Chang, Columbia University, Computer Science Department, 500 West 120th Street, New York, NY 10027; phone: 212-939-2040; email: Oscar.chang@columbia.edu; website: https://arxiv.org/pdf/1803.05859.pdf



Construction Drones

At more than 5,000 construction sites across Japan, drones are revolutionizing the building process by monitoring and controlling heavy equipment. And in the near future, the plan is to automate it further by adding artificial intelligence (AI) capabilities.

Originally driven by a global shortage of construction laborers, the use of drones has already proven to shorten the time needed to perform many preparatory tasks. For example, producing a three-dimensional map of the site — a process that used to take several days and a team of surveyors — can be completed in as little as 15 minutes. The data can then be uploaded to "smart" bulldozer and diggers that proceed autonomously with leveling and piling up the dirt exactly where it's needed.

In addition to improving efficiency, automating the construction site can reduce accidents and make the workplace safer. In the U.S. alone, about 10,000 injuries are reported every year. With the addition of AI, drones will be able to control equipment without the need for human

intervention as well as spot safety hazards.

Other plans include using AI to monitor the building schedule and identify whether materials are being delivered on time. Because many building sites lack reliable WiFi or cellular service, all of the computations and communication are done locally.

For information: Skycatch, 424 Ninth Street, San Francisco, CA 94103; website: https://www.skycatch.com/

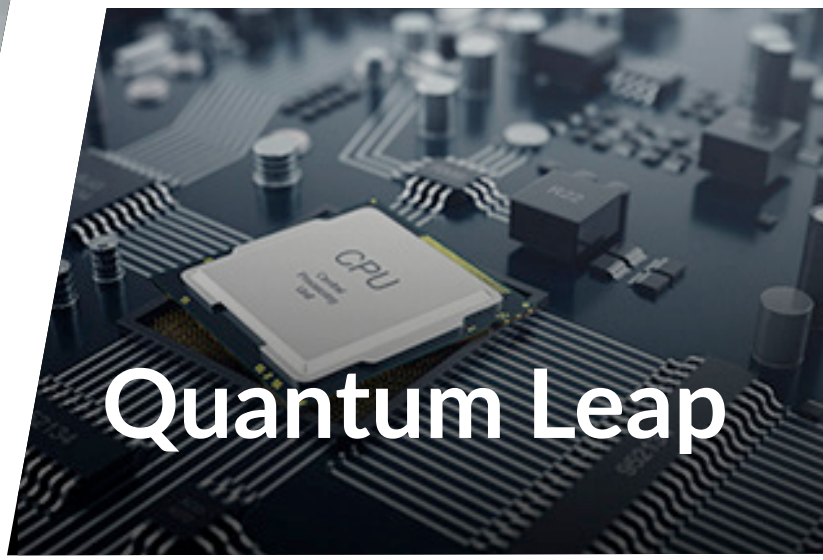
Rechargeable Antimicrobial Fabric

In recent years, several types of antimicrobial fabric have been introduced to fight off lethal outbreaks of pathogens like Ebola and E. coli. What all of them have in common is the use of biocides, which, while effective at killing viruses and bacteria, get depleted over time, making them less and less effective. Now researchers have discovered a biocide that can be "recharged" simply using sunlight.

The new material is derived from chlorogenic acid, a plant extract that has been studied for possible anti-inflammatory properties and is sometimes taken as a dietary supplement to reduce blood pressure. When grafted to benzophenone (an additive commonly found in sunscreen and soaps) and added to melted polymers, the chemicals could be spun into threads, creating a fabric-like membrane. Exposure to sunlight caused the compounds to produce hydroxyl radicals and superoxides — both of which are effective at killing pathogens.

In laboratory tests on E. coli and Listeria innocua, the material destroyed the microbes in about 30 minutes.

For information: Yang Si, University of California at Davis, Textiles and Clothing, 9 Hilgard Lane, Davis, CA 95616; email: ysi@ucdavis.edu; website: https://www.ucdavis.edu/



Quantum Leap

In the race to demonstrate quantum supremacy, Google recently made headway with the introduction of Bristlecone, the largest-ever quantum processor at 72 qubits. It was presented last month at a meeting of the American Physical Society, and the company is "cautiously optimistic" that it will be a key development toward demonstrating a proof-of-concept quantum computer that can outperform today's supercomputers.

While quantum supremacy has not yet been achieved, it is generally believed to be possible with 49 qubits. However, a low error rate is also an essential objective — and not a trivial task. Google's earlier 9-qubit linear array

processor demonstrated an error rate as low as 0.6 percent per 2-qubit gate. The benchmark goal of 0.5 percent will require careful systems engineering to integrate a full range of software and control electronics with the processor itself.

For information: Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043; website: https://research.googleblog.com/2018/03/a-preview-of-bristlecone-googles-new.html

No-Hops Beer

Researchers are using technology to produce a great "hoppy" beer less expensively and more sustainably by removing the hops altogether. Instead, they have genetically engineered yeast to produce the compounds that impart a hoppy flavor.

First, they set out to identify the chemical compounds responsible for the desired flavors and concentrated on two — linalool and geraniol. They then found that mint and basil plants contain enzymes that produce these compounds, so the appropriate genes were inserted into the yeast DNA. A panel of tasters judged the "hop-less" beer against two traditional brews and found it to actually be hoppier. The researchers are now working on fine-tuning the flavors.

The use of hops in beer has been documented all the way back to the 9th century. Depending on the variety, they can impart a range of flavors to the brew, including floral, citrus, zesty and bitter. But growing hops is expensive; it has been estimated that it takes more than 13 gallons (50 liters) of water to grow the hops needed to produce just one pint of beer. Add to that the cost of fertilizers, processing and fuel for transport, and it quickly becomes a resource-intensive operation.

In addition to creating a more sustainable process, genetic engineering allows for greater consistency of taste from batch to batch by accurately controlling the metabolism of the yeast to produce just the right flavor.

For information: Rachel Li, University of California at Berkeley, Keasling and Scheller Labs, 111 Koshland Hall, Berkeley, CA 94720; phone: 510-642-5525; email: rachelli@berkeley.edu; website: https://keaslinglab.lbl.gov/

Nanowood Insulation

A new material consisting of the cellulose nanofibers found in wood could turn out to be the best insulator ever discovered. Known as nanowood, it has been shown to outperform nearly all of the insulators it was tested against, and it can be produced using a few inexpensive, simple chemicals.

The revolutionary insulation was created by

exposing wood to sodium hydroxide, sodium sulphite and hydrogen peroxide. The chemicals remove lignin — the component of wood that makes it brown — as well as some of the shorter fibers that are entangled with the longer cellulose fiber structure. The remaining long, parallel channels, which were once used by the tree to transport water and nutrients, can be used to conduct heat; but when oriented in the right direction, they can also be used to block it.

In laboratory tests against Styrofoam and silica aerogel, a 2-centimeter-thick sample of nanowood demonstrated at least 10 degrees less heat transmission from one side to the other. In crush tests, it was also shown to be 30 times stronger. In addition, nanowood's white color reflects sunlight very effectively, and its tiny fibers do not irritate lung tissues the way glass and wool fibers can. And since it can be made in virtually any shape or size, it can be used to insulate anything from buildings to electronic components.

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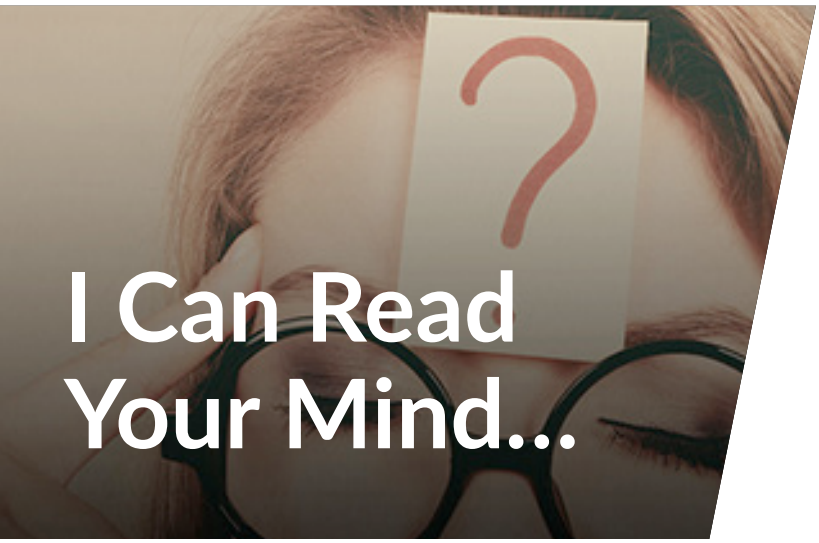
Inventwood LLC, Hyattsville, MD; email: info@inventwood.com; website: http://www.inventwood.com/



I Can Read Your Mind...

An artificial intelligence (AI) algorithm is currently being developed that can read images directly from the brain using what is known as a functional magnetic resonance imaging (fMRI) scan. Obviously, the system is only in the early stages of development, but the methods used could someday provide another means for human-computer interaction.

Functional MRI measures changes in brain activity by imaging changes in blood flow. The basic premise is that, when a specific area of the brain is active, the blood flow to that area increases.

This information was used to train an AI system, which analyzed the brain scans of subjects while they were looking at an image. By cross-correlating multiple datasets, the system could eventually identify certain patterns of brain activity with certain features within the images.

One group of researchers ran an experiment on three types of images: pictures of objects, letters and shapes. The data they collected included 6,000 images paired with fMRI scans. Upon reconstructing the images, the AI algorithm performed better with letters and shapes than with pictures.

There is still much work to be done; neural networks require much more data to produce reliable results, and fMRI scans are expensive to perform. However, the technology holds a great deal of promise for the future, particularly related to the development of neuroprosthetic devices.

For information: Guohua Shen, Advanced Telecommunications Research Institute International, 2-2-2 Hikaridai Seika-cho, Sorakugun, Kyoto 619-0288 Japan; email: atr-info@atr.jp; website: www.atr.jp/index_e.html

Protecting Your Ideas, Products and Brand

continued from page 1

are not in the public domain, so a confidentiality agreement may be needed first.

How to Mine Your IP

IBM, an international leader in patent creation, has a powerful strategy that can be adopted by any size organization. IBM routinely reviews its unused patents and licenses them to other companies — including their competitors. In IBM's case, this strategy added about $1 billion to their bottom line. Your organization does not have to be large like IBM's to profit from this strategy.

Dell and other companies of different sizes have successfully cross-licensed their patents to create new income streams. In Dell's case, it cross-licensed its built-to-order process to IBM for $16 billion. As with the IBM example, and now the Dell example above, much smaller companies, including entrepreneurships, can adopt a cross-licensing strategy like this to accelerate growth.

Your protected IP can also be marketed in a similar way to either a complementary market or an entirely different industry.

Start with an IP Strategy

A key to success is to develop an IP strategy based on your long-term objectives. Consider your competitive advantages, business strategies, existing IP, third-party relationships, internal resources and exit strategies.

Protect Your IP From Cyber Risks

Stealing the credit card numbers of customers was only the beginning of cybercrime. Regardless of the size of your organization, you should anticipate cyber criminals will try to steal your proprietary information, the information that is not protected in the ways I described above, but is key to your future success.

Make sure that you have secure backups of everything that is critical to you, and that you have taken proactive measures to prevent attacks.

Use the tenets found in my new bestseller, "The Anticipatory Organization: Turn Disruption and Change Into Opportunity and Advantage," to help guide you to create the game-changing innovations that will be in high demand in the future.

The opportunity to both create and protect IP has never been greater. The time to start is today.

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