GUEST EDITOR DR. CARL MARCI, NEUROSCIENTIST

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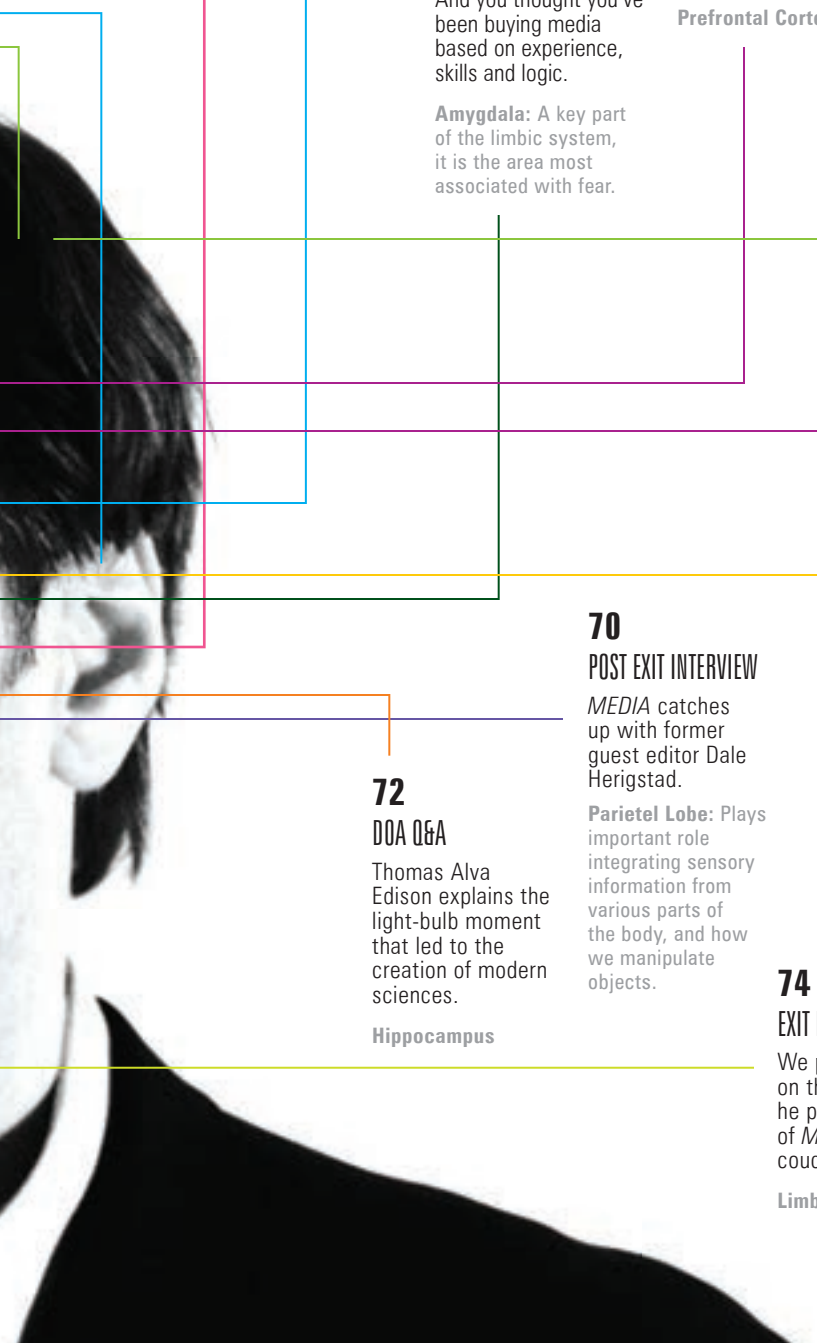
CONTENTS

On the cover and this page: Carl Marci, M.D., CEO & Chief Scientist, Innerscope Research; Photography by JJ Mack



CONTRIBUTORS

Josh Baze is director of insights and planning at Colossal Squid Industries. He is most likely checking is smartphone now.

John Capone is a former *MEDIA* magazine editor, and if you don't know this by now, what the heck have you been reading? When he's not talking to Thomas Edison, John spends his time blogging about meat, and other meaty matters.

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David Szetela is owner and CEO of Clix Marketing, and has spent 25 years on the front lines of digital screens – from Apple to Ziff-Davis.

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Being Carl Marci

Knowing what I know about my brain now, it would be difficult for me to say when I first realized Dr. Carl Marci would be the perfect guest editor for this issue, but at least I know where it happened. Not geographically, but anatomically. It happened somewhere in my hippocampus, the region of the brain where important memories form and are stored. Actually, as Dr. Marci explains, the thought of having him guest edit this issue most likely happened in several areas of my brain, including its emotional and empathy parts, as well as the mirror neurons that are part of the complex array of 100 billion neurons that comprise our brain and somehow work together to form complex thoughts that manifest in complex ways, primarily in the prefrontal cortex.

I know that may seem like a lot of technical medical mumbo jumbo, but I thought it was important for you to think about, because the science that is beginning to emerge around that anatomy and the scientists who are uncovering it, are leading to a new understanding about how people think and feel, and especially, how and why those thoughts and feelings make us do things — including using media, processing advertising messages and connecting with brands.

We've tried to annotate some of those key areas of the brain as they relate to how people use media and we chose to do it with the image of Dr. Marci. We did that to humanize what they are in a way we can all empathize with and connect to. And if you take anything away from this issue, I would hope that it is fundamentally not about anatomy, science, technology, or even media, but about being human.

It was just that desire that led Dr. Marci into the field of neuroscience. As a young doctor he became concerned about the way doctors and patients communicate — or quite frequently fail to. That led him to explore how new biometric techniques could be used to measure how our bodies — especially our brains — form cognitive thoughts and emotional feelings that influence that process. The a-ha moment occurred in his brain while Dr. Marci was watching an episode of *Sex and the City* with a friend. Using a monitor to measure their heart rates and skin sweat, Dr. Marci realized the signals could be consistently correlated to their emotional responses to what they were watching.

"We were 'caught up' in the story, and our mirror neurons transported us to the mind's eye of the characters," he recalls. "And I realized at that moment that this is likely the mechanism explaining the huge popularity of television entertainment."

Dr. Marci got to test and improve his hypothesis as the director of social neuroscience at Harvard Medical School and continues in a similar role at Massachusetts General Hospital, where he also is a practicing psychiatrist — when he and his Innerscope cofounder, Brian Levine, aren't conducting research for some of the biggest brands and media companies in the world.

About a year ago, when I started to understand what Dr. Marci was working on and what he was uncovering, I asked him why he made the leap from patient/doctor communications to media/brand communication and why he wasn't using it to fix bigger, more fundamental problems in the world, like, say, the communications breakdowns that contribute to war and human suffering. His response was, "Give me time." That's probably when all that gelatinous brain matter in my head really told me, "This guy should edit *MEDIA* magazine."

One of the things you never know when you ask a "non-journalist" to guest-edit a magazine, is how proficient they will be in the actual conceptualization and editing of stories. Here Dr. Marci surprised me, too, and at some point in the process I confided that he could always get a job as a journalist if "the brain thing doesn't work out." He told me that journalism was actually his "second choice," but I think he only did that to soothe my empathy center.

The only time Dr. Marci and I had a conflict during this issue is when I added an 11th-hour element about some breaking news his archrival, NeuroFocus' A.K. Pradeep, made about promising new brain-wave-measurement technology. Dr. Marci was adamant that we add a statement from his partner, Levine, and I appealed that it wasn't the right place to do that, especially since Dr. Marci would be all over this issue. So I told him I would add it here in this intro because, after all, Dr. Marci is a human being and has emotions too. Here it is, if you'd like to cross-reference it to page 61.

Innerscope president and cofounder Levine, who participated in the NeuroStandards Collaboration and whose company uses medical-grade biometric measures, expressed optimism about the ARF project. "There is a wide variability in the quality of the technology, the quality of the science and ultimately, the quality of the results in neuromarketing. The ARF effort is good for the entire industry." Levine notes that Innerscope, which continues to do work with NBC Universal, is the only company that participated in the NeuroStandards Collaboration and went through a rigorous independent ARF review process in 2009. "We believe that third-party review is critical to give our clients confidence in our tools and in our results." Ⓜ

JOE MANDESE, EDITOR-IN-CHIEF

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LETTER FROM THE GUEST EDITOR

This Is Your Guest Editor on Brains

New models for a new media landscape

BY CARL D. MARCI, M.D.

The idea that human beings are passive consumers of media content and advertising that can be transformed into "rational" actors who behave predictably in efficient markets is dead. We know now that people are far more complex, adapting to a dynamic and rapidly evolving world that is being transformed all the time because of media.

Just consider that in the time it took for you to read those two sentences, billions of new impressions of media content were created and distributed across a global array of media platforms vying for the attention of billions of people. Billions of complex and complicated brains are also an active part of the process, choosing what we want, when we want it and how we want it, and increasingly, adding directly to the flow of media content ourselves.

And if that doesn't seem chaotic enough, we don't just make those decisions consciously, but are also influenced by media emotionally — reacting to it and interacting with in in ways we are only just beginning to understand. Those are the reasons I began researching doctor/patient communications early in my medical career. They are the reasons I founded Innerscope: to see if we could apply that science to understanding the relationship between consumers, media and brands. And they are the reasons I agreed to guest edit this issue of *MEDIA* magazine. Fundamentally, it is all about communication. And understanding how we communicate.

We have entered a Golden Age of neuroscience that has only recently been applied to the science of media. The new models, informed in part by our growing understanding of the human brain, appropriately view communications as "stimuli" and the "flow of information." These stimuli have both structure and content, processed by consumers not only on the rational and conscious level, but perhaps more importantly, on the unconscious and emotional levels.

Advances in the technologies, techniques and knowledge arising from the field of neuroscience have provided us with new insights regarding the functioning of the brain, how it processes information and the power of emotions to influence complex behaviors. The tools of neuroscience offer a literal window inside the black box of the brain, allowing us to examine what is going on at both a structural and functional level.

Neuroscience teaches a number of important lessons, not the least of which is the

PHOTOGRAPH BY: JJ MACK

The power of these and other lessons from neuroscience has attracted the attention of advertising and marketing researchers eager to apply these new principles and techniques to further their pursuits. In fact, appreciation of neuroscience among advertisers has led to the emergence of a new field often referred to as "neuromarketing." However, neuromarketing, the application of neuroscience to market research, is not without its share of challenges and skeptics. The field is often portrayed in either overly idealized and fanciful terms, suggesting a panacea for all that ails us, or in overly harsh and critical terms, suggesting no value at all. This leads to a rather unfortunate "either-or" dichotomy with neuroscience and its tools as either useful or not. This view is shortsighted. For the question is not "if" neuroscience will influence the future of media. The question is how soon and how impactful will that influence be?

The direct application of the findings from neuroscience to media has been relatively slow, but progress is forthcoming with new models of consumer response at all points along their media experience evolving rapidly.

This issue of *MEDIA* magazine is designed to push these new models forward and open the black box of the brain toward new audiences in a language and format that is both engaging and informative. So please read on, think out of the box and if you will, open your mind. Ⓜ

importance of emotions in media including:

❶ emotional centers of the brain process information prior to cognitive areas, and exert significant influences on subsequent cognitive processes;

❷ emotional processing plays a powerful role in directing attention, determining the depth of processing, and influencing the formation of memories; and

❸ many aspects of information processing and learning occur *automatically* without direct awareness and involve relatively distinct areas of the brain separate from language centers, complicating the ability of consumers and audiences to report accurately their experiences.

The Ultimate Screen

Why Steve Jobs will never develop an iBrain **BY JOE MANDESE**

We live in a world that is defined by the screens we watch or interact with. But unless you are using one to read this article, I'd like to ask you to put down your smartphone, turn off your iPad or simply turn away from your PC or television set and dwell on this remarkable fact: It has only been a little over 100 years since humans first began looking at screens. In evolutionary terms, that's barely the blink of an eye.

Yet screens have become an indispensible part of who we are, how we relate to each other and how we process and interpret the world around us. We use them to work. We use them to learn. We use them to play. We use them to shop. We use them to bank. We use them to communicate. We use them to connect. We use them to navigate. We use them to stay informed. And we even use them just to chill out and do nothing special at all. We may use different screens at different times and in a multitude of different ways, but more often than not, we are using a screen as a portal into our world.

But in neurological terms, even the most powerful, highest resolution, 4G-connected, gesture-sensitive, touch-enabled, IMAX-proportioned screen is nothing more than a simple interface relaying sight, sound and motion data to our ultimate screen, our brain.

"The brain is our ultimate screen because that is where everything ultimately plays out," says A.K. Pradeep, a neuroscientist who is founder and CEO of neuromarketing research firm NeuroFocus. "The reason," he says, "is that literally all sensory input eventually ends up in the brain. And the way that sensory input connects up, modifies and merges with your past experience and your past knowledge is how we experience things. To be poetic about it, it is what we think of as, 'theater of the mind.' It is the combination of all that sensory input and all that content, regardless of the platform, that mixes together in ways you hardly imagine."

Technically speaking, your brain has to fill in a lot of gaps to give us the experiences we have when we listen to or look at media content, says Devra Jacobs, a neuroscientist who is part of a team of neuromarketing researchers at Innerscope Research.

"We see and hear in a very primitive way," she explains. "Visual information — relayed along the pathway between the retina and cerebral cortex — is first deconstructed and then reconstructed, all without reaching conscious levels of awareness."

In fact, Jacobs says our brains do not even have the capacity to process the full extent of the light we receive from visual images but actually process the contrast between light and dark.

"Taking it a step further, in the cortex, cells respond to linear contours that help the brain differentiate between objects," she says of the brain's ability to filter and associate images. "This process forces an individual to go into his or her own memory to try and remember, 'Where have I seen this before?' This information is transmitted into areas that can quickly do an analysis and identify whether those images have been seen

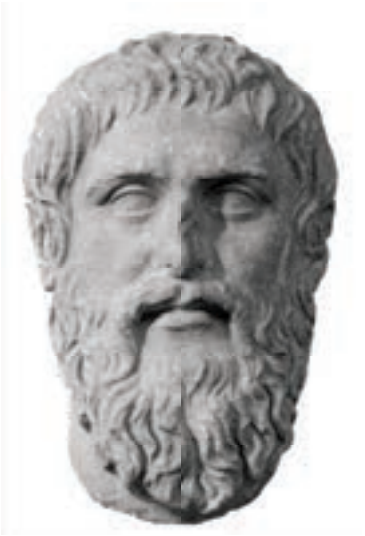
A Brief History of Our Brains and Screens

BY REUBEN STEIGER

A screen is defined as a surface where pictures can be projected for viewing. This term is not just related to media, it defines it; the screen is the membrane that "mediates" or stands between, an image and the individual viewing it. What happens without a literal screen? That image simply pipes directly into our mind's eye so that we can "see" it in the same way we "see" a dream.

Before we discuss the future of the brain, let's look at the history of screens. Plato talked about "The Cave," a thought experiment about ancient people projecting flickering shadows on the wall of a subterranean dwelling — although we should focus more on the past 100 years. At the beginning of the 20th century, cinema, in the form of nickelodeons began to replace live theater. By 1950, television screens had become predominant, ushering in the golden age of broadcasting yet still connecting many brains to a single story.

By the time the Web and mobile's tiny screens burst onto the scene in the mid 1990s, cinema and television had begun fragmenting into multiplexes and cable stations respectively. The Web changed this all. Suddenly, Moore's Law met Melcalfe's Law and the result was an explosion of processing power attached to a network that grew in value exponentially as more computers linked to it.



Plato

In 2007, in a now-famous TED talk, futurist Kevin Kelly rattled off a series of staggering statistics about the size of the Internet: 170 quadrillion transistors, 240 exabytes of memory and 7 terabytes of data transferred per second (about 35 percent of the Library of Congress). A few minutes into the talk, he pointed out that the World Wide Web was roughly the same size as one human brain. This was one of those magical and surprising statistics. How could something as vast and interconnected as the Web simply boil down to one trivial human brain? More interesting perhaps, is the fact that although the human brain has taken millions (or billions) of years to evolve, the Web has arisen in less than 6,000 days.

What this means is that computers are becoming intertwined with our brains and actually rewiring them. While children 10 years ago needed to memorize facts, now they can Google them. We can outsource individual memory to that of the collective; all a person needs to know is what question to ask. Facebook took this a step further — if Google made data findable, Facebook linked people. And what about the real-time Web? Twitter has given us the immediate ability to know what the planet is thinking. Global ESP.

The future of media is one of paradox. On the one hand, data will continue to explode and the number of screens displaying it will continue to proliferate rapidly. Yet oddly and mysteriously, screens will also begin disappearing. What does this mean? It means that a global brain is forming, one in which the network connects man and machine and media flows seamlessly between all the brains on the planet. Ⓜ

before. In fast order, it identifies whether something is comforting or recognizable, terrifying or joyful."

Memory is an important factor in the brain's screening process (see story on page 44). Jacobs says our brains store images, sounds and other memories so that when we are exposed to new media content we are able to identify and process it based on perceptions of things that have been identified in the past.

"Auditory perception works in a similar way," she says. "It comes in as sounds broken down into primitive pieces, which are then organized into a series of sounds that are then recognizable. Each sense analyzes and deconstructs, then restructures information according to its own innate connections and rules."

The sensory stimuli don't strictly have to be the kind of audio or visual content we normally associate with media screen experiences. Any sense, smell, taste, even touch, can greatly influence the way our brains process media content.

To illustrate this point, NeuroFocus' Pradeep cites the time he was at a business meeting in Madrid, using a BlackBerry to demonstrate how touch influences the way we experience media. During the meeting, he asked the executives to take out their BlackBerrys and hold them in their hands.

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"If you feel the back of a BlackBerry there is almost a leather texture to it and when you hold the device in your hand there is a bit of pleasure that your brain experiences just from holding it," he explains. "It's not just the medium. It's not just the ability to make calls or send emails with it. It's everything about it, including the way it feels in your hand, that connects together in your mind. It's how those things are blended together — the way they connect and they do not — that determines the way you experience it."

The process sounds simple, but Innerscope's Jacobs says it's really a marvel of complex anatomical interactions taking place inside your brain that makes it come together that way, including the way our neurons relay information.

There are approximately one billion neurons in the human brain, but Jacobs says the mirror neurons play an especially important role in processing media content.

"Every cortical neuron appears to have a connection to at least five different areas within the brain," she explains ticking off especially important "neuronal pathways," including the brain's limbic areas, which process emotion; the basal ganglia, which are involved in the higher levels of movement; and our sensory pathways.

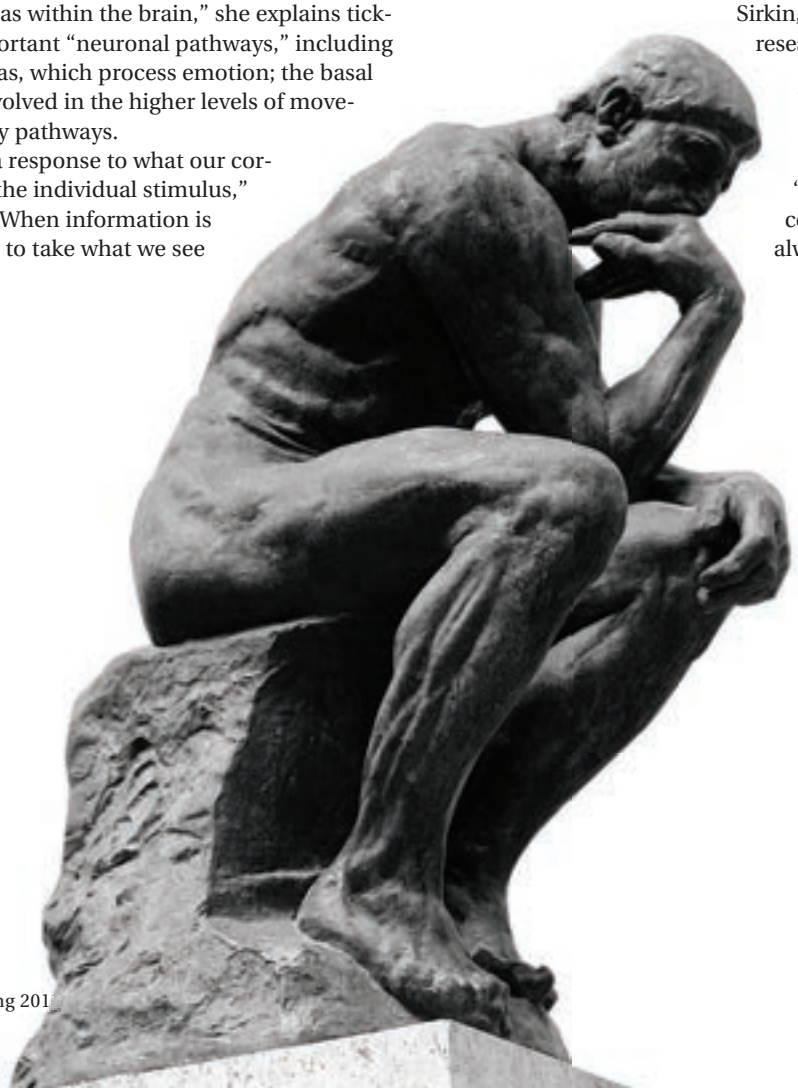
"Each area plays a response to what our cortex appreciates from the individual stimulus," says Jacobs, adding, "When information is coming in, we appear to take what we see and actually mirror what the process may be. If we look at an action on the screen, then our brain can, in a sense, 'perform' those acts — like a dream sequence."

In essence, we perceive and understand media content as an extension of all the other experiences we have over the course of our lifetimes, which means that people with more diverse life experiences connect with media differently than people haven't experienced as much.

"If you are looking to target a certain audience, it is necessary to understand the accumulation of your target audience's experience across the course of their lifetime," Jacobs says, noting, as example, that it would be inappropriate to show a three-year-old content aimed at an adult audience, because they wouldn't have the life experience necessary to process it.

That's the technical view of why our brains are the ultimate screens, but there are some aspects about the way we experience media that may relate to other parts of our anatomy, says Kate Sirkin, executive vice president of global research at Starcom MediaVest Group.

"I think now our brains are a big part of the final screen, but the heart is the other part," she says, offering a final bit of advice: "That's what brands really need to connect with and the brain is not always the final filter." Ⓜ



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OPTICAL ALLUSION

What happens when you mix a journalist, some high-tech gear, and screen Mecca Times Square

BY LARRY DOBROW PHOTOGRAPHY BY JJ MACK


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TOSHIBA
TDK
DO NOT
ENTER
MARQUIS
WONDERLAND


Kodak

The writer, with Ball State University grad student Ryan Carney, gets acquainted with the Mobile Eye in New York's Times Square.

As a native New Yorker, I experience the neon tourist farm that is Times Square in a variety of ways: as a churl, as a misanthrope, as a hater of all animate beings in my midst. Even when the urge for culture strikes me and I slip into the genteel guise of a "thee-AY-turr" attendee, I rarely hesitate to plow through the neighborhood's chorus lines of slow-walkers, Red Rover-style.

What I don't do during my infrequent Times Square forays is bend to the will of the bombardment of marketing. Obviously one can't completely ignore the shiny, blinky displays that beam out from buildings and LED screens alike, but the realities of pedestrian-dodging help temper the visual din. Besides, the marketing on Times Square's many screens isn't any different from or more memorable than the marketing on my TV, computer or smartphone display: It's just amplified visually.

So I took it as almost a personal affront when my editor asked if I wanted to test my I-am-impervious-to-advertising-and-probably-bullets theories in Times Square. The idea was to hook me up to eye-tracking technology, developed by Ball State University's Center for Media Design. The technology — a set of glasses equipped with two cameras, one facing straight ahead and the other focused on my eyes, jury-rigged to a video recorder — would gauge which ads registered with me and which didn't, whether I realized it or not.

Its technical name is the Mobile Eye. Manufactured by Applied Science Laboratories (ASL), the system consists

of the aforementioned glasses and a turbo-modified Sony GV-D1000 digital video recorder. As Ball State grad student Ryan Carney tells it, "ASL simply — I use that term lightly — attached a device to the side [of the recorder] that accepts the camera signal from the goggles and somehow puts it in a format acceptable to the video recorder." In turn, the recorder captures both video streams: the one from the straight-ahead camera and the one from the eye-focused camera. From there, the system overlays them and its software identifies any or all areas that my eyes gazed upon. So yeah, Carney had only slightly more of a clue as to how the glasses-doohickey worked than I did.

Nonetheless, he gave me a few tips in advance of our Times Square walkabout. Contact lenses were a must — my prescription glasses beneath the techno-goggles would render the measurements inaccurate and me a supernerd — and the shade offered by the bill of a baseball cap would enhance the accuracy of the tracking. It saddened me that I'd more closely resemble the average video game shut-in than Robocop.

Duly clad and maintained, I arrived in Times Square on the first temperate afternoon of 2011 with no small trepidation. Our crew — me, Carney, a photographer and a MediaPost photographer-wrangler — met at the Hard Rock Café (under its glowing sign, natch). After a quick series of introductions, Carney pulled out the *Pulp Fiction*-like briefcase that housed the glasses and recorder. Hooking them up proved a breeze. The glasses sat easily on the base of my nose and a snug tote kept the four-pound video recorder pressed against the small of my back. Carney took much delight in attaching the latter: "Bet you thought you'd never have to wear a fanny pack again, huh?" We then paused for 20 minutes while I negotiated a clause into my contract that this unfortunate accessorizing would not be depicted visually.

Amazingly, given the unapologetic gawkism that pervades Times Square, nobody stared, not even when we conducted a calibration test. This required me to gaze from several different angles (head to the left, head up, head down, etc.) at a black dot scribbled on a white piece of paper, held about 10 feet away. Properly calibrating the glasses was key to the assignment; if done inaccurately, the eye movement-time measurements wouldn't work.

As for those eye movement times, Carney outlined why they matter. "It's 0.2 seconds for a 'fixation,' which is the minimum threshold for cognition. Anything less — i.e., 0.19 seconds or fewer — is considered a 'gaze.' Essentially, you see it but it doesn't really register in your brain." That sound you just heard was Olive Garden's marketers sighing sadly.

I was similarly surprised when our crew started to make its way through the streets. I expected that donning the glasses would give rise to the vertiginous sensation often associated with unfamiliar, extraneous eyewear. I anticipated stumbling around Times Square like a college kid in a marathon game of duck-duck-goose after five beers — not that I'd know what that feels like. Instead, beyond the slight difference in heft between the Mobile Eye glasses and my own, the process felt natural or as natural as any trot through a pulsating, densely populated urbanosphere can feel. Starting at Times Square's southernmost tip, we slowly proceeded northward, stopping occasionally to snap action shots. The photographic evidence, shared on these fine pages, suggests that I am the Michael Jordan of looking at things while standing still.

What jumped out at me was the difficulty of taking it all in. As I walked, I was supposed to be making a conscious effort to remember the screens and messages that caught my eye. Instead, I found myself pinballing between disruptions and distractions. My attempt to watch a clip from *Rango* was crashed by a street hawker pushing discounted tickets to *American Idiot*; my


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careful perusal of the ESPN sports ticker was interrupted by a garbage can that had the poor manners to jump directly in my path. No matter where I glanced, another screen beckoned. The overall effect was hypnotic.

Our journey proceeded apace, past Nissan, LG Electronics and Prudential, with photo pit stops in front of JVC's 3-D globe and the wow-man pink-flashing-arrow psychedelia touting Gray Line's ticket booth. I gazed upon static ads for shirts (Van Heusen), soda (Pepsi Max) and shimmery ones for retrofunnies (TV Land) and riffs (Thin Lizzy, for its rockin'-like-it's-1976 gig at the nearby Best Buy Theater). I gazed upon Best Buy itself during a stop to test the Mobile Eye system on the retailer's myriad screens of all shapes and sizes (verdict: blurry).

But the most interesting and enveloping environment was Times Square, so we redeployed for a second run up, down and around its passageways. I picked up a few things I'd missed, notably major-league displays for Aeropostale and someone or something called "The Knowledge Effect." I learned later that this is the centerpiece of a Thomson Reuters campaign, stressing that "the right information in the right hands leads to amazing things." So maybe we should all chip in to buy President Obama an electric car, or something.

At the northernmost tip of Times Square, our crew decided to call it an afternoon. I removed the Mobile Eye gear, freeing my face from the light pinch of the glasses and my fanny from the stylistic tyranny of the pack. I headed home lightheaded, as much from the return to my usual unplugged calibration as from the hours-long march through the 'hood. Now came the fun part: determining whether my impressions of the screen-aware trek lined up with the Mobile Eye measurements.

When the video footage arrived, I was able to answer this question with a definitive "sort of!" It's fascinating to watch, with a shaky red crosshairs framing the images upon which my eyes fixated. It's somewhat less fascinating to hear, thanks to a one-way commentary track in which I unleash ferociously intelligent exposition like "Jury duty, I understand — it comes with being a citizen and everything. At the same time? Eh."

Anyway, as Carney had predicted, I didn't necessarily see what I thought I saw, and vice versa. During the walks through Times Square, my eyes kept shifting back to the enormous screens that loom over the northern and southern borders of Times Square. As I suspected, they spent an exorbitant amount of time fixating on the ESPN ticker; as I wouldn't have guessed, they spent even more absorbing the colorful, briskly deployed content on the M&Ms and Coca-Cola displays. This goes a long way toward explaining my chocolate-and-caffeine dinner feast later that evening.

Watching the footage, I almost felt as if I were reliving somebody else's Times Square adventure. In rough order, here are the other screens and signs that registered far more than I thought they did: Sweet Leaf Tea (hey, I was thirsty); an electronic Bank of America marquee (this triggered an overdue bill reminder); a guy who fell and bumped his head, requiring medical attention (perhaps I'm not a misanthrope after all); pretty much everything involving beer (with an emphasis on Michelob, depressingly); the Walgreen's logo (your guess is as good as mine); and a tourist with a funny hat. I'm a twitchy little fella, it seems.

In retrospect, the experiment proved a success. I learned a little something, both about marketing and my witting and unwitting reactions thereto. I managed to avoid tripping over the curb. I didn't overgaze at passing female pedestrians, the American Eagle underwear models or the Forever 21 spots. Hooray! I'm not a perv!

While I still hold that the net effect of being slammed by so many messages simultaneously is to remember none of them, the messages seem to be registering on a subconscious level. So while my conscious brain may say "nuh-uh," my semiconscious one is wondering about this OPI Nail Lacquer that it's hearing so much about. It appears that my brain works. Big-screen advertising, too. Nice work, Times Square marketers. Ⓜ

Crispety and crunchety wanted more notoriety.

So Yahoo! partnered with Butterfinger, using insights around their target audience's habits and preferences to develop a custom online comedy network that reached them in places they hang out online. The campaign was an instant hit, resulting in eight million video streams per month. See what Yahoo! can do for you. Find out more at **advertising.yahoo.com/SAS**

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Why You Can't Lie to Me

You've seen the TV show but there's some real science behind facial coding

BY DOUGLAS QUENQUA

It's true: Advertisers lie. But here's another fact: so do consumers. Anyone who's ever monitored a focus group can tell you that. Maybe it's not lying of the shameless "It was like that when I got here" variety. It's more the "I base my grocery-buying decisions on nutrition, not packaging" kind of fibs. But either way, it's misleading and advertisers pay the price for it.

Luckily, faces don't lie. Someone watching an offensive commercial is going to look disgusted, just as the lips of someone watching a poignant ad will quiver as he fights back tears. All the questionnaires in the world can't match what a trained professional (or now, software) can learn from watching someone's face. If only there were a way to harvest the facial expressions of consumers of all demographics from all over the world, then translate them into actionable marketing data.

To be clear, there isn't...yet. But there are a handful of companies doing some clever things with facial coding and eye tracking and other whizbang technologies to help advertisers better gauge how their customers really feel about them. Or at least how they feel about their products, packaging, ads, store designs and Web sites.

"Darwin realized that the face was the best place in the body where we reflect and communicate our emotions," says Dan Hill, president and founder of Sensory Logic, a market-research firm based in Minneapolis, Minn. "It's the only place in the body where muscles attach right to the skin." Darwin's insight was based on the observation that blind people make the same facial expressions, corresponding to the same emotions, as sighted people, suggesting that facial expressions are not learned but hardwired into our brains.

Facial coding may owe a philosophical debt to Darwin. But the technology traces back to a psychologist named Paul Ekman, who

in the late 1970s developed what's known as the Facial Access Coding System, or FACS. The system, which has so far been of greater use to animators than advertisers, reduces all facial movements to mathematical units. By measuring the movements of a person's face, one can interpret that person's emotions.

Thirty years after the development of FACS, companies like Sensory Logic are helping advertisers apply that technology to market research. The primary way Sensory Logic does this is exposing test subjects to a commercial or a radio ad while a Logitech camera records the subject's face (the process is called "exposure"). Experts then decode the facial expressions and line them up with the content the subject was watching to determine, down to the second, how that person really felt about what he was watching. In the past few years, the company has even begun offering this service remotely. As long as a subject has a camera installed in his home computer, the company can record his facial expressions as he watches the content from home. Other companies are now working on bringing the technology to smartphones.

The invention of the Flip camera has also allowed Sensory Logic to combine facial coding with traditional focus groups. Now market researchers can record the faces of focus-group subjects to see when their expressions betray their words. The company can also record the faces of subjects answering questionnaires to look for "any gaps or illumination between what they see and feel," says Hill.

To appreciate the value of such tests, consider the example of a pharmaceutical company trying to determine what mattered most to doctors when prescribing medicines. When asked why they choose one drug over another, "of course the first thing the doctors say is efficacy of the drug," says Hill, "but when we looked at the emotional data they hardly emoted about that at all." What did capture the doctors' hearts, according to their faces? "Ease of filing for reimbursement and the payment schedules and so forth," says Hill. In other words, "things that were much more central to their own pocketbook. Those things were much more of interest to the doctors."

This kind of research has also helped quantify the shortcomings of traditional focus groups. Most advertisers already know that people in a focus-group setting will sometimes adjust their answers to make themselves look smart, or to cozy up to an alpha dog in the room. But Sensory Logic has taken this further by looking at how people of different ethnicities and demographic backgrounds behave differently.

"Hispanics tend to respect authority, which means they might be a little less forthcoming to make a criticism," Hill says. "African-Americans are pretty straightforward. In our research they come closest to just saying how they feel. But whites and Hispanics and Asian-Americans — you're talking about a gap that's double digits between how much they're willing to admit they like something" and how much they really do. In an age when advertisers spend a lot of time and money crafting discrete messages for different ethnic groups, such lapses in insight can add up to significant waste.

Sensory Logic is also eager to take facial coding outside the research room and is looking to partner with companies that provide eye-tracking technology. Such companies — EyeTracking, located in San Diego, and Tobii, in Sweden, are two — use special glasses worn by the consumer to determine

where his eyes settle as he walks through a retail environment. Combine that with facial-coding technology and you can tell not just where people are looking, but how they feel about what they're seeing. The application has exciting implications for retailers, who could use it when designing their store layouts.

Of course, it wouldn't be an emerging technology if there weren't disagreements over how best to apply it. Gallup & Robinson, a market research firm in Pennington, N.J., practices a different brand of consumer face reading.

"Our focus is on what we call emotional valence," says G&R president Scott Purvis. "Most of the other systems are on what we would call arousal."

To the layperson, the difference between what Sensory Logic and Gallup & Robinson do may seem tiny. But it's significant. Put simply, emotional valence is the measurement of all human reactions on a scale of negative to positive. So Gallup & Robinson is less concerned with whether you're smiling or frowning than how intensely you're doing one or the other.

"The idea is that people have a positive and a negative rewards-type system in their brain," says Purvis, "and these things operate both at the same time, so you can feel both very positive and negative toward a stimulus at the same time. It's not ends of a scale, it's two different systems, so that's why people are often ambivalent about many of the things they're seeing. We're trying to get at that relationship, rather than whether somebody is disgusted or happy."

Purvis uses the example of a typical pharmaceutical commercial, the kind that begins with patients suffering from an ailment, then features a (frequently animated) illustration of the treatment working, followed by scenes of a healthy, happy patient. The intensity with which a viewer follows those phases of emotion "can be very important in terms of overall effectiveness of the commercial," he says. "And I don't know that we understand it as well when looking at it from the point of view of, 'Did you like it?'"

Not surprisingly, Hill doesn't put much stock in emotional valence. He points out that there is a wide range of emotions that can be considered "negative," not all of which are the ones you may want your commercial to inspire.

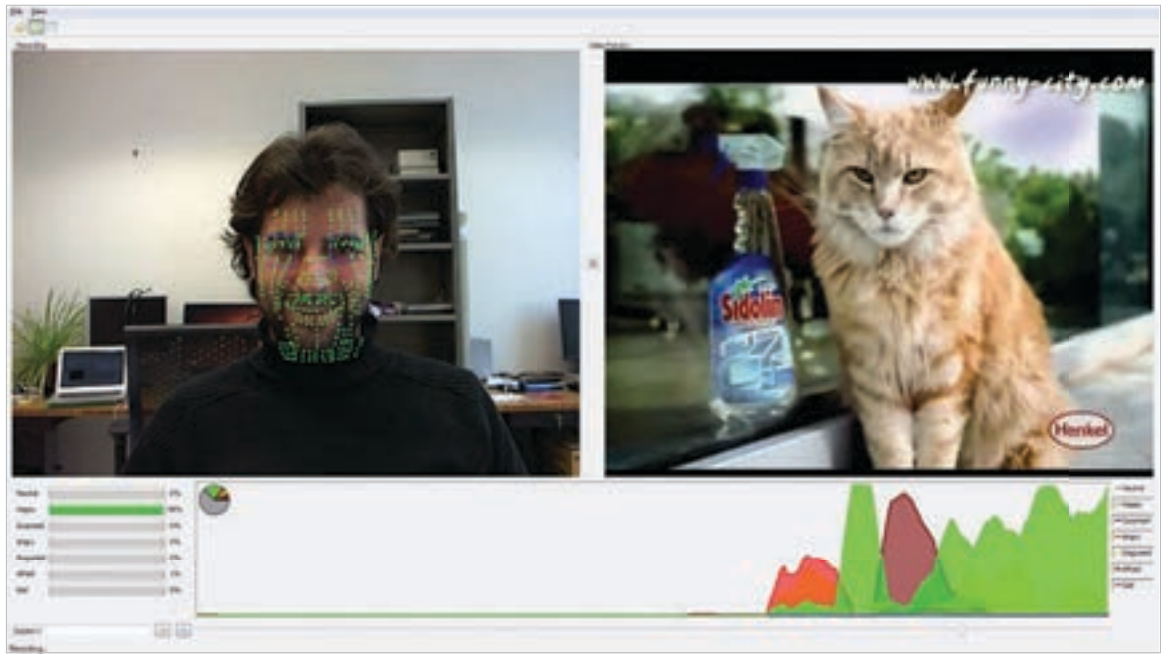
"Sadness versus anger versus fear are all quote-unquote negative emotions," he says. "But those emotions can not only be vastly different in their meanings, but also in their implications for your creative."

Hill, too, uses the example of a pharmaceutical commercial to illustrate his point. "You're trying to create a problem-solution commercial, so you're supposed to make your viewer feel sadness at first because they're disappointed with the status quo," he says. "But what if you're actually making them angry because they're confused? Then you've lost them."

"AFRICAN-AMERICANS ARE PRETTY STRAIGHTFORWARD. IN OUR RESEARCH THEY COME CLOSEST TO JUST SAYING HOW THEY FEEL. BUT WHITES AND HISPANICS AND ASIAN-AMERICANS — YOU'RE TALKING ABOUT A GAP THAT'S DOUBLE DIGITS BETWEEN HOW MUCH THEY'RE WILLING TO ADMIT THEY LIKE SOMETHING."

DAN HILL
SENSORY LOGIC

Tobii Glasses mobile eye tracker and the light weight Recording Assistant capture the wearers' visual experiences in order to research behavior



Hill even has a term for it. He calls it being "off-emotion," as in being off-message.

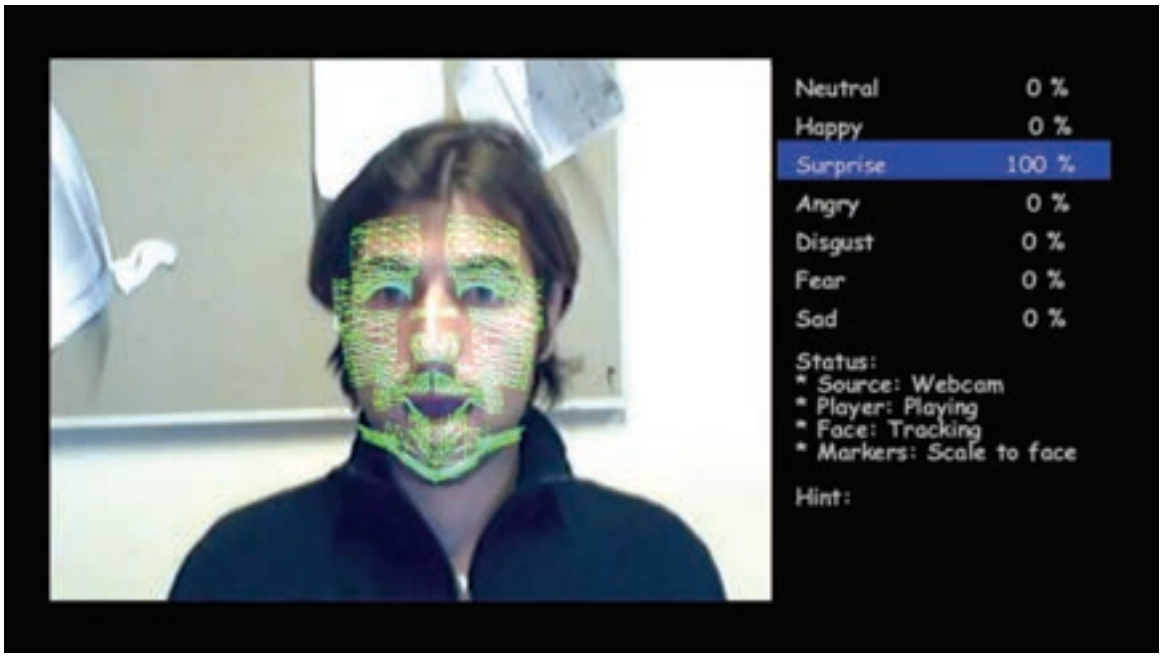
Measuring emotional valence comes with some other trade-offs. Rather than making video of a subject, Gallup & Robinson attaches electrodes to his or her face, specifically at the frown and smile muscles. The process, known as electromyography, or EMG, may do a more accurate job of measuring the intensity of muscular reaction — but it doesn't travel well.

"There's some work being done now to use the camera to distribute it over the Internet so Webcams would be able to get an EMG-type response," says Purvis. "But so far it hasn't gotten to the point where I think people have a lot of confidence in it."

Regardless of which method you put your faith in, there's a good reason that both remain little more than a theoretical threat to traditional market research: They have a serious scalability problem. Both approaches require trained professionals to translate the results. Training such professionals is said to take up to 100 hours; of course the process of watching the videos and drawing conclusions takes many hours more. So while face reading makes a nice complement to focus groups or questionnaires, they've never really been scalable enough to replace them.

Enter ThirdSight. This 11-person firm in the Netherlands may be the newest thing in face-reading market research, having been spun off from the University of Amsterdam on January 1, 2011. ThirdSight's signature technology is software that reads and interprets video of test subjects' facial expressions, eliminating the need for a pricey, highly trained researcher to wade through hours of slow-motion video.

"The software detects the face of the subject, then localizes landmarks like mouth corners, cheeks and eyebrows and tracks these facial features over time with a grid like a spire," says Theo Gevers, scientific advisor at ThirdSight and an associate professor of computer science at the University of Amsterdam. The software is taught to recognize facial con-



ThirdSight software recognizes and records facial expressions for marketing analysis.

figurations that correspond to six different emotions, so it can tell instantly how a test subject is reacting to content.

ThirdSight has even created a smartphone app that can read and interpret a user's facial expressions. "It's not yet real time," says Gevers, "so it will record your face and then process it." But that will change quickly as smartphone CPUs become faster and more powerful.

The drawback to ThirdSight's process is an admitted lack of accuracy. "We might have some disadvantages in the sense that people who have been trained for 100 hours might be a little bit better" than the software is at reading the subtleties of facial expressions, Gevers notes. "We have a fairly accurate system, but it's not as good as a human operator."

Still, the potential effect of scalable facial coding on the world of market research is huge. Imagine a world in which consumers anywhere could download an iPhone app that records their faces as they watch a commercial — which also plays on their phones, incidentally — then instantly beams back that person's emotions to a waiting database. Today, companies like Sensory Logic and Gallup & Robinson are limited to running sessions with about 40 people; more than that would simply be untenable given the man-hours that go into interpreting the results. But a smartphone app equipped with software that can read faces in real-time has the potential to make facial coding an easy, inexpensive mass-market research tool with a higher level of reliability than anything available today.

"The conservative estimation is that 95 percent of people's thought activity isn't fully conscious — that we're mostly intuitive, subconscious decision makers," says Hill. That, more than any other reason, is why simply asking consumers how they feel about a product or campaign is bound to come up short. No matter how much they want to tell the truth, people just might not be able to. Bypassing the consumer to go directly to his brain, courtesy of his expressions, may be the market research industry's best chance to save face. Ⓜ

INSIGHT

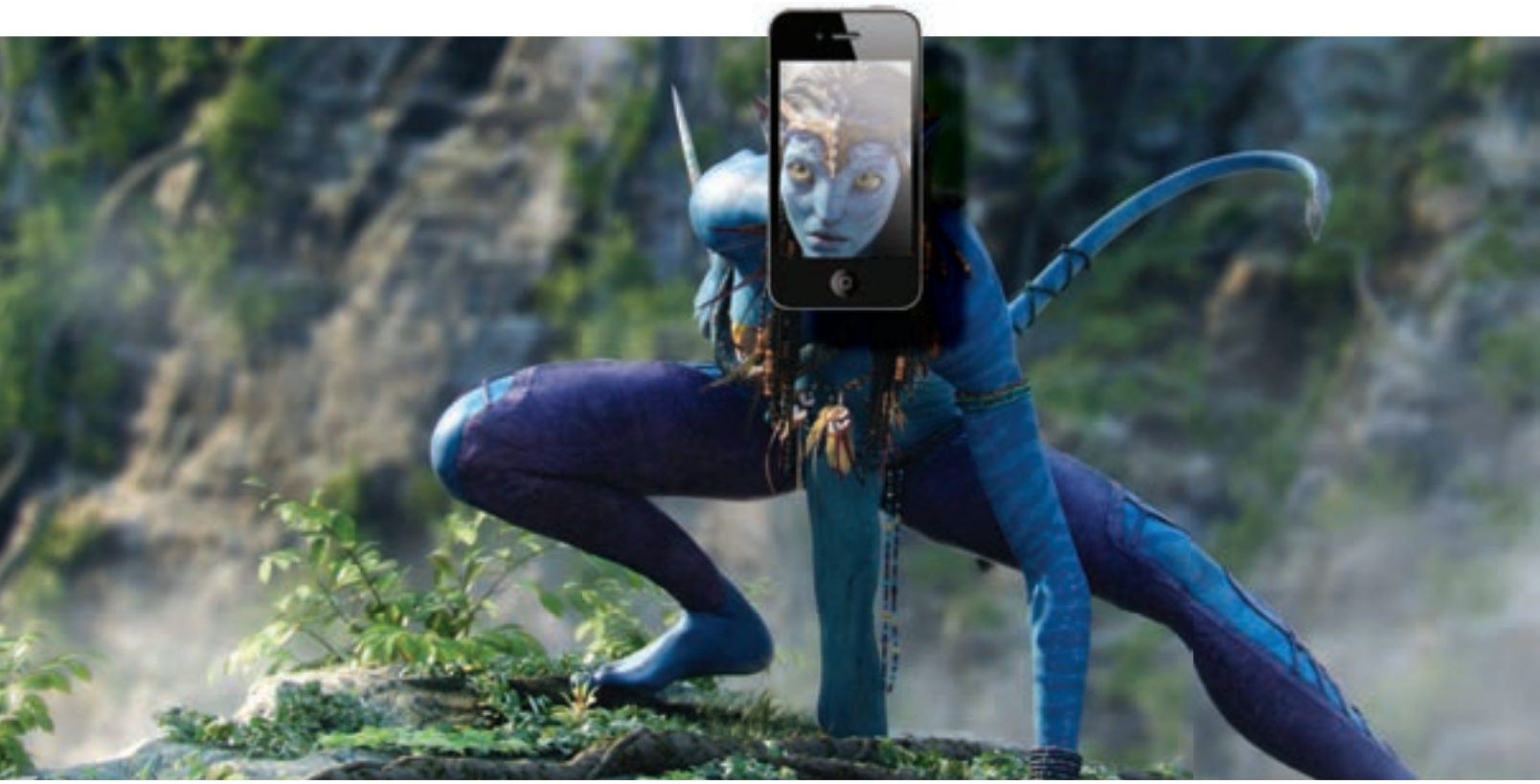
THIS IS YOUR BRAIN ON SCREENS REVISITED

An updated model for understanding how our brains relate to media screens, or in some cases, do not **BY JOE MANDESE**

"I am writing a story about how our brains perceive and process content across various media screens and I can't help thinking about what my brain is doing at this very moment, even as the words I write appear on the screen of my computer. Or, for that matter, what your brain will do when you read them in this magazine or on some of the screens this story will eventually appear on."

If that paragraph triggered something in your brain, it is probably because some neurons fired deep in your hippocampus, the region of your brain where short- and long-term memories are formed. This then triggered an emotional response, experienced in your body, which directed your attention to keep on reading. In other words, you probably read those words when we published them a year ago to begin a story about how our brains relate to various media screen experiences.

I am repeating those words now to trigger your memory but also because this story will explain some of the advances neuroscientists have made since then and why we now understand exactly why an "immersive" screen experience, like watching an engaging TV show, can be a much more powerful environment for some types of advertising — especially ads for new



or unfamiliar brands — than a "flexible" media experience like the Internet.

But first, let's dig back into our hippocampus for a moment to recall what we understood a year ago. At that time, *MEDIA* magazine had asked two leading neuromarketers — this issue's guest editor, Dr. Carl Marci, and his partner at Innerscope Research, Brian Levine — to help us explain what was known then about how the brain relates to media screens. What they did was review the most current scientific research on the subject and create a new model.

The model, dubbed the Brand Immersion Model, established two variables — immersion and flexibility — to explain the two extremes with which people connect cognitively and emotionally to screens. Immersive screen experiences, they explained, are screens that by virtue of the way they are being used and the nature of the content, are deeply emotionally immersive in a way that engrosses the user. Flexible screen experiences, on the other extreme, are those screens and content that people may tune in and out of and interact with — with a great deal of control, manipulating how and what they use them for. Oftentimes, flexible screen experiences are ones in which you are engaged in other activities — frequently multitasking at the same time with competing content on the same screen or a second screen — the way you might be with an Internet-connected computer or a smartphone.

The model, they said, could be used to explain the way our brains relate to all screen experiences, from the most immersive and engaging IMAX movie screen, to the most flexible app-happy, on-the-go smartphone experience. They even came up with a simple method to graphically depict the extremes of screen experiences, plotting flexibility and immersion as X and Y coordinates on a graph to show the trade-offs that happen inside our brains when we experience various screens.

Keep that hypothesis in mind. Now imagine two different screen experiences with the exact same content, the movie *Avatar*. In the first scenario, you are sitting in a darkened movie theater watching it on a humongous, high-definition 3-D IMAX screen. In the second, you are watching it on a tiny 2-D iPhone screen while being jostled by your fellow commuters on a subway car. The exact same content on these two different screens and settings will produce completely dif-

AVATAR IMAGE: FOX

ferent experiences in our brains. So the setting, the content and a multitude of other factors, especially whether we are familiar with or unfamiliar with the content being watched, all play a role in how we experience it.

That is what would have been stored in your hippocampus if you read last year's article. Now we're going to add some new memories, based on the research Levine and Marci have been conducting since then with some of the biggest media companies in the world, especially News Corp.'s Fox Television unit. That research sought to understand what happens explicitly with advertising messages when they appear in entertainment or information content on different immersive and flexible screen environments. To date, the research has looked primarily at the differences between a conventional TV-programming experience and a typical Internet user session with multiple types of display ads, including those with rich media and video. Levine and Marci are continuing research to see what happens in mobile, handheld social media and even various gaming experiences on different types of screens, both big and small.

The initial findings will likely trigger heavy neural activity in the emotional centers of the brains of big TV advertisers and agencies. They likely will also cause neurons to fire in the prefrontal cortex — the part of the brain where complex thoughts are formed — of digital planners, buyers and advertisers. The results from Innerscope's studies show that a typical, immersive TV-programming experience is likely to produce much higher levels of "emotional engagement" with the ads that appear in those shows. That's important, because emotionally engaging content is the kind most likely to form new memories and reinforce existing memories in our brains that result in important advertising communications behaviors like "brand recall" and "brand favorability."

Because of the high degree of flexibility in a typical online user's experience and the fact that even the same video programming and advertising are likely sharing the screen with other distracting content on a Web page or even other applications on your computer's screen, Levine says it tends to produce much lower levels of engagement and recall. How much lower? About 38 times lower.

Hold that thought, lest it become irrevocably etched into your hippocampus, because that is not the end of the story. As Levine explains, that is the average, but there are situations that can greatly increase or reduce the potential for an ad to emotionally engage a consumer's brain in those two very different screen experiences. And one of the biggest factors, according to Levine, is actually memory. If you are exposed to a familiar and relevant ad online, you have a greater likelihood of engaging with that ad.

That finding makes sense, Levine says, because the brain has to work harder to process new information when it experiences it in a flexible screen environment which has more distracting elements associated with it. The finding also has obvious implications for media planning, suggesting that TV and Internet campaigns might work better as complementary mixes in which new ads or brands are first introduced on television, where they can bond emotionally with viewers — and generate reach in the process — and then build frequency in online media.

It also suggests that if you are introducing a new campaign or launching a new brand, you don't want to do it exclusively online, because online media does a relatively lousy job of creating emotional engagement for unfamiliar brands. How lousy? About 47 times worse than an immersive TV-programming environment, according to the work Innerscope has done for Fox.

The reason, says Levine, is that TV does a better job of triggering emotions and creating connections where none existed before. That's most likely because an immersive environment like a TV program activates more of our "mirror neurons" along with the emotional responses — the part of our brains that can create the feeling of new experiences based on observing what other people are doing. In other words, when you are engrossed in the kind of characters and storytelling that take place in a TV drama or comedy, your brain is open and receptive to creating new connections.

Levine says this doesn't necessarily mean that online is a bad environment to advertise in. Just that it performs differently than television and that advertisers, agencies and media companies need to understand those differences to utilize the mediums effectively.

"The problem is that advertising designed for a television brain doesn't lend itself to an online experience," says Levine. "So a lot of online advertising isn't leveraging the strength of the online medium."

Levine says Innerscope hasn't yet figured out the optimal combination but it will continue researching online media, as well as other genres of digital media experiences in combination with television experiences to find out. That, in turn, will enable advertisers and media companies to design advertising experiences that are better for consumers based on the way they use different screens.

"The beauty of biometrics is that it gives us an opportunity to improve audience response in every medium and on each platform," says Audrey Steele, senior vice president of sales research and marketing at Fox, adding, "We're after differentiation from other platforms but also validation of the unique value of our same-content cross-platform offerings." Ⓜ

Space Race

Just because we can put screens everywhere, does that mean we should? (Oh, by the way, they can all see you) **BY JOHN CAPONE**

It's been said that it's the fate of every medium to be devoured by its offspring. Screens have been devouring their parents at increasingly faster rates and we've sat in front of them watching, as they multiplied from the one we all gathered around in theaters, to the one we all gathered around in living rooms, to ones we all carry around in our pockets. Through it all we've watched them with rapt attention. It's about time the screens returned the favor.

Mark Weiser, the late chief technologist at Xerox's PARC, who coined the term *ubiquitous computing*, wrote in a 1991 essay, "The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it." Weiser posited an age of "machines that fit the human environment, instead of forcing humans to enter theirs."

Moore's Law, named for Intel cofounder Gordon Moore, states that the number of transistors on a chip will double every two years (and has held true for more than four decades). With the rise of increasingly powerful and inexpensive hardware, machines have been getting faster and smarter by order of magnitude. The eventual and inevitable flatlining of Moore's Law, though, once doubted by engineers, now is a crisis for the tech industry on par with what Peak Oil is for big energy.

ILLUSTRATION BY: TONJIBOY

Shinjuko, Tokyo at night, lit with advertisements

Bell's Law, Moore's complement in many regards, states that machines are getting smaller at the very same time they are getting faster. It holds that every decade or so we'll be introduced to a whole new class of computers; so we've gone from mainframes to desktops to smartphones and other attendant variations. Hence most of us hold more computing power in the palm of our hands than NASA had in 1969 (no matter that it used that power to put two men on the moon and we use it to follow @charliesheen).

This is not to be confused with the "historical exponential view" extolled by futurist Ray Kurzweil, which states that the rate of technological progress cannot be calculated linearly; that because technological progress begets faster and faster technological progress exponentially, it must be charted on a steep curve. That progress now seems to dictate that computers and by default, screens (which may be even more bizarre to contemplate) will be basically absorbed into the real world.

"The destiny of computers — like other mass technologies like electricity, paper and running water — is to become invisible, that is, to disappear into the fabric of our lives, to be everywhere and nowhere, silently and seamlessly carrying out our wishes," theoretical physicist Michio Kaku writes in *Physics of the Future* (Doubleday, 2011). We are on a precipice — a generation or so (of hardware, not people) away from screens not only being inescapable but aware.

Screens have become like Pringles: You can't stop at just one. We are getting over — or perhaps we are still in the midst — of an insatiable gadget-hungry phase. It's one in which we expect screens at every turn, going from single-screen households to multiple-screen households. Maybe it started to go off the rails with Super Bowl parties where people put TVs in their bathrooms.

Then we began to snack voraciously on screen content. It was always there on the desk at work. TVs in every room. Screens at the train station giving us the news and suggesting places around town to visit. Tinny-speakered monitors next to the pump at the gas station selling us deodorant or showing videos of babies roller-skating and drinking Evian. The map display on the dashboard blinking at us. At a stoplight? Check your phone for updates. Waiting on a line? Post a status to Facebook. By the time we brought another screen into our homes so we could play "Angry Birds" on tablets held on our laps, some had to be thinking, "Did I really just eat all of that?"

Personal hardware is developing apace with the technology that's driving outdoor screens, so could our gadget-happy ways curtail the need and applications for public screens? Those concerned with UI and form factor are, of course, asking, "Does there need to be a screen everywhere?"

"If you have customers who are walking around with really sophisticated hardware on them, whether that's an iPad or an

PHOTOGRAPH BY: LUKAS SCHRANK; ILLUSTRATION BY: TONJBOY

ILLUSTRATION BY: TONJIBOY

> "IF SOMEONE TOUCHES AN IP-CONNECTED VENDING MACHINE, 10 SECONDS LATER I KNOW THEY TOUCHED IT, AND I KNOW WHAT THEY DID WITH IT, AND THAT'S DATA WE'VE COLLECTED. "
>
> MATT LINDLEY, SAPIENTNITRO

iPhone or something else, what is the benefit of putting in interactive touchscreens?" asks Jason Brush, executive vice president for user experience at Possible Worldwide.

"We've already had interactions with clients where they said they wanted to put in in-store kiosks and we said, 'Well, everybody's carrying [interactive devices] around in their pockets — do you need to make the investment?' " relates Matt Lindley, director of brand experience and innovation at SapientNitro.

This is not to say that we'll soon see anything like a decline in public screens. In fact, we are probably just getting started, though by the time we're done we may not recognize the result as screens. "The best applications are ones where it's social [in the old-fashioned sense] and where it makes sense for it to be public," says Brush. "And we've only dipped our toe into what those applications are."

"When a company sees what kind of investment they are going to make in a vending machine with a 42-inch plasma, they have to figure out what they want to compare it to," says Lindley. "And there are a lot of companies that have approached us and said, 'If we spend $10,000 on a kiosk, we better sell $10,000 worth of whatever comes out of it.' And that's the kind of pressure we never put on a billboard."

While the cost of elaborate screen installations has come down, it still isn't cheap, though exactly what you'd be comparing the infrastructure and set-up cost to isn't quite clear. "There's no standard. The interaction levels are obviously higher, but what does that mean? What sort of metric do we apply to it? If I spent *x* to install all this stuff what kind of return am I looking for in having this out there? That's why the connectedness is so important," says Lindley. "If someone touches an IP-connected vending machine, 10 seconds later I know they touched it, and I know what they did with it, and that's data we've collected. Compare that to an ad that used to be static or lit up or even a video: I didn't have that kind of interaction, so I didn't have that kind of data. As soon as we record a touch on a screen for a product, we are eons ahead of a static ad or a video."

The current default is enabling interactive screens with touch- and multitouch capabilities; however, gesture controls in

SapientoNitro's Share Happy vending machine gave ice cream to users who smiled in front of the mounted camera

public screens of the sort used by Microsoft Kinect are certainly on the way. "As soon as screens start seeing people, there's a whole host of questions that companies have to consider. It's one thing for somebody to install a gaming system in their home and to think, "I'm in control of this, and this is just another way for me to control it,'" says Brush. "But as soon as you take some of that technology and put it into a public space, there's a question of how much are you veering into a CCTV world?"

At this stage, the data collected from facial recognition technologies is aggregate and of a basic sort: Are you laughing, smiling, confused, saddened, shocked, bored?

Early uses such as SapientNitro's "Share Happy" smile-activated ice cream vending machine for client Unilever (which continues to rack up industry recognitions, recently adding an award at the SXSW Interactive Festival to a long list capped by a Cannes Cyber Lion) have been small- scale and viewed as promotional. That is undoubtedly changing.

Out-of-home screens (including, and right now perhaps especially, those at the movies) will become increasingly aware. Movie screens have had cameras watching the audience for many years, though only for the purpose of spotting the infrared signal of a video camera pirating the film. However, UK-based tech security firm Aralia Systems received a grant late last year to develop a 3-D facial recognition technology it was working on into a system (of the sort employed by Sapient in the smile-activated vending machine) that can collect sentiment (and to some extent demographic) data from audiences during ads and films. Once deployed, this would be the largest-scale such system.

Late last year Microsoft's chief operating officer and chief financial officer Dennis Durkin raised a privacy shitstorm when he made a somewhat off-the-cuff comment during an earnings call about the potential to use the Kinect gesture-control system for ad targeting purposes. "We can cater which content we present to you based on who you are," he said. "How many people are in the room when an ad is shown?" Microsoft quickly made statements emphasizing that it was not spying on people in their living rooms or collecting any of the data from Kinect cameras for advertising purposes. It left out that Durkin was just saying, in effect, "Hey, we could."

The system could certainly help create a very robust profile of its users. "If you're using a system at home that knows who you are, has a lot of data about what you are doing — the content you're consuming, your behaviors online, your behaviors in games — and it can cross-index that with knowing who's logged on automatically, it's going to create a pretty sophisticated profile," says Brush. "Brands have to work really hard to explain to people what information is public and what's not, and how they can use this stuff."

When you are on your phone looking for a McDonald's, in a way McDonald's is looking for you. Technology is becoming capable of tracking people through a cycle, where someone saw an ad on his phone and perhaps made an online purchase. It's a short leap to add in there when he saw an ad on the display in the airport and at the train station and went to the store and bought a hamburger and a shake.

"We've always had this question about advertising: 'Half the money's wasted, but we don't know which half.' If I advertise in a theater, am I 30 percent more likely to get half the people to go left into my fast-food joint?" Lindley says. "It's really about people patterns supporting the media spend. An affirmation: Am I spending my media dollars correctly and are they having the effect I hope they'd have — and can I confirm that by watching the patterns people follow?"

People are becoming accustomed to giving up some data for convenience and relevant information. "There is absolutely that tug-of-war going on," says Peter Rose, senior vice president at market research firm The Futures Company. "That's where the question around transparency really comes to the fore. If this is going to help them at the end of the day, you've got very practical consumers who are saying, 'Sure, I get it.' " He points out the data on those willing to make this trade-off clearly shows that the youngest are most willing, which points to a trend toward a more open and less private consumer (though their kids may really freak out). There is the expectation to be connected anytime and anywhere, and they seem, as a cohort, willing to make that trade. Though, says Rose, they are becoming more conscious of the risks and deliberate in decisions they make.

Just as people now online may be more likely to click away on a banner ad from Coke than a sketchy offer to win a free iPad2 or trust Amazon or Apple with reams of personal data for the convenience of one-click checkout, they are also more likely to interact with a Coke machine than a flashing screen displaying something they never heard of.

Will there always be the freaked-out people? Surely. Cookies can be turned off fairly easily and they are currently at the heart of the debate over online tracking. If screens are ubiquitous and commonly equipped with, say, facial-recognition capabilities so you essentially would take your cookie with you everywhere you went, the tinfoil-hat brigade may have a tougher time of it.

Especially when the screens, like Weiser's computers, become ubiquitous. "Eventually we're gonna over-crank this thing and there'll be screens everywhere and we need to begin to control some of this," says Lindley.

"We have to reach a point, and we're slowly getting there, where screens and the objects in which they are embedded or placed on are becoming more and more indistinguishable," says Brush. "And the technology is getting there." As an example, he offers the work being shown in some concept cars now, where the dashboard and the display are seamless. We are still a ways off from moving beyond the sorts of applications that lend themselves to this integration: flat, hard and small surfaces. Though as screens become more malleable, the options for public spaces are myriad. Screens won't just be in boxes or panels. They'll *be* walls and benches and columns and tables (not to mention your refrigerator, oven and toaster).

While there's a whole spectrum of new consumer experiences opening up — and some people will do some amazing things with that — the ad industry, as a whole, has never been known for its great restraint. It took 40-odd years and legislation for it to lower the volume on TV commercials. Brands that are not careful about where and when they engage consumers may wind up with a big problem.

"Companies have a real responsibility when they are affecting people in public spaces to do things which are respectful of people's lives and their needs," says Brush. "And that doesn't mean not engaging. That doesn't mean not making the screens, or not putting this stuff out there. But it means doing it in a smart and responsible way."

"The technology should be aware enough to know that most of the time I don't need it," offers Lindley. "The broadcast model will change to a narrowcast model and I get just the information I need … The concept has to be really relevant. It has to be that this is a really good application for a screen that happens to be outdoors. If you're at the airport, it's great to have a screen up there telling you when the plane leaves … but do you need nine screens in bar? Where does it make the most sense and where is it noise?"

"Think about architecture," says Brush. "We all know the spaces which have been thoughtfully designed and the spaces which have not been thoughtfully designed." As much as we may hope that media and advertising will play a part in respectfully designed spaces, we can't hold our breath. Brush, though, is hopeful. "One of the ways to think about it is to make a shift from focusing on communications to focusing on interactions and experiences. This is something that's happening in the marketing world right now, on a larger level."

Though Lindley mulls a moment and says, "We may wind up regretting this when we see a shot of the earth from space and it's lit up with old episodes of 'Seinfeld'" Ⓜ

Hershey's "Pure Hershey" campaign was set to a cover of Modern English's "I'll Melt with You."

Memory, Emotion, Music & Nostalgia

Why the brain responds to popular music in advertising

BY CARL MARCI, M.D.

Imagine you're sitting at home watching television after a long day at work or taking care of the kids. You You are enjoying your favorite crime drama, basking in the realization that someone else's life truly is worse than your own. As the mirror neurons in your brain fire in the escapism of the rescue fantasy that the detective story line triggers — after all, in a world of terrorism and orange alerts, don't we all want to be a little safer? — your experience is suddenly interrupted by a commercial break featuring an ad for a chocolate brand. And just as you're about to flip the channel or get up for another glass of merlot, something is triggered deep inside the recesses of your brain. It happens well

Video for "I Melt with You" by Modern English

below conscious recognition, compelling you to stay put and avoid grabbing your remote. It's a voice that calls from deep below your conscious awareness. At first you don't realize it or recognize it. You are now nodding your head uncontrollably and imperceptibly — so subtle are the movements that your spouse does not even notice them. Your palms become ever so slightly sweaty, your heart rate increases and your breathing becomes a bit shallower. You have heard this song before!

You have just had your emotions and memories hijacked by the nostalgia triggered by familiar music used in advertising. It's not the original version, but you recognize it anyway. "I'll stop the world and melt with you" go the lyrics and familiar tune, as a happy group of smiling figures emerge from the Hershey's chocolate. You may never consciously even make the connection but that is not the point. The familiar tune triggers an unconscious emotional response significant enough to break the habit of commercial avoidance — as it was intended to do. You may not care, you may never

SIMPLY PUT, EMOTIONS "TAG" INFORMATION FOR RELEVANCE. CONSEQUENTLY, IN ORDER FOR ADVERTISING TO BE MAXIMALLY EFFECTIVE, UNCONSCIOUS EMOTIONAL RESPONSES NEED TO BE TRIGGERED TO IDENTIFY IF THE BRAND, PRODUCT, OR SERVICE IS RELEVANT TO THE CONSUMER.

realize, but in the background of that Hershey's chocolate ad is a take on the Modern English song, "I Melt with You" released in the U.S. in the 1980s. Well, that explains why your babysitter, who decided to stay to see the end of the crime drama, seems to be yawning as you tap your fingers. She wasn't even born when it came out in 1982. Does that mean her heart isn't beating faster, her palms are no sweatier than before? She is less engaged and not nearly or not at all hijacked emotionally by the music as she gets up to pack her bag.

It is not clear when it started, but experts estimate that prior to the 1980s, most music in television advertisements was limited to original scores known as "jingles." So popular were some jingles that the 1971 song written for a television commercial for Coca-Cola was re-recorded and released as the hit song, "I'd Like to Teach the World to Sing." As the decade of the 1980s progressed, however, the trend reversed, as previously recorded popular songs were increasingly used in television ads, including Aretha Franklin's "Freeway to Love" for Burger King, The Beatles' hit "Revolution" for Nike, and the ever-present Bob Seger song "Like a Rock" for selling Chevy trucks. The trend continues to this day, not only in television advertising but in the sound tracks for many Hollywood films.

Why the trend to add past or presently popular music to advertising? Well, if you were paying attention, the character on the couch watching television in the opening vignette did not avoid the Hershey's commercial. In fact, he watched the whole thing and as keeper of the remote, subjected others in the room to the advertising impression. So stopping power is one reason to use nostalgic songs. Items that have personal relevance, such as music which has previously created an emotional resonance with us, are more likely to draw our attention and stimulate an emotional response again. So nostalgic memories from music increase emotional engagement, but how?

It is important to understand that human memory is not one "thing," but a process for storing information that will be retrieved for use at a future point in time. There are multiple relevant frameworks and types of memory including: 1) memory for facts versus procedures; 2) short-term versus long-term; and 3) implicit versus explicit memories. Memories for facts, sometimes referred to as declarative memory, include our memories for discrete events in time (such as going on holiday with your family) and learned facts (such as the year of the signing of the U.S. Declaration of Independence).

Procedural memories are used for tasks and processes that have multiple steps and require coordination of attention and movement, such as riding a bike or washing the dishes.

Short-term (a.k.a. "working") memory is the process of keeping relevant stimuli (verbal, auditory, visual) intact over short periods for understanding and meaning-making, such as what crime was committed early in that detective show we were just watching, to connect and allow the final courtroom scene to make sense.

Long-term memory is the encoding and storage of aspects of that information for later use — such as the name of the show so you can watch it again.

Chevy's classic "Like A Rock" commercial employs Bob Seger's classic anthem.

Implicit memory processes are unconscious (e.g., associative learning), while explicit memory processes are conscious (e.g., recall and recognition).

In addition to describing different types and functions of memories, these frameworks also reflect activity in different functional and structural areas of the brain.

For example, semantic memory requires activity in the hippocampus and surrounding temporal cortex. Procedural memory uses aspects of the limbic system and cerebellum. Explicit memories require the executive function of the frontal lobes. And implicit memory is somewhat autonomous, embedded in many different brain systems and networks, including the emotion centers.

Short-term memories also require frontal-lobe activity, while long-term memory processes are more distributed. However, one thing to keep in mind is that emotional responses are well known to enhance many different types of memory.

Our emotions are responses to the evaluation of internal or external stimuli as being personally relevant to some goal or need state. An emotion is perceived as being "positive" when the goal is advanced and "negative" when the goal is impeded. Thus, the core of emotional states is the preparation of the body for readiness to act (i.e., "approach," "avoid," "ignore") as emotions help us prioritize the use of limited resources.

This readiness for action can be immediate or information can be stored, via memory processes, for use at a later date. The Modern English tune in the Hershey's commercial put our protagonist in an "approach" mode and kept his attention on the commercial. As a result, emotions help determine the importance of information.

Simply put, emotions "tag" information for relevance. Consequently, in order for advertising to be maximally effective, unconscious emotional responses need to be triggered to identify if the brand, product or service is relevant to the consumer. That response tells the brain to direct additional processing resources to that information so that some type of memory can be formed (in some cases, allowing the information to be used at a later date).

Adding relevant or emotional information to new or existing information enhances encoding of advertising, so adding a measure of unconscious relevance increases brain processing. That is what music does to advertising.

Why would adding more emotional information to a new memory enhance encoding of that information? The answer lies in understanding modern neural networks and Hebb's Law, which states: "Neurons that fire together, wire together." The more interconnections with other concepts or links that a new memory has, the more likely it is to be perceived as relevant.

The more relevant the stimulus is, the more encoding in the brain it will generate and the more likely it will exert influence on future behaviors — particularly if emotions are triggered. This is the neurological basis for associative learning and the reason why aided recall is always more efficient than free recall — the memory aid triggers portions of the existing network for the memory and increases the probability of accurate identification. This is also why older, more iconic brands are easier to remember than new brands. We have more enhanced "networks" in our brains for iconic brands and brands we have experienced over time. The music we grew up with and its association to brands and products creates links in our brain networks that result in memories of all types, including procedural and implicit memories on an unconscious level.

So our protagonist in the opening vignette is not numb to advertising. He has had a simple and increasingly common advertising technique play a trick on his brain. The music generates a measurable emotional response, directing his attention, enhancing learning and memory, creating associations between a long-forgotten favorite tune and Hershey's chocolate.

"There's nothing you and I won't do … I'll stop the world and melt with you!" I think I will go get a Hershey's chocolate bar. And as the babysitter leaves uninfluenced by the ad, Madison Avenue works on another Hershey's commercial for the next generation. Rihanna anyone? Ⓜ

I'd like to begin this article with a little experiment and I need your help to complete it. All you need to do is read a short sentence. But you will need to read it six-times faster than you normally do. And you will need to read at that pace from the moment the sentence begins to the period that punctuates its end. Are you ready? Good, here it is:

This sentence will teach you something about your brain's ability to remember things.

Done? Of course, I have no idea if you actually read that sentence at six-times-normal speed. In fact, you probably didn't, and the mere fact that I asked you to rush through it probably means you actually dwelled on it longer than you normally would have. That's just the way our brains work. But if you had read it at an accelerated speed, there's a good chance that you would have remembered the substance of it nearly as well. That's another way our brains work, according to scientists who have been conducting some interesting experiments about fast-forwarding of TV commercials. Their findings go a long way toward explaining why predictions that digital video recorders would obliterate the effectiveness of TV commercials haven't exactly proven to be the case.

It's not that people don't fast-forward through commercials on their DVRs. They do at least half the time, according to industry research. It's just that the act of fast-forwarding doesn't mean TV viewers are actually avoiding commercials, and in some ways, may be paying more focused attention to them — if only to know precisely where they end and their TV shows begin again.

What you just did in the experiment that began this article and what most fast-forwarding TV viewers are doing, neuroscientists call being in a "hyper-alert" state. It means that the fact that you are focused on getting through something at hyper speed and are focused on when it ends, means you are actually paying pretty close attention to it.

"If you think about it, it makes sense, because most people don't want to miss their favorite shows," says Devra Jacobs, a neuroscientist with Innerscope Research, who has worked on a series of research studies utilizing biometric measurement technologies that have revealed the hyper-alert phenomenon. Jacobs says it makes sense, because most consumers have grown fairly adept at controlling the timing of their remote controls and can stop fast-forwarding precisely when the commercial break

Safe at Any Speed

Why DVRs haven't been a death knell for TV commercials

BY JOE MANDESE

ends and their shows begin again. But to do that, they need to pay close attention to the commercials they are fast-forwarding through, even if they're not conscious of doing it.

The research, including an important benchmark study done for NBC and a series of studies for TiVo, didn't necessarily find that viewers were able to process TV commercials as well when they were fast-forwarding through them, just that they were actually paying attention to them.

Jacobs says a variety of factors influence the effectiveness of a commercial to communicate while someone is fast-forwarding through it, especially whether that viewer had seen the spot previously and could draw upon memories they already had stored in their brain (see story on page 44).

"If people had seen the advertising before, they were more likely to recall it when they were in this hyper-engagement mode," Jacobs notes, adding that it is much more difficult for new ads to register as well, because they are being processed by the brain at six times their normal speed and with no audio content that might be integral to the commercial's message.

But Jacobs says it's not as if there is no effect, even for ads that had never been seen before by fast-forwarding viewers. The reason,

she says, is that fast-forwarding creates a more concentrated form of engagement but for a much shorter period of time.

"It's certainly not being erased from their minds just because they are fast-forwarding," she says, adding that other factors about the commercial and the programming surrounding it can influence the ability of an ad to communicate while being fast-forwarded.

As effective as fast-forwarded spots may be, Jacobs says much of her work with TiVo has focused on researching what circumstances will most likely lead a viewer to fast-forward through a spot or not.

Overall, she says, viewers are 25 percent more likely to fast-forward through ads with low levels of engagement versus spots that had high levels of emotional engagement. A big determinant, she says, is where the spot appears in a commercial break and how engaging the first few seconds of the commercial are when someone begins fast-forwarding it.

"From a brain perspective, the more time you keep a viewer engaged, the greater the chance you have of making an impression," Jacobs explains.

The findings are noteworthy, because they help explain why DVRs haven't had the negative impact on the TV advertising marketplace that pundits had originally predicted. That perception most likely began with writer Michael Lewis' *New York Times Magazine* cover story, "Boom Box," which served as a rallying cry for Madison Avenue, but now looks alarmist in retrospect.

"The worst news is that no one watches commercials anymore," Lewis wrote in 2000, citing early research that "88 percent —88 percent! — of the advertisements in the programs seen by viewers on their black boxes went unwatched.

"If no one watches commercials, then there is no commercial television," he concluded.

Ten years later, advertisers continue to spend more on television than any other medium. In fact, TV advertising budgets are actually expanding faster than any other major medium, including the Internet, largely because TV advertising continues to work. The fast-forwarding research helps explain why it continues to, but the reality is that technology isn't the only factor determining whether people watch commercials or not; people also are. Long before they had technology to fast-forward through TV commercials they had other ways of avoiding them when they didn't want to watch them, including changing the channel, turning off the TV, or getting up and leaving the room. Ⓜ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PUTTING MADISON AVENUE ON THE COUCH

Or why changing the way media buyers think is so easy, a caveman could do it

BY JOE MANDESE

As far as brains go, Barry Fischer has a pretty good one, and he's been using it to try and understand the way other people think about media and then to get them to think differently about it. Unlike some people on Madison Avenue, the brains Fischer tries to influence are not those of consumers, but the ones who use media to influence how consumers think about media, advertising and brands. For more than a decade, Fischer has been trying to rewire the way Madison Avenue's brain works.

His story begins in the mid-1990s, when after years as one of Madison Avenue's brightest young media directors, he left the ad agency business to work for cable TV giant Turner Broadcasting, which for years had been struggling to convince advertisers and media buyers like Fischer that cable television was just as good at reaching and influencing consumers as big broadcast networks like ABC, CBS, NBC and Fox.

No one understood that process better than Fischer, who during his agency career, bought media for some of the world's biggest and most sophisticated marketers — companies like Procter & Gamble and Ford — and who, for years, had used his brain to get the cheapest cable TV prices possible.

At the time, Turner controlled about 25 cents of every ad dollar that agencies spent on cable TV networks, which was a

ILLUSTRATION BY: TONJIBOY


FEAR

fraction of the price and volume they spent on broadcast networks. And Fischer understood, better than anyone, what cable's problem was. It wasn't the underlying effectiveness of the medium. It was the way people thought about it. And he understood that if you could influence the way big advertisers and agencies thought, you might be able to get them to change the way those executives who controlled billions in U.S. TV advertising budgets behaved.

The problem is that the thought process wasn't completely rational. A big part of the way Madison Avenue spent its advertising budgets had to do with emotional factors that needed to be understood and overcome if Turner was ever going to move the needle in a significant way. In other words, Fischer couldn't change the way the ad industry thought and behaved, unless he also changed the way it felt about media. So he turned to someone who was expert in understanding how people feel and how those feelings influence their behaviors. He hired a psychiatrist to quite literally put Madison Avenue on the couch.

The result was an unusual psychological profile that analyzed an entire industry, including both the way it was organized and the organizational cultures within it based on a set of rational and emotional factors. Some of the rational factors had to do with things like how advertisers and agencies worked and how they profited from business decisions. Some of the emotional factors had to do with the relationships they had with the people who sold media to them and the strong attachment to the business model, in spite of some misconceptions about how the media they bought actually performed. Once Fischer understood those factors, it was easy to come up with a plan to change them. Executing it wasn't so easy, requiring time, patience and a significant financial commitment from his bosses at Turner to implement it.

The plan was based on an understanding of new data and computer processing tools that would enable Fischer to prove to TV advertisers and media buyers that their emotions were getting in the way of rational business decisions and that in the long run, it was actually costing them more money because their TV advertising campaigns were not being as effective as they could be. And what generates more emotional response than money? He was going right for their reward centers.

The insight came from new theories about how advertising campaigns build "reach" among TV viewers, and from new data that TV researcher Nielsen had just begun making available to advertisers, agencies and networks. The data — so-called "respondent-level" data — was

ILLUSTRATION BY: TONJIBOY

expensive, as were the computer systems necessary to process them. The data, when processed correctly, would show that advertisers could potentially shift billions of dollars to cable from broadcast TV without losing any of that reach and in the process, save millions of dollars by buying cable-TV time that was priced more cheaply than broadcast-advertising time. In fact, the research would show that, by adding a greater mix of cable TV, advertisers could actually increase their reach of TV viewers while saving money. It was a completely rational approach to some irrational business practices based on emotional, cultural and organizational legacies and habits.

One of the organizational legacies was that many big ad agencies didn't have a financial incentive to spend millions of dollars on the new Nielsen data and the computer systems necessary to process them. And finances aside, many simply did not need the headache of doing that. Change is always frightening and fear leads to avoidance. The conflict was clear: Would the fear of change win out over the reward of financial gain?

Fischer decided to go around the fear and do it for them, convincing his bosses at Turner that if he spent the money to build a simple tool that advertisers and agencies could use to compare the performance of different mixes of broadcast and cable TV ad budgets, it would change their behavior — and a significantly greater amount of money would shift to cable TV.

In retrospect, building the expensive system, which Fischer dubbed "Media at the Millennium," to reinforce the notion of the need for change, was the easy part. What proved more difficult was convincing the hardwired brains and habits of veteran advertisers and media buyers to actually use it. It wasn't enough that Turner was giving it to them for free — Fischer still had to overcome the big emotional factors surrounding fear of change.

And it wasn't just the ingrained belief systems that many ad execs had about what worked, but something even more potentially sensitive. By building a system that provided irrefutable evidence that most national TV plans were irrationally biased toward broadcast TV, Fischer was effectively telling some of Madison Avenue's biggest media buyers that they weren't doing their job as well as they thought. And that exposed another powerful emotion no human being wants to experience in their profession: embarrassment.

Fischer needed a strategy to overcome that emotion. Fundamentally it was about being patient and presenting the information in what psychologists call a "graded exposure." Rather than throw the spider-phobic in a room with spiders, first start with a mental image of a spider, then a picture, then a fake spider … in a graded or step-wise method designed to overcome the fear. Thus, instead of coming out and telling the world's biggest advertisers and agencies that they were making a big, costly mistake and had been doing so for years, he let them figure it out for themselves slowly over time.

Fischer personally gave about 1,000 Millennium presentations; Turner sales and marketing reps gave thousands more, each one of them utilizing a similar approach of self-discovery. Instead of telling advertisers, buyers and planners they were wrong, the Turner team gave them the tools to figure it out for themselves. And it was no coincidence that the tools usually included examples of an advertiser's current TV plans alongside versions that Turner knew would show better results if they simply put more of their budgets into cable.

It was a delicate and slow process, but Fischer learned a lot about human nature, and the power of emotions, while doing it. In the end, the fear of change and the internalized habits of an industry gave way to the lure of better media strategies and the efficiencies that go with them. During the several years that Fischer's team at Turner took Millennium on the road, more than $1 billion in TV advertising budgets shifted from broadcast to cable TV. And while there were other factors going on concurrently, like better shows and more viewers going to cable networks, at least some significant part of it had to do with overcoming emotional perceptions.

RATHER THAN THROW THE SPIDER-PHOBIC IN A ROOM WITH SPIDERS, FIRST START WITH A MENTAL IMAGE OF A SPIDER, THEN A PICTURE, THEN A FAKE SPIDER . . . IN A GRADED OR STEP-WISE METHOD DESIGNED TO OVERCOME THE FEAR.

Fast-forward to another new medium after the millennium and similar emotional, cultural and organizational issues seem to be plaguing online media, including social and mobile media, which despite some compelling evidence about how consumers are using it, continues to lag in Madison Avenue's budgets, if not its mindset. No one has illustrated this story better than Mary Meeker, the ex-Wall Street analyst and

FEAR OF THE UNKNOWN KEEPS MARKETING AND MEDIA PROFESSIONALS FROM TRYING NEW THINGS. IRONICALLY, IT IS THE FEAR OF NOT DOING THEM, AND POTENTIALLY LOSING YOUR JOB OR CAREER, THAT ULTIMATELY MOTIVATES PEOPLE TO TRY SOMETHING NEW.

current venture capitalist at Silicon Valley's Kleiner Perkins Caulfield & Byers, a firm that has gotten Internet start-ups from Amazon to Google off the ground.

Meeker makes a compelling case for Madison Avenue's emotional disconnect with a frame she likes to highlight while making presentations about the growth of online media at industry conferences. In it, Meeker presents a slide showing the percentage of time consumers spend with major media — including the Internet — versus the share of advertising budgets Madison Avenue spends on those media. Currently, she estimates that consumers spend about 28 percent of their time with media on the Internet, but advertisers devote only 13 percent of their budgets there, resulting in a disparity of more than two-to-one. While there are a number of rational reasons for that disconnect, including the fact that the time people spend online isn't always using ad-supported parts of the Internet like, say, email, tweeting, etc. Meeker believes that if the Internet's full advertising potential was reached, more than $25 billion worth of advertising budgets would shift online.

It's unclear whether anyone or any organization has tried to rewire the way people think about the relative value of online media the way Turner's Fischer did about cable TV, but for all the effort of big players like Google, Microsoft, Yahoo and other major online players to convince Madison Avenue, it's worth noting that the growth of television ad spending, especially cable TV, currently is the fastest of any major medium and continues to outpace the growth of spending on the Internet, according to most major organizations that track ad spending.

As we saw with Fisher's dilemma, at least some part of that inertia has to do with organizational and cultural factors that are more emotional than rational. That was what a head of marketing at a major movie studio discovered four years ago, when she tried to change Hollywood's conventional marketing strategy, which historically relied mainly on highly concentrated TV advertising campaigns. So she conducted a test to see if the studio could "open" a movie without using any TV advertising, relying almost exclusively on social media's powerful word-of-mouth effect. The test was a success, but despite that, the executive, who has since left the studio, says her bosses told her, "That was nice," but reverted back to what their guts told them was tried-and-true: big TV advertising budgets.

Four years later, big Hollywood studios have finally become enamored with the potential of social media and are working more aggressively with it. "Things do change," she says, adding that the dynamic shift in consumer use of social media was a big factor in that. "In social media, four years is like four minutes."

"It's hard to change human nature," says Dave Knox, the former head of digital strategy at the world's largest advertiser, Procter & Gamble. Knox, who has since left P&G to launch the Brandery, a not-for-profit organization that incubates digital media and marketing start-ups, is also CMO of digital agency Rockfish Interactive; he says working inside a giant global marketing organization has taught him some valuable lessons about the important role human emotions play even in seemingly rational business decisions.

"It seems like the biggest factor influencing us is the fight-or-flight syndrome," says Knox, referring to a theory psychologists and neuroscientists have that, as advanced as modern human brains are, we still react to things based on the hard-wired cues that were developed when we were trying to survive as early hominids, in which you either put up a battle and fought some threat to your survival or you ran away to avoid it.

It is no surprise that the big emotional driver in that fight-or-flight syndrome is fear. Knox says that still is what fundamentally motivates people to do things — or not to do them — in modern business organizations and entire industries. Fear of the unknown, he says, keeps marketing and media professionals from trying new things. Ironically, it is the fear of not doing them and potentially losing your job or career, which ultimately motivates people to try something new and that is changing the way people do business. It is balancing the emotions between holding your ground and putting up a fight or running in a new direction, he says, which determines whether people adapt to something new — whether that is an early hominid battling a big cat on the African savannah or a fat cat worrying about his or her retirement on Madison Avenue.

Emotions really have not changed or evolved much from our caveman days. "People are people," he says. Ⓜ

The Microsoft Surface platform allows user interaction with images ranging from healthcare to hospitality on a large touchscreen.

WANT TO KNOW WHAT THE FUTURE OF MEDIA SCREENS ARE? TRY LOOKING AT THE PAST

BY DAVID SZETELA

The way people use media – especially screen-based media – has been shaped by advances in the science of computing and occasionally, in science fiction. That's a life imitating art fact. Remember the scene in Steven Spielberg's adaptation of Philip K. Dick's *Minority Report*, in which Tom Cruise's character was standing in front of a transparent screen, moving objects around using nothing but his hand gestures. Geeks like me were thrilled to imagine ourselves using such an interface in the distant future.

Now fast-forward from that 2001 science fiction classic to five years later, when Microsoft's Jeff Han demonstrated the Surface technology, showing the movement of hand-gesture-manipulated objects on a horizontal

screen — kind of a computer table. The crowd at the TED conference clapped and whistled as Han drew squiggles and circles on the screen. But audience members and the hundreds of thousands of people who watched the video of the event on YouTube, could only dream of someday actually getting their hands on such power.

That day came barely three years later, with the debut of the iPhone and the iOS operating system. Gesture-based manipulation of objects on a touch-sensitive screen was suddenly within the reach of millions of people. Many of them had either never used a personal computer or had tried and failed to use a keyboard- and-mouse-controlled PC, lacking the time or aptitude to learn. Even the real-world metaphor of the file folder was prohibitively difficult for some to grasp.

User interfaces featuring direct object manipulation have sparked a sharp increase in the number of people using personal computing devices. Sales of iPads in 2010, the year it was released, were reported to have negatively impacted sales of "traditional" desktop and laptop computers. I think this trend will continue and the day will soon arrive when there are more gesture-based devices — powered by iOS, Android, Chrome and others — than there are devices that depend on an operating system controlled by a mouse and keyboard.

This has huge implications for Web site owners. It's conceivable that many smartphone owners will never use a browser. Why should they, when applications can satisfy most of their needs? And "search" as we now know it may morph into "search in small spaces" — that is within an application.

For example, searching within a recipe application for the term "date" will lead the searcher directly to what she's looking for: recipes made with dates. She won't need to wade through pages of search results referring to all of the alternative meanings of the word "date" that are far afield of her objective.

More and more smartphone users will want and expect to conduct their lives and business in small, safe Internet-enabled places. Present-day examples of these include Facebook, Xbox gaming, Skype sessions — and the list will grow.

How can you prepare for this shift? Start thinking about how the objectives of your Web site can be accomplished outside it. Create an iOS or Android app that will allow customers to convert right inside the app. Experiment with in-game advertising (Google AdWords advertisers can do this now.)

USER INTERFACES FEATURING DIRECT OBJECT MANIPULATION HAVE SPARKED A SHARP INCREASE IN THE NUMBER OF PEOPLE USING PERSONAL COMPUTING DEVICES. SALES OF IPADS IN 2010, THE YEAR IT WAS RELEASED, WERE REPORTED TO HAVE NEGATIVELY IMPACTED SALES OF "TRADITIONAL" DESKTOP AND LAPTOP COMPUTERS.

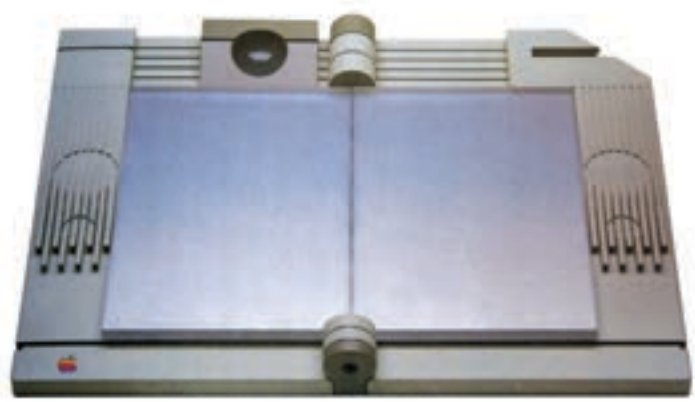
Try to require a bare minimum of user input for the conversion. Easy, ubiquitous payment systems will facilitate this like the ones enriching the coffers of Apple and Amazon. "Off-browser conversion" will be even easier to implement after the next tipping point in the evolution of personal computing: voice input and output.

Yes, we're about to enter the age foreseen by the Knowledge Navigator video created by John Sculley and others when I worked at Apple. We may not see the video's anthropomorphic agent on the screen too soon, but the act of talking into a handheld device — and getting a vocal response from it — has already started and may be in full swing by the time you read this.

Get a taste of this by using Google Voice Search. Try the new iLingua application, which accomplishes real-time aural translation. For added comprehensibility, the app, having taken a photo of your mouth, will show a picture of your mouth moving — in the translated language!

You can prepare yourself and your business for this breakthrough by starting now to get experience with "unattended conversion processes." Many site owners have gravitated to Web-based transactions because they feel they're more conve-

MIT professor Pattie Maes demonstrates SixthSense interface at the 2009 TED Conference (left to right); A mock-up of Apple's 1987 Knowledge Navigator concept (below)



nient for the customer – and cheaper for the site owner.

But with the growth of smartphones as the only computer device of the majority of people, consumers will prefer or even demand transactions via a phone call. Can you afford to ignore them?

Wait — go back and re-read the first sentence of the last paragraph. Could that possibly be true?

My friend Alexis Gerard of Future Image told me several years ago that, for most people on the planet, their first camera was in their phone — and they would never own a camera. Likewise, we may already have passed the point where, for most people on the planet, their first personal computer was their phone — *and they will never own a desktop or laptop computer.*

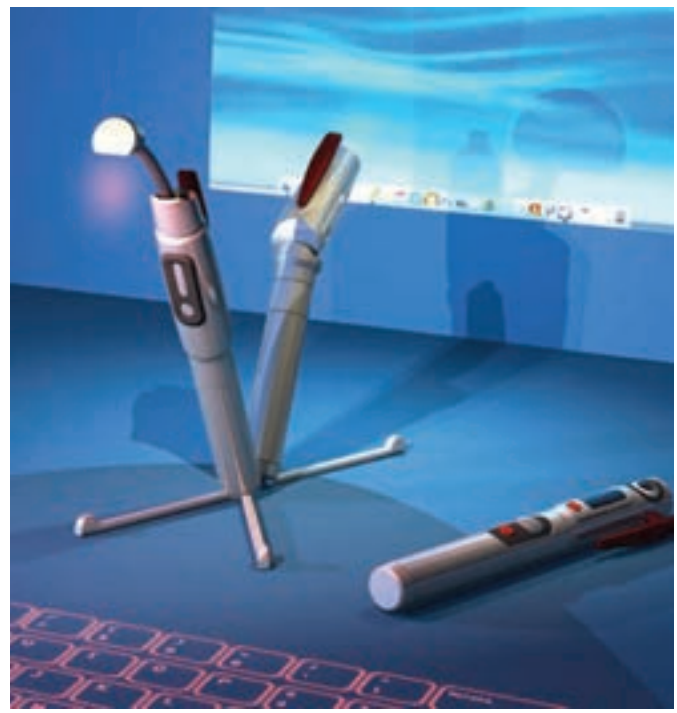
You might find this far-fetched. After all, a U.S. family of five could have 20, 25 or even 30 computer devices — laptops, desktops, phones, tablets, game machines and more.

But when you realize that the vast majority of the world's population holds a tiny fraction of the wealth of the average U.S. citizen, you'll understand why the "one person, one computer" phenomenon is very real. Example: according to Google, the average Hispanic smartphone user responds to mobile advertising at a rate that's *three times* that of the rest of the U.S. population. The reason is socio-economic: many U.S. Hispanic consumers rely on a Web-connected phone than a computer.

A few years ago, in response to a question about future directions for the company, then Google CEO Eric Schmidt said "…mobile advertising will generate more revenue than advertising on today's Web." At the time he was accused of hyperbole, but he was really talking about the phenomenon I just described. Even affluent people will find it more convenient to own and carry just one personal computer device. Why bother owning several when the CPU in your smartphone operates at a rate 500x the 1990's-era Cray — and when storage is unnecessary since all data and documents are stored in "the cloud?"

Within the next year, many smartphones will be equipped with two cameras — one front-facing and the other rear-facing — and a front-facing projector. At that point we'll see applications that act just like the crazy-futuristic ones Pattie Maes demonstrated at the 2009 TED Conference. We may even see devices like this one, prototyped by Samsung in 2008: a pen that morphs into a tiny device that projects a screen onto a nearby vertical surface and a working keyboard projected onto the horizontal surface on which it sits.

Remember the words of Apple Fellow Alan Kay: "The best way to predict the future is to invent it." Or, at the very least, stay close and follow those who are inventing it. Ⓜ



NEC Corporation's P-ISM pen computer. The pen is equipped with a phone, camera, scanner and keyboard.

The Neural Metric

Can science finally tell Madison Avenue how you actually think?

BY JOE MANDESE

As long as there have been agencies placing ads in media, ad executives have been trying to understand how they influenced the way consumers think, feel and ultimately behave in relation to brands. In Madison Avenue's earliest days, they simply relied on their gut, but as advertising grew less novel and media more fragmented and cluttered, the advertising industry has sought better and more scientific methods to get inside the mind of consumers. Initially, those efforts relied on social sciences like psychology, sociology, cultural

anthropology and its modern day buzzword — ethnography. Coupled with sophisticated survey methods, the rise of powerful computer processing and quantitative statistics, Madison Avenue has long tried to answer its most fundamental and, some might say, apocryphal quandary: "Half the money I spend on advertising is wasted; the trouble is I just don't know which half."

That observation, which most often is attributed to 20th-century retailer John Wanamaker, has been symbolic of the ad industry's quest to reduce the psyche of consumers — and the behaviors that result — down to simple metrics that could be used to plan, design and execute advertising and media strategies with relative precision. But the reality is that even the best of Madison Avenue's research efforts have proven to be more art than science. That is, of course, until the new brain science entered the brand game.

One of the earliest known attempts to apply the field of neuroscience to advertising and media occurred in 1998, when Starcom MediaVest Group research chief Kate Sirkin commissioned a study utilizing then state-of-the-art biometric technology developed by NASA, which could literally read people's brain waves — the electrical charges emitted by the brain when it is processing information. The technology, which originally was part of a NASA effort to understand the complex behavior of fighter pilots in the heat of action, was used to measure how people's brains processed TV shows and advertising.

> "I HAVE A PRETTY GOOD UNDERSTANDING ABOUT WHETHER A SURVEY IS DONE WELL, AND WHAT THE BIASES ARE IN THE UNDERLYING STATISTICS.THE PROBLEM WITH THIS IS THERE IS SOME UNDERLYING SCIENCE THAT I AM NOT AN EXPERT ON, AND YOU HAVE TO RELY ON A VENDOR FOR THE ACCURACY AND HOW WELL IT IS DONE."
>
> HORST STIPP, THE ARF

When Sirkin unveiled the results during a presentation at the ad industry's annual Advertising Research Foundation conference in New York, it both dazzled and confused attendees; it also left them laughing. One of the snippets of the research Sirkin conducted showed a segment from NBC's popular *Seinfeld* series with an overlay of the second-by-second brain-wave activity of the viewers who were measured. The highest point in the segment was when one of the characters mentioned Hitler's name. Sirkin said she wasn't sure what to make of the spike, or whether it was a positive or negative factor, only that it got people's attention at a subconscious level that would require more study to truly understand.

A lot has happened since Sirkin's Hitler moment, including more breakthroughs in the field of neuroscience, as well as the development of better and more precise techniques for measuring how people think and feel when exposed to media stimuli. It has also spawned a new cottage industry of scientific researchers who have been adapting a variety of technologies in an effort to measure how people's brains respond to media and advertising — both consciously and unconsciously – in an effort to figure out better ways of communicating with them.

Along the way, the ARF has also been trying to influence the way Madison Avenue thinks, by bringing the field of neuroscience into the ad industry's mainstream. It began in 2009 with a keynote by Gerald Zaltman, a Harvard Business School professor, who took a sabbatical to study how neuroscience could be applied to marketing and wrote the book *How Customers Think*. Zaltman is also a partner in a research and consulting firm, Olson Zaltman Associates and has been one of the key evangelists behind the so-called "neuromarketing" movement, which has exploded to the point where some in the industry believe it could challenge and maybe even replace much of the traditional consumer research and testing methods used by Madison Avenue over the past century. It could also, says ARF president and CEO Bob Barocci, "change the way people think of advertising."

Barocci, who has been a big proponent of neuromarketing research, says that by going beyond understanding what people "say" about advertising and media, and learning how they actually "feel" and what they actually "do," could change the industry's understanding about how advertising works in a way that could finally lay the oft-cited Wanamaker observation to rest.

While that potentially could be a good thing, it also raises a lot of important issues, including the fact that few, if any, of Madison Avenue's experts truly understand the underlying science behind many of the new neuromarketing research techniques nearly well enough to compare it to their traditional, tried-and-true methods.

"As an industry researcher in social sciences, I have a pretty good understanding about whether a survey is done well and what the

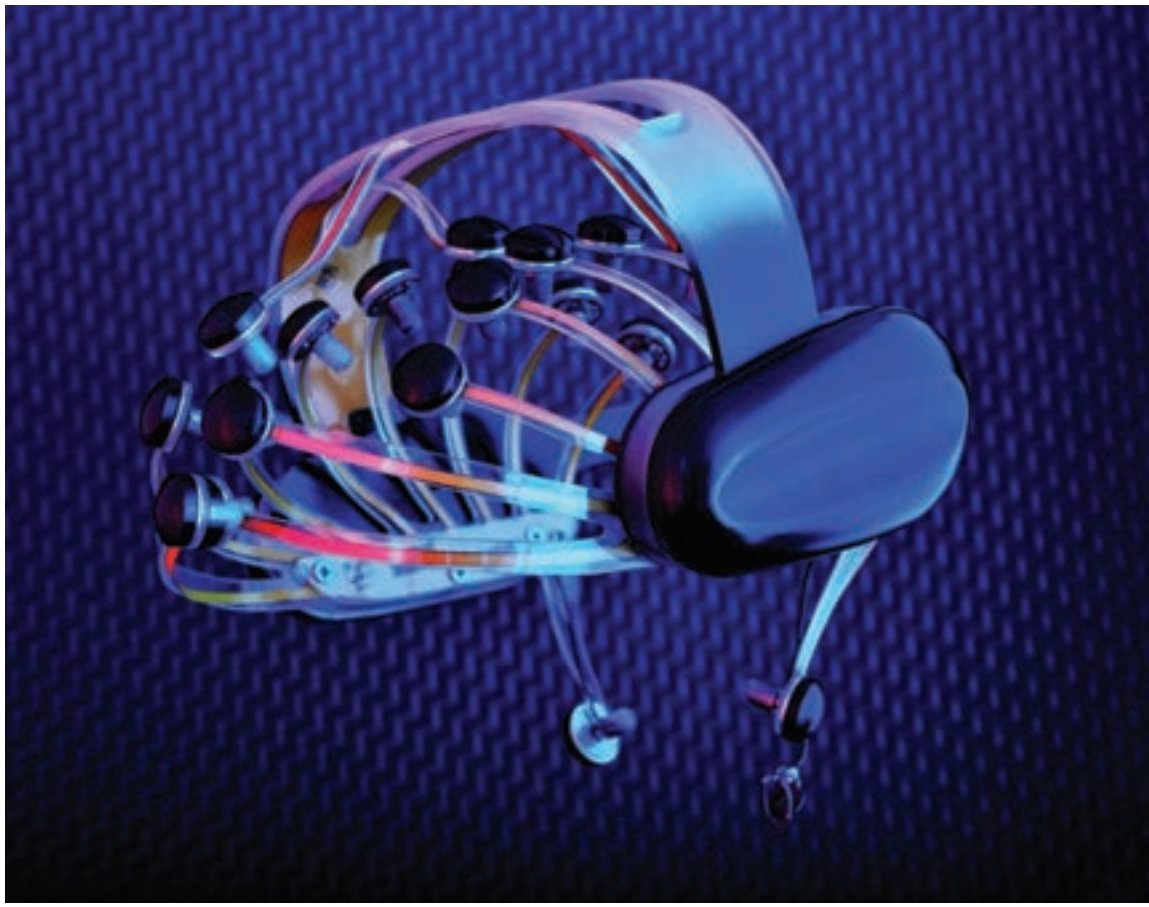
biases are in the underlying statistics," says Horst Stipp, who after 40 years as a top research executive at NBC, joined the ARF. "The problem with this is there is some underlying science that I am not an expert on, and you have to rely on a vendor for the accuracy and how well it is done."

Stipp says that over the years at NBC, he dabbled in neuroscience techniques and was always intrigued with their results, but wasn't always sure of what to do with them. In one of the more significant pieces of research NBC conducted recently, it worked with Innerscope Research to understand what effect fast-forwarding by digital-video-recorder users had on their ability to be influenced by advertising (see related story on page 48).

While those results were encouraging, Stipp says the lack of technical scientific knowledge behind neuromarketing research and the competing claims of new companies and methods, was creating confusion for advertisers and agencies. Consequently, he says, Madison Avenue's research community did what it does best: It conducted some research about the new research.

The initiative, which was spearheaded by the ARF, was dubbed the NeuroStandards Collaboration Project and included a group of academic researchers, with expertise in the methods being tested, to act as an expert panel. The panel recently concluded a review of eight major suppliers, utilizing a range of neurological and biometric methods, including eye-tracking, heart rate, galvanic skin response, facial-expression coding and even neurological diagnostic tools such as EEGs and fMRIs that measure brain waves or produce images of the brain.

Interestingly, one of the biggest suppliers, Nielsen-backed NeuroFocus, declined to participate in the project but recently unveiled a new measurement technology that it claims represents a "medical-grade" breakthrough for measuring brain waves. The technology, which NeuroFocus calls Mynd, utilizes a lightweight cap that can unobtrusively measure the brain-wave activity of people who wear it.



The Mynd cap, created by A.K. Pradeep's NeuroFocus, measures brain-wave activity.

NeuroFocus founder and CEO A.K. Pradeep says Mynd was developed in collaboration with the Tobii, which has been developing methods that would allow paralyzed people to control machines such as automated wheelchairs merely by thinking.

"You think of turning your wheelchair left and it goes left. You think of turn-

ing it right and it goes right," he says. Pradeep says the Mynd system also has wireless Bluetooth technology built into it so that it can interact directly with various media that people might be using while being tested, such as computers, smartphones or TVs. Ultimately, he says the Mynd system one day could be used by people to remotely control how they use media by simply thinking about it.

Meanwhile, the advertising industry will be assessing the results of the first phase of the ARF's NeuroStandards Collaboration without NeuroFocus. The results of that phase, which were unveiled at the ARF's annual conference recently in New York, included a thorough review of the methods used by the eight companies participating, as well as an evaluation of results from a controlled test using their methods, to measure audience responses to several finished TV commercials from the sponsors of the Collaboration including Hershey's, American Express, Clorox, Colgate-Palmolive and General Motors.

The findings of the study were reviewed by the panel of experts and the sponsors organized by the ARF, which found the results to be promising, but inconclusive.

"Even though neuromarketing research has made remarkable progress during the last decade, both the underlying science and the application of the science to marketing are still developing, and there are a number of questions and concerns that surround the field," the initial report concluded.

Results of the specific commercial tests have not been released, but the report did identify some encouraging insights, especially the ability to "pinpoint" a viewer's response on a second-by-second basis. The problem, says the ARF's Stipp, may be in understanding why someone responded to a particular moment in an ad or a TV show and what influence a variety of other factors might have had, including the content surrounding or preceding it.

"You are able to tell that something was happening at the 13-second point in a commercial and that is extremely valuable," says Stipp, "even if you don't understand why it is happening."

Among other things, Stipp said the immediate application of that insight would test the copy of advertising or brand packaging to understand what triggers a response in a consumer, even if the marketer doesn't fully understand why.

That's an important breakthrough for marketers who have long sought to identify the "moment of truth," when a consumer decides on their brand versus a competitor's. Recently, Interpublic's Shopper Sciences division deployed an innovative new biometric method — a system that utilizes cameras installed on supermarket shelves — to read the facial expressions and heart rates of consumers deciding on which brands to buy. Shopper Sciences' founder John Ross says the software in the system, which was originally designed by MIT professors to help teach autistic children how to read emotions in other people based on their facial expressions, can tell marketers what customers are thinking when they are looking at their brands on a shelf, including whether they are frustrated, bored or confused.

Meanwhile, the ARF's Stipp says the initial phase of the NeuroStandards Collaboration has raised more questions about neuromarketing than it has answered and that the next stages will be to turn the findings into an easily accessible white paper, as well as a dedicated forum in the near future. Based on industry feedback, he says the ARF most likely will organize a new phase of research and an ongoing "expert review network" for marketers, agencies and media who want to assess the latest techniques and methods developed by neuroscientists.

As if the subject of neuromarketing research standards wasn't confusing enough, NeuroFocus pulled an 11th hour move that left many of Madison Avenue's top researchers with what might be described as cognitive dissonance—a term used to explain the state of unease that occurs when our brains are confronted with two conflicting ideas. At about the same time, it was unveiling its new Mynd system at the recent ARF conference, NeuroFocus issued its own competing "NeuroStandards." The move, coming after NeuroFocus declined to participate in the ARF's process, left many heads scratching over the timing of and reason for NeuroFocus' move.

Histrionics aside, ARF's Stipp says it will be a long time, if ever, before the industry codifies measurement standards around neuroscience methods, because new science, technologies and market conditions will continue to emerge.

"It's a moving target. You have the complexity of the science, but also the complexity of the marketplace, which is constantly changing," Stipp says, adding that for now, the most important output of the research is to give marketers and agencies the ability to demystify some of the technical aspects of neuroscience and not to simply rely on it because it is science.

"There are a lot of things science can tell us with absolute certainty. It can tell you if you have a tumor and it needs to be removed," he says. "But understanding how human brains work is much more complex than that. You can't just say, 'I trust it, because it's science.' It's important that people who use this research don't abandon a little bit of their normal cautious skepticism and due diligence." Ⓜ

The Future in a New York Minute

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THE LAST SCREEN

Moviegoing escapes control

BY JOSHUA BAZE

On a recent weekend, my wife and I drove to the suburbs to see a movie in a new, "premium experience" theater. We sat in balcony seats and as I leaned forward, gazing on the crowd below, a single feature captured my imagination. It wasn't the ornate fixtures or the grand velvet curtain that would soon be pulled back to reveal the big silver screen. It was the vast sea of tiny flickering smartphone screens, glowing like a bioluminescent algae bloom in the darkness below.

Hundreds of people, who had just paid premium prices to sit in front of a screen several stories tall, could not take their eyes off of the tiny screens they held in their hands. A literally larger-than-life story was playing out on a giant screen in front of them yet many of these moviegoers could not take their eyes off their tiny handheld screens. Why? I think it comes down to one thing: control.

Think of all the screens in your life. They're everywhere and you control them to varying degrees. As I type this piece, my smartphone, iPad, laptop, iPod, satellite radio, DVR, Netflix Instant (via my Google TV box) and television are all doing pretty much what I tell them. These are *my* screens. And I am in command of them. I capture and reorder the content I want to my exact specifications. I eliminate anything I don't want — commercials, songs, Andy Rooney on *60 Minutes* — and I consume my personally curated content exactly when, where and how I want, and from whatever screen suits my needs at that time and place. I control, order and edit all of the content I consume via all of the screens in my life. Well, almost all of them.

When you buy your ticket and take your seat in a movie theater, you are really sitting in front of the last screen you have absolutely no direct control over. The pre-show commercials, the previews, the movie itself — you get what you're given. Period.

We are increasingly and unconsciously, conditioned by modern digital media to desire only the types of content we can control. And it is our frustration over losing that control that may be killing the movie business. Summer attendance hit a 14-year low in 2010, with only 552 million tickets sold in the U.S., the same year holiday movie attendance dropped to a new 17-year low of 24.2 million tickets sold, according to box-office tracker hollywood.com. Even worse, analysts are predicting ticket sales will continue to drop in 2011.

Explanations abound, from rising ticket prices to the inferior quality of films, but I think the reason is much simpler: There's no remote control at the multiplex.

So what can Hollywood do?

Remind Moviegoers Why They're There

Having done numerous brand studies for film exhibitors in the past, I can tell you the word moviegoers most often use when describing their moviegoing experience is "escape." They go to the movies "to escape from it all." They see the movie theater as one of their last sanctuaries, a place where, for 140 minutes or so, there is no laundry to fold, no dishes to do, no lawns to mow. Theaters would do well to remind their patrons that a trip to the movies means an escape from responding to emails, obsessively checking Facebook, tweeting or texting friends. For as much control as we exert over the many small screens in our lives, they also have some control over us, making demands of our time and attention. Watching movies on the big screen can be an antidote to that. We just need a little reminding.

Customize the Experience

Movies can seem like a commodity experience. The film you buy tickets to is exactly the same whether it's playing at AMC or at Regal. The environment the exhibitor creates is what makes all the difference. A theater that allows moviegoers — especially critical younger ones — to customize their experience will win big.

Start small. For example, while you're buying your ticket online, enable Web-based voting to pick the previews or other content you want to see. Little things like that could make a big difference by creating a personalized, interactive experience.

WHILE YOU'RE BUYING YOUR TICKET ONLINE, ENABLE WEB-BASED VOTING TO PICK THE PREVIEWS OR OTHER CONTENT YOU WANT TO SEE. LITTLE THINGS LIKE THAT COULD MAKE A BIG DIFFERENCE BY CREATING A PERSONALIZED, INTERACTIVE EXPERIENCE.

Consider Larger Ways to Personalize a Moviegoer's Experience

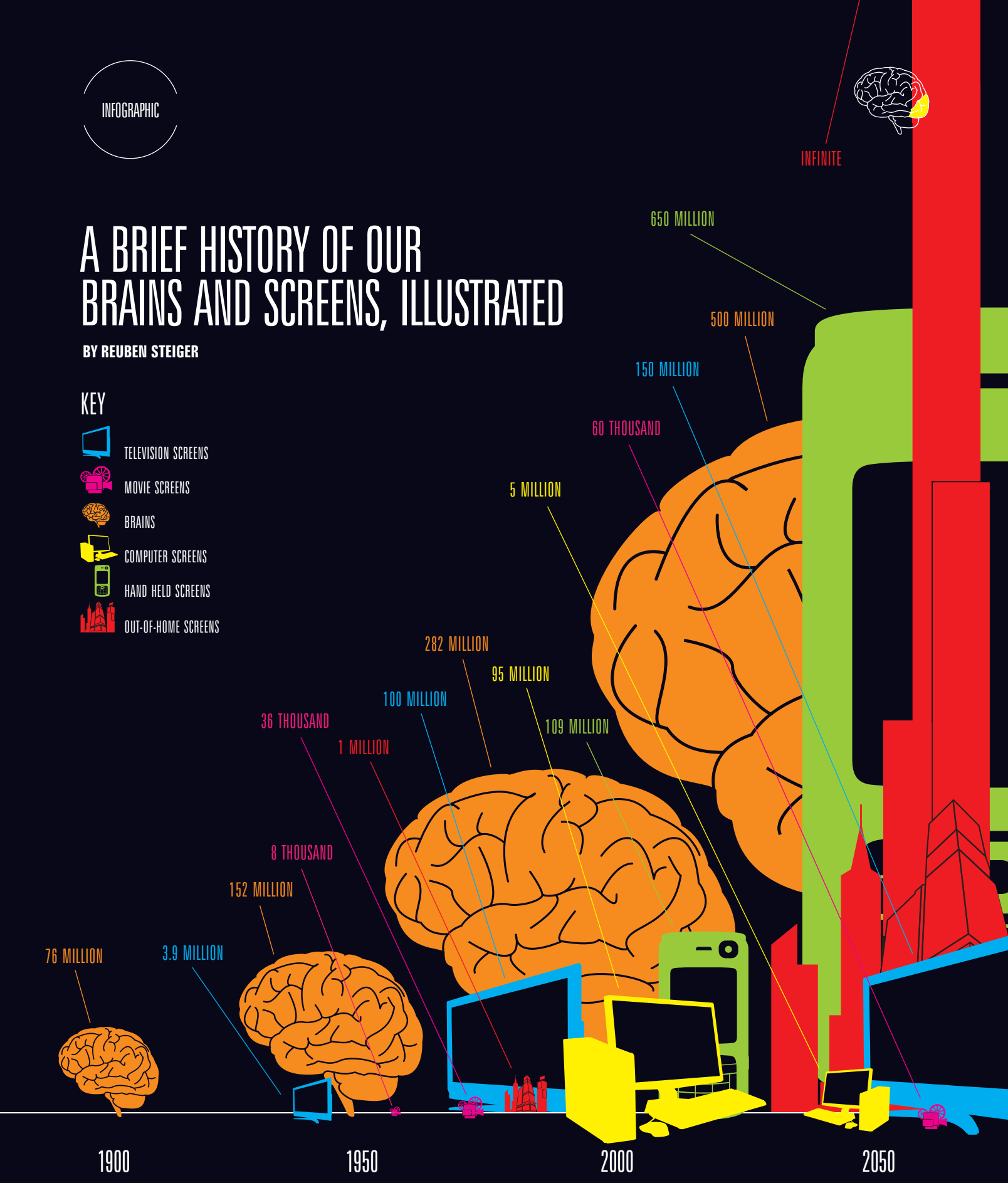
Theaters could provide free, or low-cost "waiting room suites," where small groups of friends could gather before the feature to select previews or other content of their choosing. Or, how about turning some theaters into a "living room" experience, where small groups of friends can cluster on couches and chairs around a smaller screen, allowing them to watch personalized content, select their own previews, play branded games or even video chat with friends before the movie begins — while still having a communal "big screen" experience."

Projection technology may have changed, but the moviegoing experience is still essentially the same as it was 90 years ago. People sit down, face forward, and take what they're given. If Hollywood expects to recover and thrive, it needs to offer people the same control and personalization they expect from the other screens in their lives. Ⓜ

INFOGRAPHIC

A BRIEF HISTORY OF OUR BRAINS AND SCREENS, ILLUSTRATED

BY REUBEN STEIGER



SOURCE: IPG MEDIA LAB, NIELSEN CO., PQ MEDIA. U.S. ESTIMATES, PROJECTIONS.

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POST EXIT INTERVIEW

FORMER GUEST EDITOR

DALE HERIGSTAD | CCO of Possible Worldwide

In the year since Dale Herigstad guest-edited *MEDIA*, a lot has changed. Apple's iPad, which was just then being introduced to the marketplace, has spawned a revolution in tablet computing and content publishing, too. And Herigstad has moved from being chief creative officer of Schematic to CCO of Possible Worldwide, a new umbrella organization within parent WPP, which combined Schematic with its other best-in-breed interactive and design shops.

As we already know from working with him, where Herigstad is involved anything is possible and everything is worldwide. This interview was conducted via email while he was in Mumbai.

It's been a year since you guest-edited *MEDIA*. What have you been up to?
The world of digital media keeps shifting its axis and I've been continuing to spend time observing the changes, as well as working on several intriguing projects around [over-the-top] TV. And, I've been enjoying doing that in the UK and in Europe.

What, if anything, has changed about the way you think of media and design since then?
I've been thinking a lot about the role of editorial in dynamic media design and even what it means to author things. A collection of juxtaposed ideas, words, images [and] video can assemble to create a meaningful consumption experience. Apps like Flipboard, for example, begin to demonstrate how unique media content experiences can gather around certain brands, social groupings or people. I can see the increasing importance of metadata, the stuff that is attached to media that allows for meaningful assemblages to occur.

If you were guest-editing now, is there anything you would do differently?
I would certainly have liked to create a digital iPad motion version of the magazine, or at least a part of it, to explore what that might feel like.

This year's issue focuses on the brain, and how people connect cognitively, emotionally and physiologically to various screens. How much do you think about the neural process when designing for screens?
I think a lot about how to make navigating content intuitive. I think about the very basic and primitive elements of screen design, represented by direction and spatial placement and how we can't stop using our hands to communicate a lot of what we feel. As we have now moved to an era of gesture, direction and natural hand movements are becoming part of the language of navigation. The interaction design task is partly to assign logical meaning to movement and direction.

What do you think about the potential for emotive and/or neural interfaces that connect media directly to our brains?
I think there are a number of ways to tap the many layers of information we give off constantly, which can reveal our mood, how we feel, what we like, what we don't like. I've worked with the Emotiv headset that can detect mood and disposition so that a game or other media context can react accordingly. In Emotiv's case, the headset detects and interprets brain-wave patterns. But more and more sensitive cameras and sensors can also "read" our mood and reaction from body language, how we move and other natural responses we are emitting constantly.

I've recently been giving thought to the new term "gamification." And what I think is that even if some device could detect all our moods, reactions and wishes, it might still be more interesting to engage in speaking, moving our hands and "interacting" with people or objects to make our experience more engaging and fun. Engagement is probably the key word here.


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THOMAS EDISON | Inventor

Without the contributions of Thomas Alva Edison, it's been said, we'd all still be in the dark. America's inventor-philosopher lit the way into the 20th Century, contributing so much to the framework of technological innovation that has brought us blazing into the 21st, up to and including, if not outright inventing electronic, screen-based media.

Edison is credited with inventing (or at least patenting) the motion picture camera, the phonograph and what might well have been a precursor to television, the small-screen kinetescope. The Edison Manufacturing Co. made early cameras and projectors; it even built the first studio, Black Maria, to supply content for the new devices. But before you ascribe any great high-mindedness to these endeavors, keep in mind that not only did Edison establish the technology to exhibit moving pictures, but also gave the public what it wanted, as they say.

A goodly amount of Edison's aptly named Peephole Kinetoscopes displayed, essentially, peepshows (produced by Edison's company) in parlors, arcades and bars. "The old joke goes, 'As soon as the movie camera was invented, exploitation started five seconds later,' " says film historian Eddie Muller. "Someone said to his girlfriend, 'Would you mind taking off your clothes for the camera?'"

From Oscar-nominated films to reality television to Chatroulette (as taking off their clothes is still the first thing some people think to do with a camera), the legacy of Edison can be found in all the screens we now watch. And as those screens begin to cover an increasing portion of the landscape we live in, along with the invention with which Edison is most associated, *MEDIA* got the Wizard of Menlo Park's thoughts on what he's wrought. **JOHN CAPONE**

What was your initial goal for the motion-picture camera?
An instrument which does for the eye what the phonograph does for the ear.

What were the end goals for those inventions?
For most of my life, I refused to work at a problem unless its solution seemed to be capable of being put to commercial use.

Some have said you, in a way, foresaw the development of e-books (or maybe a form of e-ink), though in a cruder form. You thought books would be printed on nickel. Why?
A sheet of nickel one-twenty-thousandth of an inch thick is cheaper, tougher and more flexible than an ordinary sheet of book paper. A nickel book, two inches thick, would contain 40,000 pages. Such a book would weigh only a pound.

What would you say your legacy is, and what is your reaction to the way in which you are revered?
I would be embarrassed at the honors … were it not for the fact that in honoring me, you are also honoring that vast army of thinkers and workers of the past. If I have helped spur men to greater effort, if our work has widened the horizon of thousands of men and given a measure of happiness [to] the world, I am content.

There's plenty of argument, still, over (at times contradictory) comments you made over the course of your life and what you may or may not have meant by them. One such statement, your description of the "spirit telephone" to B.C. Forbes in *Scientific American* in 1920, has been particularly contentious, leading many to speculate that you had, in fact, created the apparatus. What did you say exactly?
If our personality survives, then it is strictly logical and scientific to assume that it retains memory, intellect and other faculties and knowledge that we acquire on earth … I am inclined to believe that our personality hereafter will be able to affect matter. If this reasoning be correct, then, if we can evolve an instrument so delicate as to be affected, moved or manipulated … by our personality as it survives in the next life, such an instrument, when made available, ought to record something.

Did religion and God ever enter your thinking?
Nature is what we know. We do not know the gods of religions. And nature is not kind, or merciful or loving. If God made me — the fabled God of the three qualities of which I spoke: mercy, kindness, love — He also made the fish I catch and eat. And where do His mercy, kindness, and love for that fish come in? No; nature made us —nature did it all — not the gods of the religions.

Are you saying there is no God?
You have misunderstood … because you jumped to the conclusion that it denies the existence of God. There is no such denial, what you call God I call Nature, the Supreme Intelligence that rules matter … It is doubtful in my opinion if our intelligence or soul or whatever one may call it lives hereafter as an entity or disperses back again from whence it came, scattered amongst the cells of which we are made.

Are there still mysteries out there for you?
I wonder if dogs ever go up to flowers and smell them. I think not. Flowers were never intended for dogs and perhaps only incidentally for man. Ⓜ

Sources (in order of answers): "Edison Views the World at Seventy," *New York Times*, 1929; Edison's personal notes from laboratory; "Edison Views the World at Seventy," *New York Times*, 1929; *Cosmopolitan*, Feb 1911l Speech at an awards dinner Oct 1929 on the 50th anniversary of the light bulb; "Little Journeys to the Homes of the Great," Vol. 1 of 14, by Elbert Hubbard; B.C. Forbes, *Scientific American*, 1920 ; *New York Times* interview, 1926l *New York Times Magazine*, Oct 2 1910; Personal letter about the *Times* story; Private journal, 1885

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CONSUMERS ARE ADOPTING MOBILE TECHNOLOGY AT A FAST PACE – OFTEN FASTER THAN MARKETERS CAN KEEP UP WITH, AND IN WAYS NOT EVEN THE MOST SKILLFUL MARKETERS ANTICIPATED. WITH THE INDUSTRY SPOTLIGHT BLAZING, AND WITH BIG MEDIA BUDGETS HEADED ITS WAY, IS MOBILE READY FOR PRIME TIME?

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EXIT INTERVIEW

GUEST EDITOR

Carl Marci, M.D.

CEO & Chief Scientist, Innerscope Research

BY CARRIE CUMMINGS

If you've read thus far, you already know a lot about Dr. Carl Marci's brain. Now it's time to find out what's on his mind. As is our custom, we like to end each guest-edited issue of *MEDIA* with an "exit" interview, downloading their experience and any second thoughts they may have had. Unlike past editors — who have run the gamut from veteran consumer magazine editor Bob Guccione Jr. to Madison Avenue honchos like Alex Bogusky, Dale Herigstad and David Skokna — Marci is a scientist and a practicing doctor (in the field of psychiatry). But he also is a media industry pro, having founded Innerscope Research with his partner Brian Levine and as we were surprised to learn in the process of making this magazine, a pretty darn good editor too. Heck, we'd have him back anytime.

Why did you agree to guest edit this issue?
I think, for me, it's part of an ongoing commitment to educate the media-market audience about the importance of unconscious measures. I also believe in creating awareness of the truly remarkable evolution in our understanding of the brain — how it functions on both the conscious and unconscious levels. In particular, as the media landscape evolves so rapidly and there are so many channels for audiences to receive and increasingly interact with media, that the old and more passive models of audiences are clearly dated; a more updated model of an interactive audience is needed.

Is there anything that you or we could have done differently in terms of guest editing the issue?
I like the opportunity to create themes across pieces. I think that is exciting. In terms of what could be done better, it was a challenging task because the topic is so big. Making decisions on what to cover and what not to cover is so hard and hopefully we struck the right balance.

In the future, what role will biometrics play in our perceptions of screens and media in general?
I think biometrics and unconscious measures and technology will play an increasing role in how audiences will understand screens of all types and sizes. Only a small portion of the brain's working is perceived as consciousness, meaning that the brain is doing a whole lot of things we are not aware of. As we do more and more multitasking and are around more stimuli, we will rely on our consciousness more, so understanding what happens on an unconscious level will be more important. This is to say that if our conscious awareness is only a small portion of what the brain is doing at a time and we are only relying on traditional measures that only tap the conscious response through surveys and focus groups, we see only one component of it. A broader understanding how that works and drives behaviors will be critical.

Medicine influences media, will media ever influence medicine?
First of all, media has already played an important role in healthcare. With the advent of direct to consumer marketing through large pharmaceutical companies, there is no doubt, for example, that a large generation has been educated on depression and even erectile dysfunction. These are common ailments that had a lot of shame and stigma associated with them. In the future, media will play an increasingly important role in health prevention and health maintenance. They will be creating interactive diet and exercise support and wellness programs that are fun and have a social component. We are starting to see these emerge and I think they are only going to increase in their popularity.

What other publication would you like to guest edit in the future?
There are a lot out there that I would like to guest edit. They run the gamut, from *MEDIA* which has a specific audience of media consumers, to a health journal that deals with applications of technology. I think we will see hybrid journalism that crosses over among the technology world, the media world, anthropology, social science and everything in between. Nothing will be truly meaningful in terms of change in the near to long term that isn't multidiscipline.

PHOTOGRAPH BY: JJ MACK

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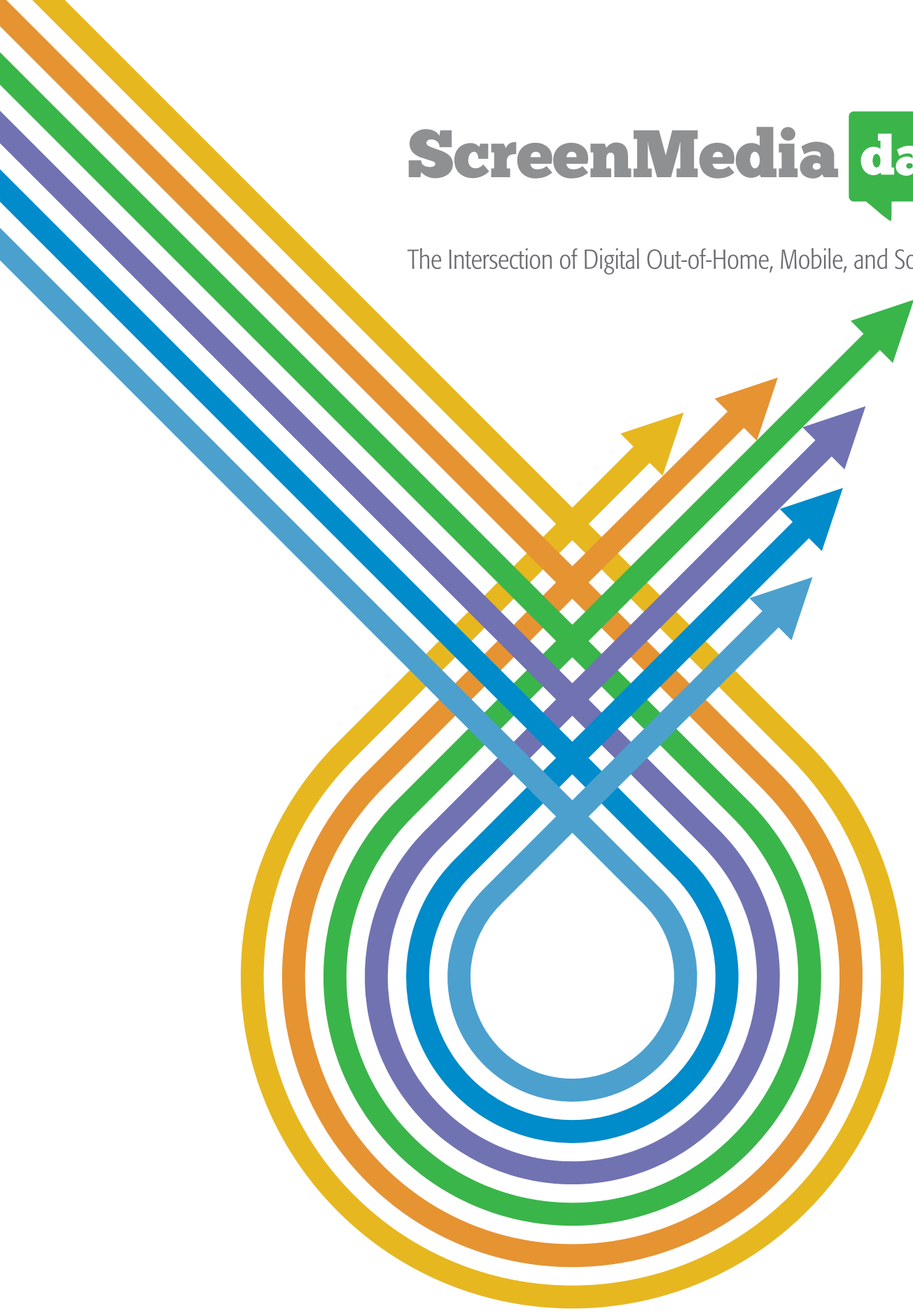

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