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Auto-Tune: Why Pop Music Sounds Perfect

By Josh Tyrangiel

If you haven't been listening to pop radio in the past few months, you've missed the rise of two seemingly opposing trends. In a medium in which mediocre singing has never been a bar to entry, a lot of pop vocals suddenly sound great. Better than great: note- and pitch-perfect, as if there's been an unspoken tightening of standards at record labels or an evolutionary leap in the development of vocal cords. At the other extreme are a few hip-hop singers who also hit their notes but with a precision so exaggerated that on first listen, their songs sound comically artificial, like a chorus of '50s robots singing Motown.

The force behind both trends is an ingenious plug-in called Auto-Tune, a downloadable studio trick that can take a vocal and instantly nudge it onto the proper note or move it to the correct pitch. It's like Photoshop for the human voice. Auto-Tune doesn't make it possible for just anyone to sing like a pro, but used as its creator intended, it can transform a wavering performance into something technically flawless. "Right now, if you listen to pop, everything is in perfect pitch, perfect time and perfect tune," says producer Rick Rubin. "That's how ubiquitous Auto-Tune is." ([Download TIME's Auto-Tune Podcast from iTunes](#))

Auto-Tune's inventor is a man named Andy Hildebrand, who worked for years interpreting seismic data for the oil industry. Using a mathematical formula called autocorrelation, Hildebrand would send sound waves into the ground and record their reflections, providing an accurate map of potential drill sites. It's a technique that saves oil companies lots of money and allowed Hildebrand to retire at 40. He was debating the next chapter of his life at a dinner party when a guest challenged him to invent a box that would allow her to sing in tune. After he tinkered with autocorrelation for a few months, Auto-Tune was born in late 1996.

Almost immediately, studio engineers adopted it as a trade secret to fix flubbed notes, saving them the expense and hassle of having to redo sessions. The first time common ears heard Auto-Tune was on the immensely irritating 1998 Cher hit "Believe." In the first verse, when Cher sings "I can't break through" as though she's standing behind an electric fan, that's Auto-Tune--but it's not the way Hildebrand meant it to be used. The program's retune speed, which adjusts the singer's voice, can be set from zero to 400. "If you

set it to 10, that means that the output pitch will get halfway to the target pitch in 10 milliseconds," says Hildebrand. "But if you let that parameter go to zero, it finds the nearest note and changes the output pitch instantaneously"--eliminating the natural transition between notes and making the singer sound jumpy and automated. "I never figured anyone in their right mind would want to do that," he says.

Like other trends spawned by Cher, the creative abuse of Auto-Tune quickly went out of fashion, although it continued to be an indispensable, if inaudible, part of the engineer's toolbox. But in 2003, T-Pain (Faheem Najm), a little-known rapper and singer, accidentally stumbled onto the Cher effect while Auto-Tuning some of his vocals. "It just worked for my voice," says T-Pain in his natural Tallahassee drawl. "And there wasn't anyone else doing it."

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Since his 2005 debut album, T-Pain has sent a dozen slightly raunchy, mechanically cheery singles into the Top 10. He contributed to four nominated songs at this year's Grammys on Feb. 8 (see page 51), and his influence is still spreading. When Kanye West was looking for an effect to match some heartbroken lyrics, he flew T-Pain to Hawaii to see how many ways they could tweak Auto-Tune. Diddy gave a percentage of his upcoming album's profits to T-Pain in exchange for some lessons. Even Prince is rumored to be experimenting with Auto-Tune on his new record. "I know [Auto-Tune] better than anyone," says T-Pain. "And even I'm just figuring out all the ways you can use it to change the mood of a record." ([See pictures of Diddy.](#))

Other sonic tricks have had their moment--notably Peter Frampton's "talk-box," a plastic tube that made his guitar sound as if it were talking--but in skilled hands, Auto-Tune is the rare gimmick that can lead to innovation. On T-Pain's latest album, *Thr33 Ringz*, tracks like "Karaoke" and "Chopped N Skrewed" literally bounce between notes, giving the record a kids-on--Pop Rocks exuberance. Using the same program, West's *808s & Heartbreak* is the complete opposite--angsty, slow and brutally introspective. West sings throughout, and while he couldn't have hit most of the notes without Auto-Tune, he also couldn't have sounded as ghostly and cold, and it's that alienated tone that made *808s* one of the best albums of last year.

Plenty of critics raved about West's use of Auto-Tune, but T-Pain is often dismissed as a novelty act. (Not that he minds: "I'd rather be known for something than unknown for nothing.") But unlike most singers, he acknowledges the impact Auto-Tune has had on his career. Of the half a dozen engineers and producers interviewed for this story, none could remember a pop recording session in the past few years when Auto-Tune didn't make a cameo--and none could think of a singer who would want that fact known. "There's no shame in fixing a note or two," says Jim Anderson, professor of the Clive Davis department of recorded music at New York University and president of the Audio Engineering Society. "But we've gone far beyond that."

Some Auto-Tuning is almost unavoidable. Most contemporary music is composed on Pro Tools, a program that lets musicians and engineers record into a computer and map out songs on a visual grid. You can cut at one point on the grid and paste at another, just as in word-processing, but making sure the cuts match up requires the even pitch that Auto-Tune provides. "It usually ends up just like plastic surgery," says a Grammy-winning recording engineer. "You haul out Auto-Tune to make one thing better, but then it's very hard to resist the temptation to spruce up the whole vocal, give everything a little nip-tuck." Like plastic surgery, he adds, more people have had it than you think. "Let's just say I've had Auto-Tune save vocals on everything from Britney Spears to Bollywood cast albums. And every singer now presumes that you'll just run their voice through the box."

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Rubin, who's produced artists as diverse as the Dixie Chicks and Metallica, worries that the safety net of Auto-Tune is making singers lazy. "Sometimes a singer will do lots of takes when they're recording a song, and you really can hear the emotional difference when someone does a great performance vs. an average one," says Rubin. "If you're pitch-correcting, you might not bother to make the effort. You might just get it done and put it through the machine so it's all in tune." Rubin has taken to having an ethical conversation before each new recording session. "I encourage artists to embrace a natural process," he says. ([See pictures of Rick Rubin.](#))

With the exception of Milli Vanilli's, pop listeners have always been fairly indulgent about performers' ethics. It's hits that matter, and the average person listening to just one pop song on the radio will have a hard time hearing Auto-Tune's impact; it's effectively deceptive. But when track after track has perfect pitch, the songs are harder to differentiate from one another--which explains why pop is in a pretty serious lull at the moment. It also changes the way we hear unaffected voices. "The other day, someone was talking about how Aretha Franklin at the Inauguration was a bit pitchy," says Anderson. "I said, 'Of course! She was singing!' And that was a musician talking. People are getting used to hearing things dead on pitch, and it's changed their expectations."

Despite Randy Jackson's stock American Idol critique--"A little pitchy, dawg"--many beloved songs are actually off-pitch or out of tune. There's Ringo Starr on "With a Little Help from My Friends," of course, and just about every blues song slides into notes as opposed to hitting them dead on. Even Norah Jones, the poster girl of pure vocals, isn't perfect. "There's some wonderful imperfections of pitch on 'Don't Know Why' from Come Away with Me," says Anderson, "and most of the other tunes on the album as well. But I wouldn't want to change a single note."

Let's hope that pop's fetish for uniform perfect pitch will fade, even if the spread of Auto-Tune shows no signs of slowing. A \$99 version for home musicians was released in November 2007, and T-Pain and

Auto-Tune's parent company are finishing work on an iPhone app. "It's gonna be real cool," says T-Pain. "Basically, you can add Auto-Tune to your voice and send it to your friends and put it on the Web. You'll be able to sound just like me." Asked if that might render him no longer unique, T-Pain laughs: "I'm not too worried. I got lots of tricks you ain't seen yet. It's everybody else that needs to step up their game."

Perfect Pitch? To hear Auto-Tune in action, go to time.com/autotune

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