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TECHNOLOGY

# Intel's Sharp-Eyed Social Scientist

By NATASHA SINGER FEB. 15, 2014

Behind the gray, noise-absorbing cubicle walls at the Intel Corporation in Hillsboro, Ore., researchers who forecast the future of computing can sense her arrival.

Reverberating down the hall comes an emphatic Australian voice and the rhythmic thwack-thwack of pointy-heeled boots on carpet. And then, Genevieve Bell, an anthropologist who is Intel's resident tech intellectual, materializes — auburn-haired, big-ringed, trailing clouds of Chloé perfume.

She may still see herself as “just a feral kid from Australia.” But for Intel, she personifies something grander: the company's aspirations to be regarded as more than just a chip maker.

Dr. Bell's title at Intel, the world's largest producer of semiconductors, is director of user experience research at Intel Labs, the company's research arm. She runs a skunk works of some 100 social scientists and designers who travel the globe, observing how people use technology in their homes and in public. The team's findings help inform the company's product development process, and are also often shared with the laptop makers, automakers and other companies that embed Intel processors in their goods.

Some years ago, for instance, Dr. Bell's team interviewed parents in China who regarded home computers as distractions from their children's school work. Intel

developed a prototype “China Home Learning PC,” eventually manufactured by an Intel customer, with a key that parents could activate to prevent their children from playing online games during homework time.

“My mandate at Intel has always been to bring the stories of everyone outside the building inside the building — and make them count,” says Dr. Bell, who considers herself among the outsiders. “You have to understand people to build the next generation of technology.”

By “outside,” she isn’t referring only to consumers outside of the United States. Dr. Bell and her team are responsible for sussing out the attributes that people everywhere love, or wish they could have, in their PCs, televisions and so on. Over the last few years, they have been concentrating on consumers’ appetites for hyper-personal technology, like voice-recognition systems and fitness trackers. In essence, they are pushing Intel toward a more people-centric era of personal computing.

Lately, that work has become all the more important to the company. That is because Intel, which has long dominated the laptop processor field, was surprisingly slow to acknowledge the burgeoning market for smartphone chips. In fact, Dr. Bell and her team, among others, had forecast the mobile trend early on, says Diane M. Bryant, the general manager of Intel’s data center group, but Intel didn’t prioritize it at the time. Although the company recently introduced new chips for mobile devices, PC makers are still Intel’s largest customer base, accounting for \$33 billion of its \$52.7 billion in revenue last year.

Now, attributable in part to the efforts of Dr. Bell and her team, Intel is trying to catch up, forging into realms like wearable gadgets that could showcase its new, lower-powered ultrasmall chips. Futurists on Dr. Bell’s team are also developing a customizable personal robot, about the size of a big teddy bear, based on the new mini-chips. Where even a decade ago Intel still focused largely on turning out increasingly efficient technology for its industrial customers, its executives say, the company now looks to consumer happiness as a starting point of product development.

“What Genevieve and her organization have done is to shift our mind-set,” Ms. Bryant says. “It takes a very different skill set, a unique domain experience, to sense

the market and identify the emerging signals and what is going to matter to the end user.”

### **Unpacking the Car**

A few years ago, Dr. Bell was thinking about one particular end user: the car owner. If the marketing is to be believed, cars are no longer just transportation devices, but mobile entertainment systems. Ford promotes its “Sync” in-car infotainment system with slogans like “Drive Connected,” “Drive Personally” and “Drive Entertained.” Audi bills its latest built-in wireless system as the “connected car future,” with smoother digital maps, faster downloads and, someday soon, the ability to exchange data with “parking garages and other connected cars.”

Dr. Bell has never been much impressed by such idealized visions of technology. So when those notions start to settle into conventional wisdom — like the car as a superconnected entertainment-and-communication bubble — she wants to kick the tires, so to speak. This urge is not just contrarianism. If Intel wanted to innovate for its automaker clients, Dr. Bell believed, the company would need to better understand how real people shifted back and forth between built-in technologies and the personal devices they carried into their cars.

So Dr. Bell and Alexandra Zafiroglu, a fellow Intel anthropologist, set off on an expedition. They traveled around the world, examining, logging and photographing the contents of people’s cars.

In a typical encounter, the pair found themselves in an underground parking lot in Singapore, where a man named Frank had agreed to let them scour his new white Volvo S.U.V. They searched his car methodically from the glove compartment to the trunk, removing each object they found and placing it on a beige shower curtain that they had spread out next to his car.

Soon, the plastic curtain was covered with all manner of tech gear: iPods, calculators, a Bluetooth headset, a collection of CDs and DVDs, remote controls for the car’s DVD players, wireless headphones and a detachable GPS system, plus manuals for all of the electronics. There were also personal items: umbrellas, golf clubs, credit cards, toys, candy, hand sanitizer, a small Buddha given to Frank by his

mother, and an anti-slip pad on which the Buddha rested. When they had finished the car excavation, Dr. Bell climbed up a stepladder and photographed the spread.

As they traveled from country to country, asking drivers about how they used every object in their cars, the pair developed a messier counternarrative to the tech-idealized version. Although carmakers have embedded voice-command systems and the like in their vehicles with the idea of reducing distracted driving, the researchers found that when drivers were bored in traffic, they often picked up their hand-held personal devices anyway.

“What became clear was a couple of things: how much technology people bring to cars, how much they were ignoring the technology that was built in, and how much that technology was failing them,” Dr. Bell says.

This more grounded, nuanced view of driver behavior served as a reality check for Intel and its clients. Last fall, Intel announced a collaboration with Jaguar Land Rover to develop, among other things, better ways for consumers to sync their personal devices with their cars. Intel has a similar effort with Toyota, to develop user-interaction systems involving voice, gesture and touch.

The goal is to make built-in technology more seamless and supersede a driver's reflex to reach for a hand-held device.

### **Irritant in the Industrial Oyster**

Dr. Bell was teaching in the Stanford anthropology department in 1998 when a technology entrepreneur she met in a Palo Alto bar suggested that she apply for a job at Intel.

At the time, the company already had a handful of social scientists on staff. But executives had been looking for an anthropologist to conduct research into how people used technology in their homes. (Today, companies like IBM, Microsoft and Google also employ social scientists, in-house or as consultants, who specialize in applied anthropology.)

During her job interview, Dr. Bell apprised her would-be bosses that she couldn't see herself fitting in at Intel. After all, she wasn't a technologist, she didn't

do PowerPoint, she used a Mac and she was, she told them, a “radical feminist and an unreconstructed neo-Marxist.” She was hired.

On her first day at work, Dr. Bell recounts, her new boss told her that the company wanted her help with two realms: women and “R.O.W.” — for “rest of world” outside the United States.

Dr. Bell was well-suited to the task. She spent much of her childhood on aboriginal settlements in the north and west of Australia, where her mother, an anthropologist, was doing field work. Young Genevieve learned aboriginal survival skills such as how to squeeze a drink out of Australian water-holding frogs. (“It’s a one-way ticket for the frog to nonfrogness,” Dr. Bell notes.) It was an education in both feeling like an outsider herself and empathizing with outsider groups.

At Intel, Dr. Bell started taking research trips around the world to see how consumers used technology in their kitchens and living rooms, at sports events and religious observances. After she and her colleagues returned, they printed posters with the photographs and comments of people they had interviewed, posting them around Intel’s offices. Employees were so interested in the images, she recalls, that there were bottlenecks in the hallways.

She also discovered that Intel engineers were more welcoming of naysayers than many professors she had encountered.

“At Stanford, they didn’t like it when you told the faculty they were dead wrong, whereas here, that was a cultural value,” Dr. Bell explains. “Here I would say, ‘You are dead wrong and here are 17 reasons why and six data sources,’ and they would say, ‘That’s very interesting; tell me more.’ ”

Even her appearance is a self-conscious provocation. In a corporate culture engendered by male engineers, and still dominated by them, Dr. Bell sees flaunting her otherness as part of the job description.

“Some things I do quite deliberately,” she told me. “I wear French perfume. I wear heels. I dress like I am actually female.”

Sixteen years after Dr. Bell, now 46, arrived at Intel, she continues to nudge,

contradict and challenge perceptions. But now she leads her own research enterprise. Still, it can be hard to describe precisely what Dr. Bell herself does, because she tends to favor open-ended research questions that don't have an immediately obvious practical payoff. Newspaper articles — with headlines like “Technology’s Foremost Fortune Teller” — have portrayed her as an oracle with magical predictive powers.

But over several months of conversations, I came to think of her more as Intel’s in-house foil, the company contrarian, an irritant in an industrial oyster shell.

“She is not afraid to voice her opinion thoughtfully and forcefully; she’s not afraid to tell you how wrong you are,” says Tad Hirsch, an assistant professor of interaction design at the University of Washington in Seattle who used to work with her. “She credits it to being Australian, which is partially true. But part of it is just Genevieve.”

### **Celebrating Presence**

A man and a woman sat at different tables in a mock coffee shop set up on a San Francisco stage for a recent talk by Dr. Bell.

Before each was an open dual-screen laptop — one screen facing toward the user in the usual way, the other facing outward for public viewing. An audience of Intel developers watched as the pair, two actors hired for the occasion, demonstrated some technology-enabled flirtation.

On the exterior surface of his laptop, the man posted a message in big white letters: “What are you drinking?”

The woman typed a reply: “Are you hitting on me?”

“Yep,” he posted.

Intel’s business remains heavily rooted in the laptop market. Last year, in a bid to make laptops more relevant, Dr. Bell’s lab designed prototype software on a TaiChi, a dual-screen notebook computer made by Asus, an Intel customer. The program lets people post photos and text messages of up to 140 characters on the

exterior laptop screens. The goal was to encourage real-time communication between people who are in the same place at the same time, offering a physical complement to virtual networks like Facebook and Twitter.

“What would it be to have technology that celebrated presence, not absence, that grounded you in being in that place, not being somewhere else?” Dr. Bell says of the impetus for the project.

Members of her team tested the program, called “Personal Billboard,” in cafes around Portland and Seattle. They discovered that passers-by were initially wary; they would glance quickly at the screens, then look away. But if researchers posted a question — like “What did you read today?” or, “Do you think Nordstrom has good customer service?” — strangers would start talking to one another.

The researchers also tested it on a group of 14-year-old girls, who used it for hours to trash-talk with one another across a table. Eventually, the girls asked if they could have a sleepover at the testing facility because they wanted to keep playing with the second-screen messaging.

“We keep talking about how technology is destroying social activity,” says Dr. Bell, sitting in her office. “It was reassuring that, when you give people technology that reinforces presentness, they embrace it.”

Right now, however, Personal Billboard is experimental — a demonstration to computer makers that the company is exploring ways to reposition the laptop as a social interaction device. But, with so many people now more compelled by mobile devices, the software may never appear in consumer laptops. Or it could recur in a different incarnation: on dual-screen smartphones.

### **A Robot Named Jimmy**

On the way to a restaurant near her office on a cold day, Dr. Bell slipped on a pink, knitted, conical hat with feathers erupting from the top.

“I don’t just have a hat. I have an award-winning aboriginal beanie,” she said, explaining that the hat won a design competition in Alice Springs, in central Australia. “And those are emu feathers,” she said, pointing to the top of the hat.

In a corporation that venerates high-tech engineering, Dr. Bell often expresses her affinity for tactile, low-tech objects. And she makes a concerted effort to inhabit tech-free zones. She loves swimming because, she says, “nobody can call me.”

Dr. Bell tends to be indifferent to the blinking lights of the latest gadgetry. What fascinates her is a pattern, which has repeated itself over the centuries, of society’s initial embrace of a new invention, often followed by what she terms “moral panic” and then, eventually, by widespread adoption. That was the trajectory of home electrification and of passenger cars. Even the 1950s introduction of the Princess rotary phone, marketed to teenage girls for use in their bedrooms, Dr. Bell says, prompted concerns like “Would it lead to licentious phone calls?”

Lately, she has been reflecting on a more contemporary issue: anxiety over the possibility of intelligent, sensate computers that might take on a life of their own. In 1818, she notes, the publication of “Frankenstein,” by Mary Shelley, stoked fears that inventions might come to life and kill us — a theme that later recurred in films like “The Terminator.”

It’s relevant again now, she says. With the advent of the Internet of Things, an increasing number of objects, like thermostats and traffic lights, are being outfitted with sensor chips that can collect and transmit information about their environments. Dr. Bell sees these connected objects as harbingers of devices that will have relationships, rather than mere interactions, with people.

As in the past, fiction often precedes fact. Consider the movie “Her,” in which a computer operating system named Samantha becomes the caretaker, companion and, eventually, the virtual paramour of Theodore, a human lonely heart.

“Maybe the Internet of Things will be about delighting us or taking care of us, not traffic lights,” Dr. Bell mused over lunch with Brian David Johnson, a futurist in her lab.

Mr. Johnson is leading a project to develop a personal robot, named Jimmy, that would relate to people as individuals. White and curvaceous, Jimmy is a knee-high customizable system — like a mobile phone on legs — onto which consumers could download apps. “Jimmy is a computational platform that can walk around,”



Mr. Johnson explained. “There’s enough computational power to sense what your mood is, where you are, an understanding that is relationship-based.”

Jimmy is meant to show Intel’s corporate customers what its design thinking — and chips — can accomplish. But it is also rooted in Dr. Bell’s belief that the future of computing is in personalized, people-centric devices. In fact, Intel plans to make the software public this spring so that people with access to 3-D printers can create their own Jimmys. “Ultimately, it will be about people stuff,” Dr. Bell says, “and Jimmy makes the people stuff readily apparent.”

Even so, Dr. Bell is the first to say that she is no tech oracle:

“Ten years from now, do we think people will still want to talk to each other? Yes. Will they still want to share cat pictures? Yes. Will they still want to tell bad jokes? Yes. Will people want a camera on their person? Probably,” she conjectures. “What will that look like?” She shrugs.

Dr. Bell was hurrying home to pack for a trip to Australia. Before she decamped, she donned a down coat and the award-winning aboriginal beanie and picked up that near-extinct mobile device, a BlackBerry. “I am firmly in the present,” she said as she headed toward the exit. “But, sometimes, I want to drag the future here and see if we want it.”

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