

YOU TUNES

Is everyone musical? One sonic pioneer thinks so. And he has the technology to prove it.

By ROB WALKER

In a dimly lighted conference room in the Palo Alto, Calif., offices of Smule, a maker of music apps, Ge Wang was sitting in a meeting with his colleagues, humming, singing and making odd whooshing noises into the microphone of an iPad, checking the screen, and then pounding fugues of code into an attached laptop. Poking at his devices, he reminded me of a child obviously amusing himself while the grown-ups natter on around him. Nobody else in the meeting seemed to notice Wang's behavior as they listened to a debriefing about recent updates to Smule's Mini Magic Piano app.

When the guy at the head of the table mentioned that the graphics on the welcome page now subtly pulse, Wang looked up. "Yeahhhh," he said. "Classic Smule," he added in a mutter to nobody in particular. "Everything needs to pulse." Then he blew into his iPad mic and banged some more code.

Wang, who is 34 and a founder of the company, often leaves an impression of childlike distractedness. But in fact he's distressingly productive. He was coding in someone else's meeting in July because he had just two hours to prepare for a presentation on a new Smule product, code-named "Project Oke." His company has been remarkably successful, but the app-o-sphere is more competitive than it used to be, and there was a lot riding on his coming up with another hit — ideally by year's end.

Wang likes to say that he has two full-time jobs,

and they seem wholly distinct. At Stanford University, where he is an assistant professor, he teaches a full course load through the Center for Computer Research in Music and Acoustics (usually referred to as CCRMA, pronounced "karma"), presiding over a highly experimental "orchestra" that performs with cleverly customized laptops, cellphones and other electronics. It's very cutting edge and, in terms of audience, very rarefied. At Smule, a profit-driven, private company that recently raised its second round of venture-capital financing, he devises applications bought by millions.

Founded in 2008, Smule released several apps in rapid succession, but its breakthrough was the Ocarina. Exploiting the iPhone's microphone as well as its touch-screen interface, Wang converted the device into an easy-to-play flute-like instrument. In what has become a Smule signature, the app also included a representation of the globe, with little dots that light up to show where in the world someone is playing the app at that moment. With a tap, you can listen. It's also possible to arrange a duet with an Ocarina user thousands of miles of way, whom you've never met. The Ocarina was downloaded half a million times, at 99 cents a pop, in its first couple of months, making it the top-selling app for three straight weeks; a new artist selling that many downloads of a single today would probably end up on the cover of Rolling Stone.

The common aim of Smule's products is to prod nonmusicians into making music and to



interact with others doing the same. There are singing apps like I Am T-Pain and Glee Karaoke, and digital versions of instruments like Magic Piano and Magic Fiddle. What connects these easy-to-use diversions to Wang's more abstruse gear-tinkering is the exploration of expressive sound via technology: everyone can make music, he believes, and everyone should.

It's hard to overestimate how much Smule's strategy revolves around Wang himself. Before the first Project Oke demo, I asked another Smule employee what the app would consist of, how it would work. He shrugged. "Right now," he said cheerfully, "it's all in Ge's brain."

What marched out of Wang's brain at that first Project Oke demo in July was a cute robot, singing and dancing. The app, now known as Sing, Robot, Sing!, is likely to be in Apple's App Store early next year, depending on how quickly the final version moves through the approval process.

There it will join what has become a bewildering array of products in the "music" category. This includes services like Spotify and Pandora that are analogous to radio, and games like Tap Tap Revenge, which involve tapping dots on your phone's screen in sync with songs. Artists routinely release phone and tablet applications that include remix-it-yourself options. Reality Jockey, based in London, has created "reactive music" apps that respond to sounds in the listener's environment as well as user actions. There are sophisticated instrumentlike apps that require technical skill or musical knowledge to master, and apps that recreate that ultimate amateur form, karaoke.

You could think about these apps on a continuum from the enduring (making something that aspires to art) to the ephemeral (a time-killing game). Smule sits somewhere in the middle. ("Smule" is a shortened version of Sonic Mule, a reference to a character in Isaac Asimov's "Foundation Trilogy" who influences others without their knowledge, disrupts existing power structures and builds an empire.) Smule's apps have instrumentlike functions, meaning they can be used to create new, expressive sounds, but they also feel like games. Wang is essentially trying to trick users into making music without quite realizing it. "He's always had this notion that everybody is musical but they're just too embarrassed to do anything about it," says Perry Cook, a computer-music pioneer who was

Wang's adviser at Princeton and today consults for Smule. "Of course, the karaoke solution to that is to get everybody drunk," he adds.

Wang was born in Beijing. An only child whose parents traveled frequently, he spent much of his early childhood with his paternal grandparents. His grandmother loved the Beijing opera, and his grandfather had a cabinet stuffed with hundreds of meticulously organized cassettes of Western classical music performances taped off the radio. They gave him his first instrument at age 7—an accordion.

He came to America at age 9, after his father moved to Atlanta to pursue a Ph.D. at Georgia Tech. As Wang tells it, his move from China was hard on his grandparents, but he took it in stride: "I was just kind of a 9-year-old kid, and really happy wherever I am." The family moved to the suburbs of Kansas City, Mo., when his father got a teaching job at Missouri Western State University, and for his 13th birthday, Wang received an electric guitar. Neither he nor his parents associated the guitar with rebellion, even when he gravitated toward Metallica and Guns N' Roses. "I was like, 'This is a fun, happy-sounding instrument,'" Wang recalls. His parents encouraged him; he learned to shred.

A video-game fanatic, he took to computers and was delighted to learn that interesting sounds could be coaxed out of them too. Soon he

and another computer- and music-loving high-school classmate, Visnu Pitilyanuvath, used a four-track recorder to make a 12-song cassette called "Bovine Construction," full of goofy lyrics, glitchy sounds and every special effect they could devise. (It also includes a little shredding, a number of knock-knock jokes and Wang's impersonation of Yoda.) "All of our friends bought it," says Pitilyanuvath, who is now a consultant to tech start-ups in the Bay Area.

The theme that runs through Wang's early associations with music-making and technology, and particularly the two combined, is the sense of discovery, fun, joy. "It's like I tasted this great, wonderful food," he says now, "and for some reason I've got this burning desire to say to other people: 'If you tried this dish, I think you might really like it.'"

The premise of Sing, Robot, Sing! is that you are "training" a charmingly blobby little character (based on a drawing by Wang) to belt out songs for points and rewards. Back in July, at the first demonstration, Mike Rotondo, a Smule intern, showed his colleagues how the character repeats what a user sings; later, a variety of audio effects would be added, tricking out the robot's voice with echoes and stutters chosen by the user. "I got the technical parts down," Rotondo told the group, "but not the spirit."

Wang is very focused on the spirit—the small design details, the feel. That's why he becomes excited when a graphic image pulses: it's useless but weirdly amusing and engaging. "The graphics and the interface have got to be pot-smoking," is how he puts it. "Go beyond the normal, everyday experience." Following Rotondo that day, Wang demonstrated the app's main singing action mode. The robot was off to the left, marching in place, as colored lines drifted toward him, in time to a Bruno Mars song. Wang sang the words, which were scrolling by, into the iPad, and the Robot's head swiveled in reaction, emitting a beam that sliced the incoming color blocks when the proper pitch was hit. This was "training" the robot by way of a user singing: it felt like a game, but to play, you had to make music yourself (with or without getting drunk first).

Everybody at the demo seemed impressed. Wang, however, seemed uncharacteristically out of sorts. He was not happy with the visual signals indicating a user had hit the right note; this was what he'd been

fiddling with during the earlier meeting, and he was still not satisfied. "We need," he announced, "to make the graphics more pot-smoking."

Wang's ambitions trace back to his undergraduate years at Duke, where he majored in computer science. In his junior year he took a class called Electronic Music, and around the same time was profoundly impressed by an 18-minute piece called "Table's Clear," by the composer Paul Lansky, built partly from samples of children playing with kitchen tools. Lansky taught at Princeton; Wang began thinking about grad school. "I was just starting to realize I'm not really a 9-to-5 person," he says.

At Princeton, Wang devised a new open-source computer language called Chuck (which has been used to create most of Smule's apps) and got involved in a "laptop orchestra." At CCRMA, he and his students carry on the computer-music tradition of deducing how features of a given technology can be exploited to do something unintended. For instance: laptops often contain something called an accelerometer, which senses movement and protects the hard drive if you drop the thing. But synced to a laptop's audio in the right way, the accelerometer can make sounds coming from the device respond to the way it's held or moved—creating an opportunity for expressiveness.

The first mobile phones Wang converted into music-makers were actually Nokia devices. The iPhone, and Apple's quick embrace of apps as a means of expanding their functionality, suggested different possibilities to Jeff Smith, one of Wang's more unusual students. Like Wang, Smith has a background in both music and engineering; unlike Wang, he had always fervently believed in keeping the two separate. "To me, music was all about human passion and nuance and imperfection," he says. "And computers were all about this kind of cold, dark calculating thing."

After working as an engineer at I.B.M. and Hewlett-Packard, Smith founded, and sold, a couple of successful tech companies, and then at age 40 decided to get an advanced degree in piano composition at Stanford. That's where he heard Wang give a talk—and changed his mind about that computer/music dichotomy. Still dabbling in the start-up world, Smith pitched Wang on the idea that he could reach a far larger audience through a commercial app business (with Smith as chief executive). Today Smule has products on 18 million devices—a number, he points out, that would be hard for any academic experiment to reach.

If Beethoven shifted the way the Western world thought about music from craft to art, and if recorded music ushered in an era when listening to masterful pros trumped amateur playing, Wang suggests that we may now be at another

dance floor made of multicolored circles that respond to the user's singing in a way that Wang considers sufficiently pot-smoking.

"We're giving people a nudge," he said, "to get them to go do something that we think is in everyone." Sometimes the success of the nudge depends less on an app's functions than in how they're packaged and presented. If it works, users "will smile," he continued, "for the very simple reason of—you know in some—just because they—" He stopped. "You know, for no reason, actually. That's the best reason to smile."

In a departure from past practice, Smule plans to make Sing, Robot, Sing! available through Apple's App Store at no cost. The business strategy is to generate money as users buy more songs and custom accouterments for their robot avatars—so the more users, the better. As the company grows, it has prodded users to "share" with other Smule customers and (more to the point) with social-network "friends" who might become Smule customers.

This is also better for Wang's more ethereal mission of helping millions to enjoy making music. "Can we make musical interactions that weren't possible ever before?" he asks. "Can we have people who don't know each other, across the world, make music in a way that you can't do in any other way?"

That depends on people not just downloading a Smule app, fiddling with it for a day and forgetting about it. Wang admits that this happens, and while encouraging users to connect with one another is meant to keep them engaged with (and buying) Smule products, it also relates to Wang's grand experiment. His favorite example so far involves the Glee Karaoke app.

Responding to the nuclear disaster in Japan earlier this year, one user organized a group version of the song "Lean on Me" and invited other users to add their voices—something that as of mid-November 3,896 people around the world had done, creating a previously impossible choral performance. And maybe that's just the beginning, Wang speculates. "Is there a way that we can get," he asks, "like, 10 million people to make music together in a way that's meaningful?"

At the turn of the 20th century, Perry Cook, Wang's Princeton adviser, observes, the principal way of distributing songs was on sheet music and piano rolls, "and the principal machine for rendering them was an educated daughter." People would sit around, she'd play, maybe everyone would sing. "That was that turn of that century," he continues. Perhaps, he says, pocket-size computers and easy-interface musical apps are recreating that dynamic, even as they transform it: "The hardware's different, the software's different—but people are singing together." ♦

Sonata for iPhone: Ge Wang, app designer, plays his Ocarina.



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