Auto-tune

Digital Sound Synth

Jungho Bang

What is it?

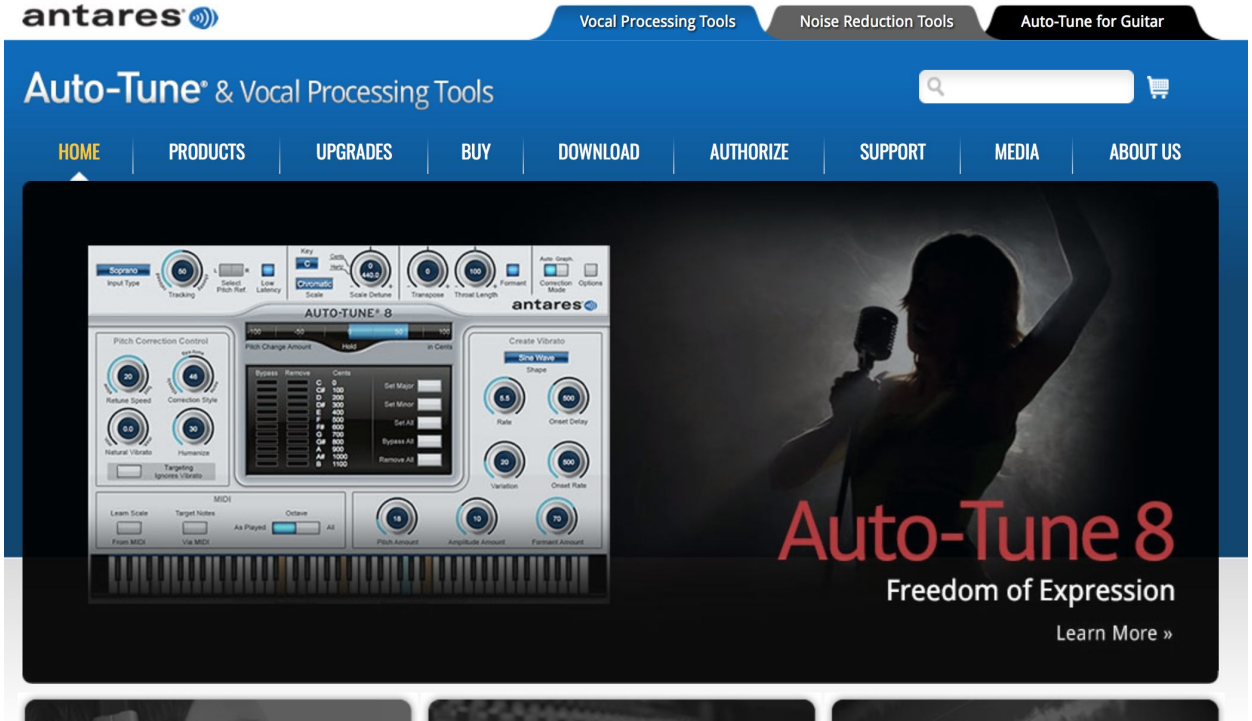
Originally intended to disguise off-key inaccuracies
Allowing vocal tracks to be perfectly tuned

Also used as an effect to distort the human voice
- Pitch gets raised or lowered significantly
- Voice is heard to leap from note to note stepwise


AUTO-
TUNE

Fact #1

It is actually a brand name - owned by Antares



Fact #2

Created by Andy Hildebrand, **an oil engineer in Exxon**

Methods for interpreting seismic data

Realized that the technology could be used to detect, analyze, and modify the pitch in audio files


CHER
believe


vevo

Softwares


Input Type
Soprano
Tracking
Relaxed
Choosy
Select Pitch Ref.
Key
C
Scale
Chromatic
Scale Detune
Cents
Hertz
Transpose
Throat Length
Formant
Correction Mode
Auto
Graph.
Options
antares
AUTO-TUNE® 7
Clear All
Undo
Redo
Snap to Note
Select All
Cut
Copy
Paste
Auto Scroll
Show Lanes
G3 0
Object Pitch
All
Tie
Data Error
Track
Pitch
Make Curve
Import Auto
Make Notes
Number of Note Objects
Less
More
Make Notes From MIDI
Show MIDI
Retune Speed
Slow
Fast
Adjust Vibrato
Throat Length Adjust
Nudge
G3 +9
Output Pitch
G3 -5
Detected Pitch
Track
Pitch+Time
Enable
Undo
Redo
Clear All
TIME CONTROL
Data File
Management
Sample Rate
44.1K
Time Display
Seconds | Bars + Beats
Clock
Position
Reset
Source
Internal | Host
Cursor Time Position
7.986

Hardwares


TA-1VP
antares
MIC IN
RECEPTOR
MUSE
RESEARCH
POWER
USB
SINGLE
SOURCE
FXA
FXB
FXC
MIX
MULTI
SETUP
EDIT
SAVE/FILE
METERS

Hardwares


I AM
T-PAIN
MIC™
SOUND LIKE A PRO! UN SON DE PRO !
T-PAIN EFFECT
ORIGINAL BEATS
RYTHMES ORIGINAUX
BY YOUNG FYRE FOR NAPPY BOY PRODUCTIONS
PAR YOUNG FYRE POUR NAPPY BOY PRODUCTIONS
MP3 COMPATIBLE
COMPATIBLE MP3
T-PAIN EFFECT
TRY ME! ESSAYE-MOI!
TRANSFORMS YOUR VOICE! TRANSFORME TA VOIX!
PLAY BACK ENREGISTRER
RECORD LIRE
DOWNLOAD & SHARE TELECHARGER ET PARTAGER
BUILT-IN SPEAKER HAUT-PARLEUR INTEGRE
I AM T-PAIN


vevo
vevo

Criticism

Opponents argue Auto-Tune has negative effects on society's perception and consumption of music.

Jay-Z released a song D.O.A. (Death Of Autotune) against this technology.


Charlie Bit Me

How it works

Scans their vocals

Finds any notes that don't adhere to that scale

Pulls them back to the "correct" pitch

```
// ***** Auto-tune *****
// Pitch tracking
inlet => PitchTrack pt => blackhole;
512 => pt.frame;
4 => pt.overlap;

// Pitch shift
inlet => Delay del => PitShift ps => outlet;
pt.frame()::samp => del.delay; // wait for the pitch tracking?
1 => ps.mix;
1 => ps.shift;
```

```
pt.get() => float pitch; // get current pitch
if (pitch <= 0)  // if not tracked
    continue; // pass this iteration

pitch => float target;
if (mode == 0) { // just quantizing to nearest key
    pitch => Std.ftom => Math.round => Std.ftoi => Std.mtof => target;
} else if (mode == 1) { // find closest among given list of keys
    closest(pitch) => target;
} else if (mode == 2) { // use given frequency (interactive)
    freq => target;
}
target / pitch => ps.shift; // perform autotune
```