MUS 7: Applied Music Tech

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$n = 10$ $n = 50$ $n = 250$

Uncertainty principle

Quantum
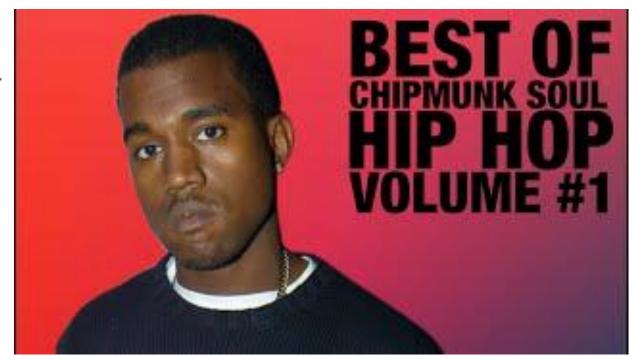
Music Technologies in Hip-Hop Production

Chipmunk Soul

Features high-pitched, cartoonish soul samples. The "chipmunk soul" style was enormously popular in the early to mid-2000s.

Early producers took whole chunks of soul songs with vocals on top and sped (pitched) them up to the hip-hop tempo of the time.

DJ Screw

- One of the most distinctive and influential figures in Houston rap was DJ Screw, a prolific mix and radio DJ.

- He pioneered a style of slowing down records and then cutting them up (i.e. "[chopped and screwed](#)").

- He remixed nationally famous tracks for the local scene and also made beats for local rappers.

- This sound, associated with getting high on codeine cough syrup, became the **defining feature of much Houston rap**, and has had a revived national influence again over the last 5 -10 years.
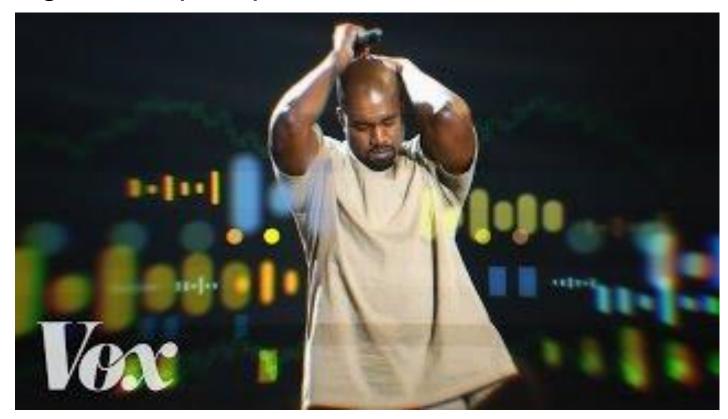
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Auto-tune

The principle of auto-tune consists in applying a time-varying transposition (or pitch shift), which is controlled by the fundamental frequency of the input signal so that the pitch becomes tuned to a given musical scale.

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Spatial audio

Binaural techniques for stereophonic sounds; pan left/center/right; HRTF functions

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Vocoder (Cross-synthesis)

The general idea is to combine two sounds by "spectrally shaping" the first sound by the second one and preserving the pitch of the first sound. A variant and improvement are the removal of the spectral envelope of the initial sound (also called whitening) before filtering with the spectral envelope of the second one.

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Room acoustics (Reverberation)

Convolution with room impulse responses;

Model reverberation with room geometry

Spatial audio effect