TOOLS «««« of the TRADE

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Ressence Type 3 Watch

The design of the Ressence Type 3 watch is striking, and its technical markers are revolutionary. The patented system has a series of revolving discs instead of hands. The domed crystal on top and the one on its back are made of tough, antireflective synthetic sapphire. The upper module has a water-resistant seal and a thermostatic valve system, which compensates for any expansion or contraction of the liquid due to exterior temperatures. The crystals seal a liquid that projects the indications from the dials to the surface of the crystal. The indication discs revolve continuously, as does the whole dial itself, displaying hours, minutes, and seconds. The date is read from the perimeter of the dial beneath an indicator. The settings are available on the crystal back of the watch along with the winding mechanism. The case is made of grade 5 titanium. The dial is convex, and the indications are also titanium with black diamond-like carbon. They're engraved and filled with white, gray, and orange Super-LumiNova, glowing green and orange in the dark. The mechanism has 28 gears and 57 jewels protected by a shock absorber system. Along with the visible rear-winding rotor, there's a 25-jewel automatic winding movement and a 36-hour power reserve. www.ressence.eu

Adobe Photoshop Elements 11

A classic program, Elements is the accessible and affordable version of Adobe Photoshop, the standard for photo editing. The latest version, Elements 11, features a revamped user interface, including changes to the Organizer that provide a more intuitive approach to the overwhelming number of photos that are now the digital norm for any event or photo shoot. The icons and some sliders have gotten larger, presenting workspaces that seem less cluttered. The Organizer lets you catalog photos based on people, Google geo-tagged places, or events (holidays, vacations, and so on). As you browse thumbnails of images in your People category, you can hover over a person's photo and see a stack of all the photos of that person. Click on the image, and you'll see all the images on the page simultaneously. There are three editing modes: Quick, Guided, and Expert. The Guided edits provide simple instructions for sophisticated changes like tilt-shift and high- and low-key edits, and to the long list of filters Adobe has added Comic, Graphic Novel, and Pen & Ink conversion of your photos. The editing is basically side-by-side, before and after (the effect), with many of the changes managed with sliders that produce continually changing results pictured onscreen. Template-driven projects include greeting cards, calendars, and scrapbook pages. Direct sharing of the finished projects includes export to e-mail, Facebook, YouTube, and interactive online albums. www.adobe.com

Vizio Eight-Inch Wi-Fi Tablet

TV-maker Vizio's VTAB1008 tablet has an eight-inch high-resolution capacitive multitouch screen (1,024 × 768 pixels), HD video playback with HDMI video output, a front-facing VGA camera for video chat, and a three-speaker configuration for stereo playback with SRS TruMedia enhancement. The tablet has a built-in ambient light sensor and accelerometer. The Vizio Internet Apps® Plus (VIA Plus) ecosystem provides an intuitive user experience across multiple devices, including HDTVs, Blu-ray players, other tablets, and more. You can control your home theater with the tablet's universal remote and built-in IR blaster,

which has codes for up to 95% of the remote controllable CE devices in America. Basic connectivity includes 802.11n Wi-Fi and Bluetooth. The operating system is Android, with Flash support and access to the apps in the Google Play store. The main processor is 1 GHz, and memory includes 4GB on board and a MicroSD port for memory cards up to 32GB. Battery life is up to 10 hours. The Vizio 8 tablet is 6.6" × 8.1" × 0.48" and weighs 1.2 lbs.
www.vizio.com

Tomy Auto Mee S

No matter how oil-resistant your phone or tablet screen may be, you likely still spend a fair amount of time breathing on and rubbing the screen clean with microfiber cloths or your shirt. So why hasn't someone automated the task so you can clean it whenever you plug it in for recharge or turn it off for a while? They have—or rather, Takara Tomy has. They've created a Roomba for your tablet or phone. The Auto Mee S is a robot that will scrub the screen with a cleaning paper, moving over the surface, to the edge and not over. It will do a phone screen in about four minutes and a tablet in eight. It runs on a single AA battery continuously for up to three hours. Available on Amazon.com and eBay.

Big Data: Managing the Unmanageable

By Michael Castelluccio, Editor

We've always been fascinated with paradoxes, especially those related to our knowledge systems. The early logicians, plugging away at creating a system for organizing what we know, loved to poke at problems like the liar's paradox. That particular seeming contradiction is expressed in the line, "This sentence is false." The statement looks like a serious challenge to the logician's understanding of binary truth. If the sentence is true, then it's false; and if the sentence isn't true—that is, it's false—then it's true.

The ancients did the same thing with numbers. While Pythagoras was busy drawing up the mathematical relationships that define the harmonies he saw in the universe, Zeno said the whole thing is just an illusion. If you shoot an arrow at a tree, he pointed out, and try to use numbers to explain what's going on, your system will tell you that the arrow will never get to its target. That's because to traverse the entire flight, it must first travel half the distance, and after that, half of the remaining distance, and then half again….Well, that's an infinite regression, never arriving at zero, never thunking into the tree. But of course the arrow does get there, so why doesn't the system want to admit it?

What began in human learning as binary simple has evolved into the more complex and less certain systems of fuzzy logic and quantum physics. Computers doing if-then information choices for us have also evolved into new complexities.

THE CORE PARADOX OF BIG DATA

The cyclonic collection of data called the MIT Billion Price Project was designed to predict inflation. When you get down to its elemental particles, it's all just zeros and ones. The hardware farm, the millions of lines of coded instructions, the speed of operations that make the complexity invisible—it's all just watching zeros and ones.

And our new chip-managed

binaries, our yes-no dynamic for information, has gotten beyond us. We've entered a new world, the Era of Big Data, which Wikipedia defines this way: "Big data usually includes data sets with sizes beyond the ability of commonly used software tools to capture, curate, manage, and process the data within a tolerable elapsed time." The challenges of dealing with these vast stores of information include "storage, search, sharing, transfer, analysis, and visualization."

Like the befuddling but very useful mathematical concepts of infinity and numbers with large superscript powers, big data sets are now measured in exabytes. One of those equals one quintillion bytes. Yes, that's a real word. The more familiar gigabyte is more than a billion bytes, and an exabyte is more than a billion gigabytes—if that clears up anything.

A PRIMER

What we need at this juncture is a primer, a little book of basic elements to get us started, and I can think of no better title than *The Human Face of Big Data* by Rick Smolan and Jennifer Erwitt. True to the nature of its subject, this little primer is big. It's 11.5" $\times$ 15", and it's hefty. Or you can download the app version of the text that will fit on your little mobile phone.

The best thing about the book is that it takes the billion-gigabyte subject in smaller bites. There are eight essays, and most of the pages are filled with photos and visualizations. For example, on the last two pages of Esther Dyson's essay "Pulse of the Planet," she offers Clive Humby's thesis that data is the new oil with a two-page image of an erupting oil well. The large flying droplets contain text illustrating the thesis: "Every hour we create enough Internet traffic to fill 7 billion DVDs; 80% of all humans own a mobile phone of some sort; 10% of all photos ever taken were taken in 2011;" and so on. A simple proof for the thesis comes from another quote about data. "From the beginning of recorded time until 2003," Dyson explains, "we created five exabytes of data. In 2011 the same amount was created every two days. By 2013, it's expected that the time will shrink to 10 minutes."

As you read more examples of this kind of growth, the implication emerges that these changes in information stores and processing will be transformative. As Dan Gardner warns in his introduction, "Big data could know us better than we know ourselves."
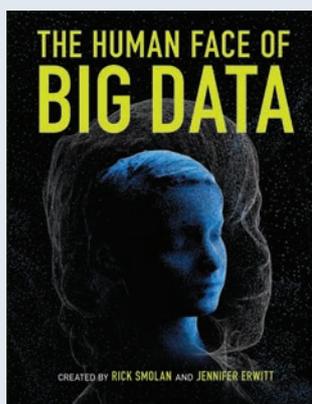
Among the many topics covered, there's an interesting comparison of the first book to document human disease (1664) and the statistical information available to people today through genetic testing. The chapter "Googling Google" analyzes the company, describing it as the "Octopus Elephatis Googleplexus" that has tentacles into everything and forgets nothing. Another chapter looks at how crowdsourcing has taken hold in science. Crowd science has provided research in a number of specialized fields, and "it offers an imaginative answer to a central problem of 21st Century science: too much information." The SETI project is a famous example of nonscientists offering their computers in a "distributed computing" pool analyzing radio-telescope data for signs of extraterrestrial life.

The chapter on crime, "Dark Data," describes a number of information initiatives, including an interesting program called ShotSpotter. Using acoustic receivers and high-speed telecommunications, a company monitors the sounds of gunfire from various locations around the country. Based in Mountain View, Calif., the company can triangulate the exact location of a gunshot, and it sends immediate notifications to local police, sparing them the problem of chasing down the location of incidents and shooters.

Throughout the book, illustrations and graphics create manageable metaphors for some rather large concepts and data collections. Not a new trick, these kinds of visual analogies often are the only way mobile computers can deal with big data sets. For example, the StockTouch app, pictured above, uses a "heat map" image to instantaneously show the current state of 4,000 companies in nine different sectors. You can zoom in or out of the complexity, mark and track favorites, or just get the whole picture at that hour at a glance.

Not only is big data being collected all over the landscape, but it's massaging change into cultures around the globe. Check out *The Human Face of Big Data* at bookstores, Apple's App Store, or www.humanfaceofbigdata.com. **SF**