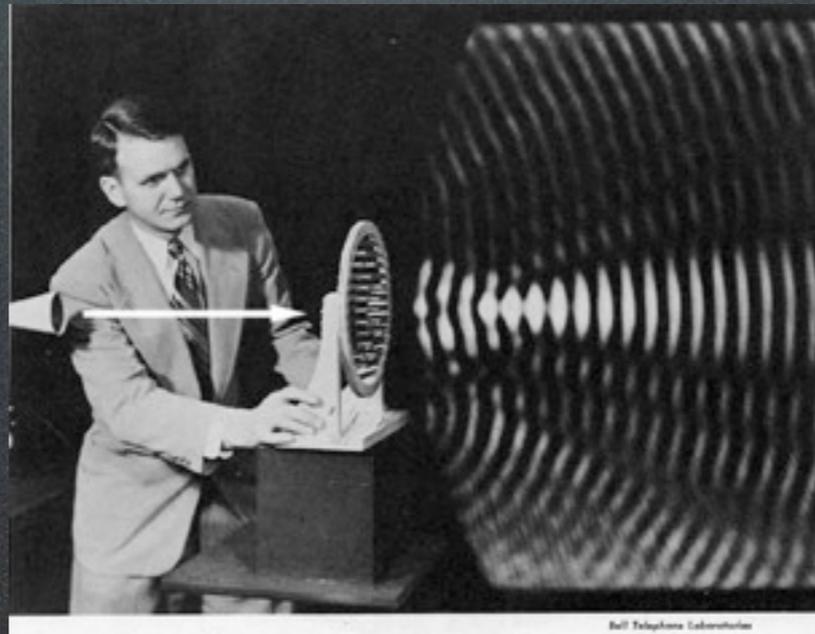# CS 5964

Sound Design, Music, and Recording

No one will listen to a bad recording, no matter how pretty the pictures.

A bad soundtrack is #1 reason most student films fail in festivals.

Sound Philosophy

- Sound affects everything, changes the viewing experience

- The other half (the better half?); Some say sound is 60% of the experience

- Another dimension and aspect of storytelling (The Wrestler)

- Sets emotional tone

- Sound designer or director of sound (DS) position

2 Philosophies

1.) Complimentary/Reinforces

- Aims for realism

- Music fits the mood--Star Wars, Gone With the Wind, Top Gun, Gladiator--Howard Shore, John Williams; Wagner's "Flight of the Valkyries" in Apocalypse Now

- Sound effects reflect the 'reality' of the film

- We hear what we expect... more emotional, more comfortable?
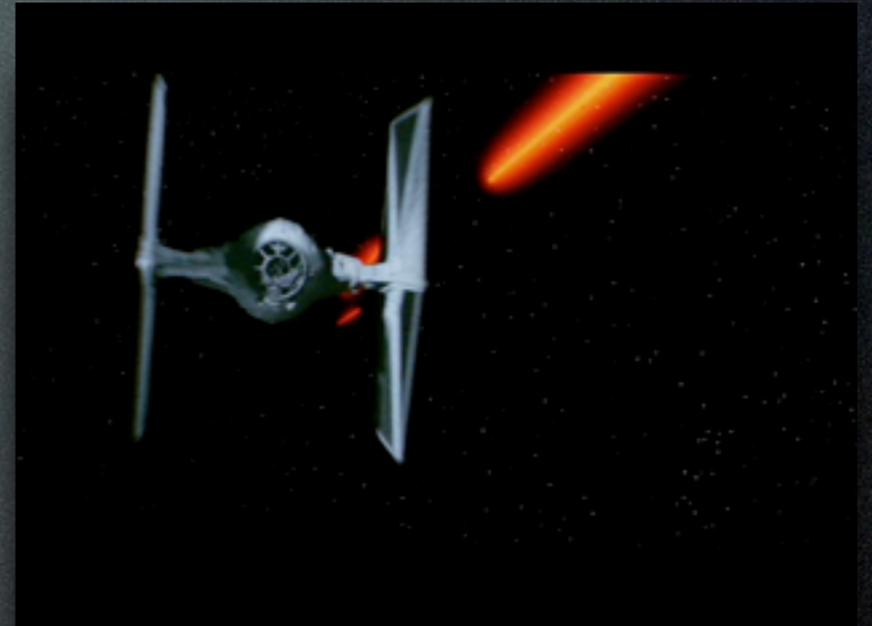
2 Philosophies

2.) Impressionistic/Ironic/Contrasts

- More expressionistic

- Music works in counterpoint (contrapuntal) to the image, adding another dimension: Dr. Strangelove (opening and closing sequences), Beethoven's funeral march rather than Brahms' wedding to actual wedding scene

- Sound effects vary from perceived reality--exaggerate or replace the actual sound (Moulin Rouge, cartoons--Mickey Mousing)

- We are 'unsettled' by the conflict of sound and image… more intellectual, stimulating?

Diegetic vs. Non-Diegetic

- **Diegetic** is sound that is motivated by and exists within the scene; source is visible

  - Dialogue of characters; Sound of objects in scene; Music from band or radio

  - Ex.--Apocalypse Now: radio starts as diegetic source and gradually switches to non-diegetic

  - Broken Flowers

- **Non-Diegetic** does not exist within the scene and is not visible

  - Voice-Over/Narration

  - Sound effects added for dramatic effect

  - Music

- Most music is non-diegetic

Elements of a Soundtrack

1.) Voice

- Dialog

- Interview

- Narration (voice-over)

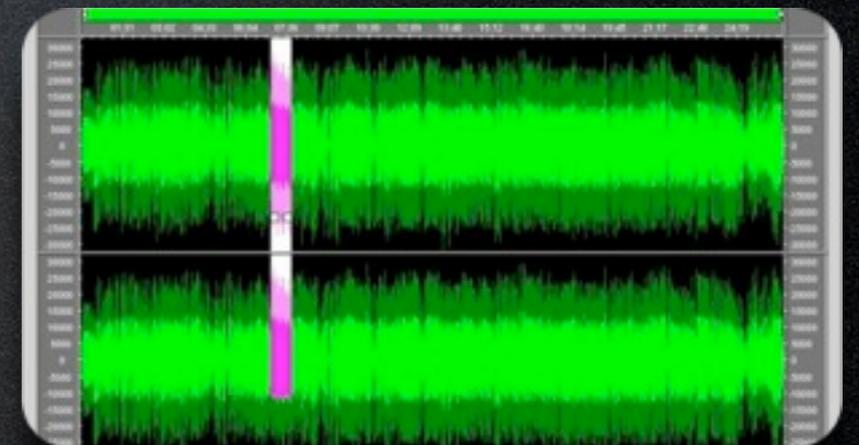Live Sound Only (recorded on set)

Elements of a Soundtrack

2.) Sound Effects (SFX)

- Live recording on set

- Foley in studio (also known as men in tights)

- Lots of free SFX/music online:

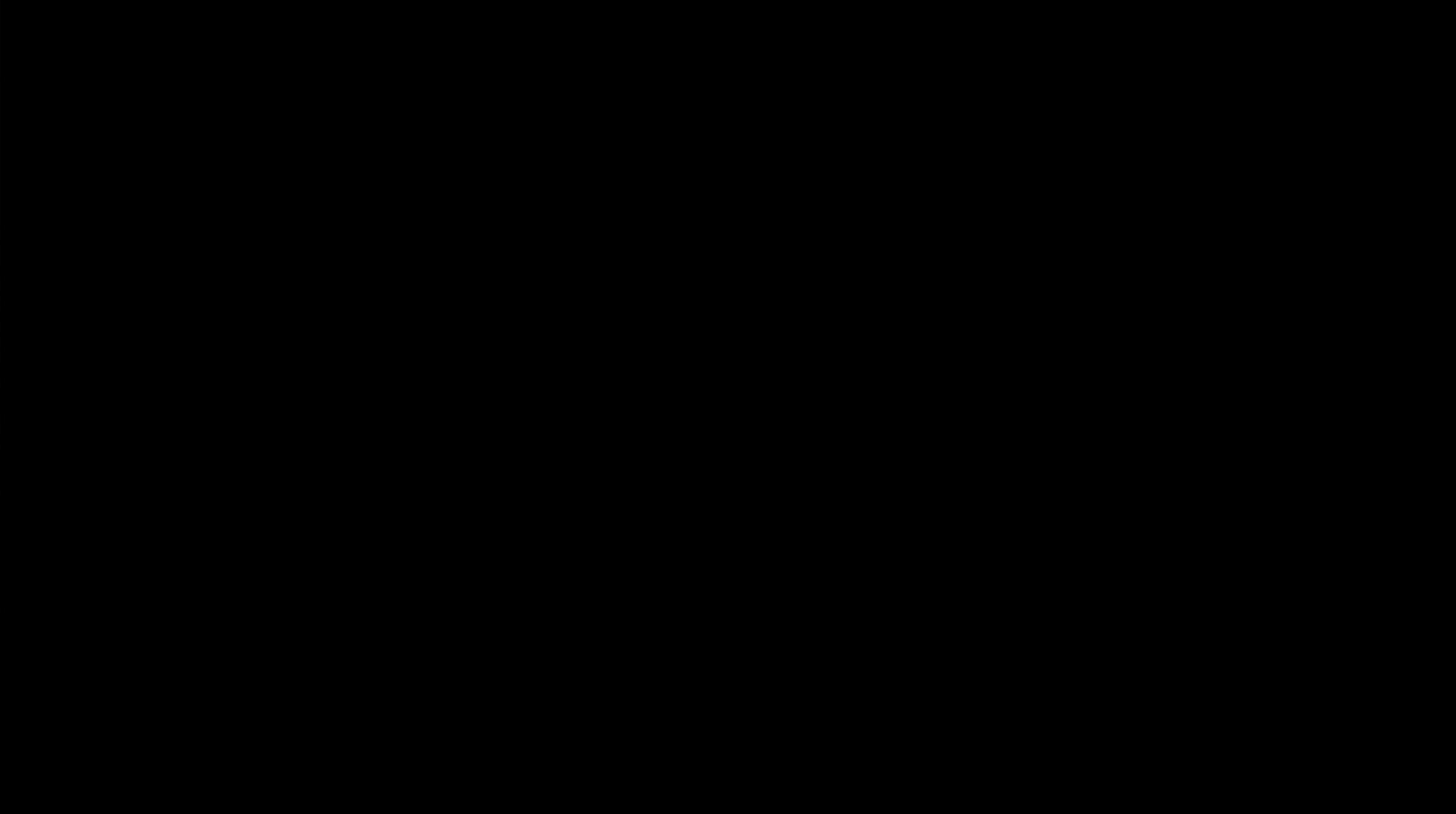 - www.soundsnap.com

  - www.sonomic.com

Live Sound & Sound FX

Elements of a Soundtrack

3.) Music

- Music for movie vs. Movie for music (music video)

- Iconic music (well-known tunes hazardous and can take over your piece)

- Pre-Recorded: Classical, Jazz, Rock/Pop; Regional, etc...

- Composed (specifically for film)

- Lots of free SFX/music online:
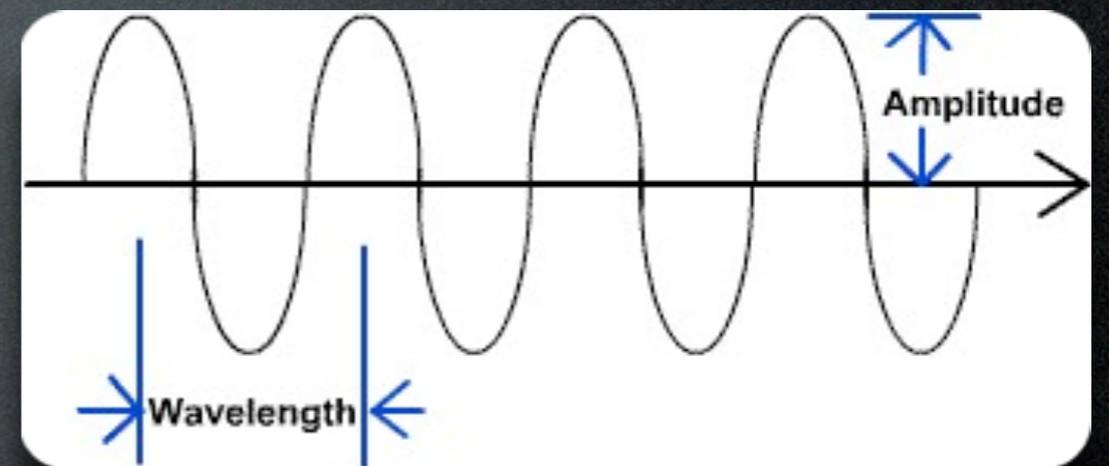
  - www.jamendo.com

Complete Soundtrack with Music

CHARACTERISTICS

- Amplitude or loudness

- Wavelength--distance from one crest to another

- Frequency--rate at which the waves pass a given point

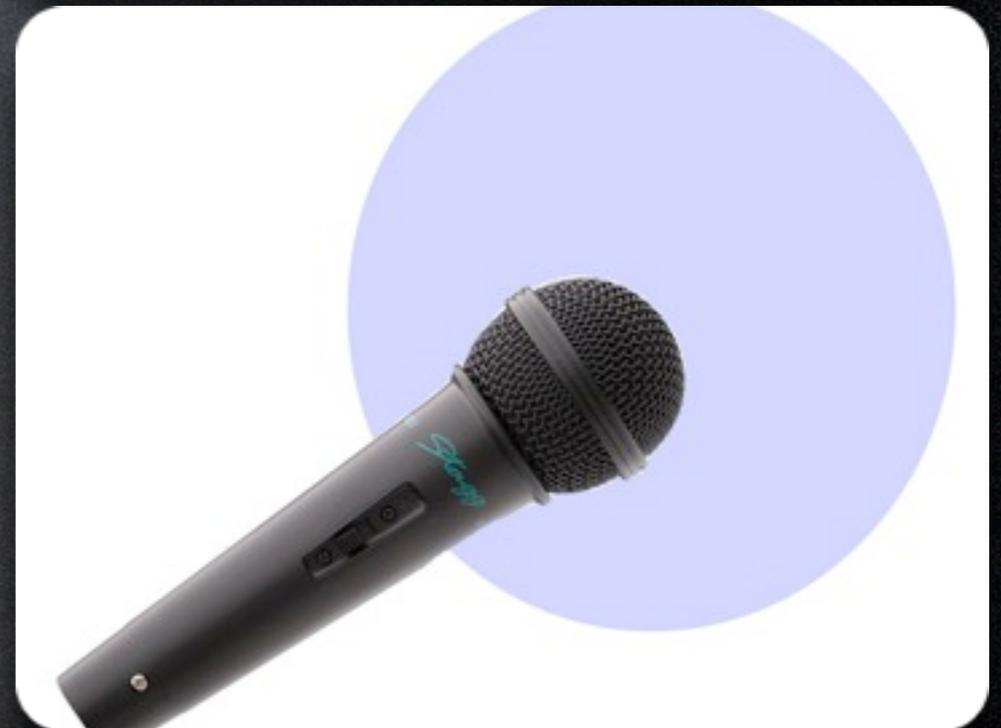- Pitch--the higher the frequency becomes, the higher the pitch we hear

CHARACTERISTICS

- Human ear can normally hear sounds in the 20 Hz to 20,000 Hz (20 kHz) range

- 20 Hz--lowest hum or rumble our ears can detect

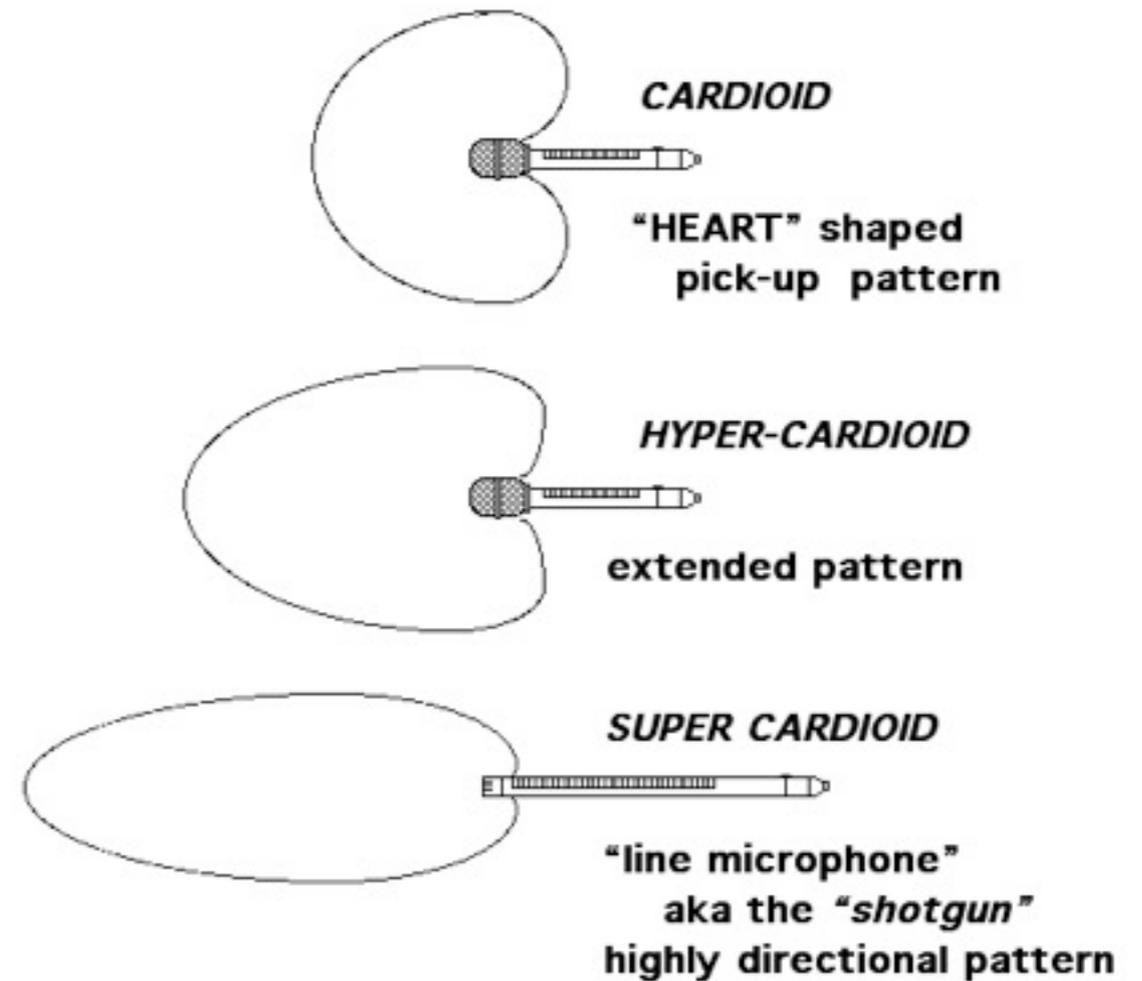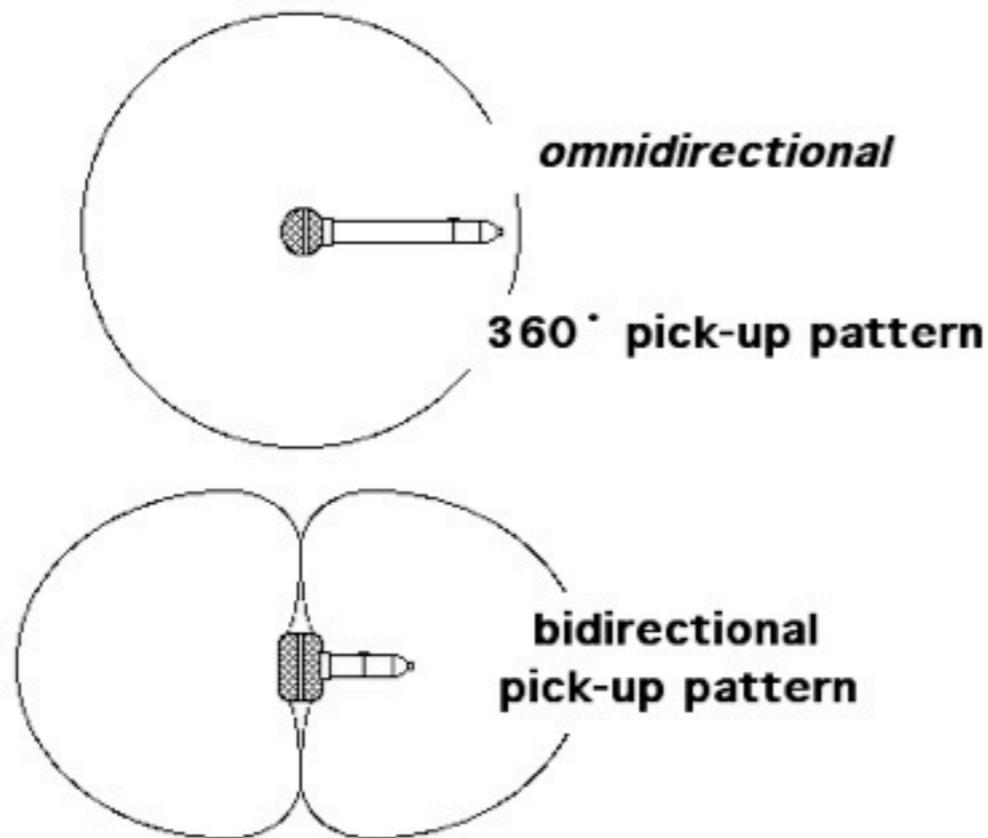- 20 kHz--highest pitch perfectly good ears can hear
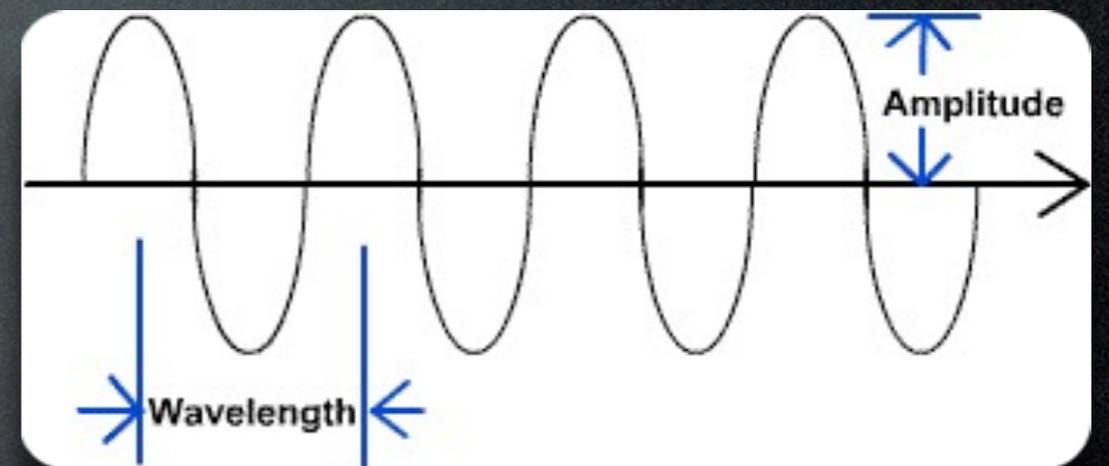
Sound Recording Equipment

- Most microphones you will encounter are omni-directional

- Omni-directional

  - pick up sound equally from all directions

  - designed to be used in close range

  - don't pick up too much background noise

Sound Recording Equipment

basic microphone pick-up patterns

omnidirectional

360˚ pick-up pattern

bidirectional pick-up pattern

CARDIOID

"HEART" shaped pick-up pattern

HYPER-CARDIOID

extended pattern

SUPER CARDIOID

"line microphone" aka the "shotgun" highly directional pattern

- Other mic options

Sound Recording Equipment

- From analog tape to digital recorders

- Tapes have an inherent 'sound' that came with the material

- Digital tends to be quieter and cleaner (though some prefer analog)

Recording Sound

- Signal to noise ratio

  - Distant from mic vs. close to mic audio waveform patterns

  - Ambient noise patterns

- 3 ways to get better sound

  - Move mic closer to source (45˚ angle to avoid pop)

  - Record in a quiet place, or a place appropriate for the sound

  - Record ambient Sound and lay it on a separate track
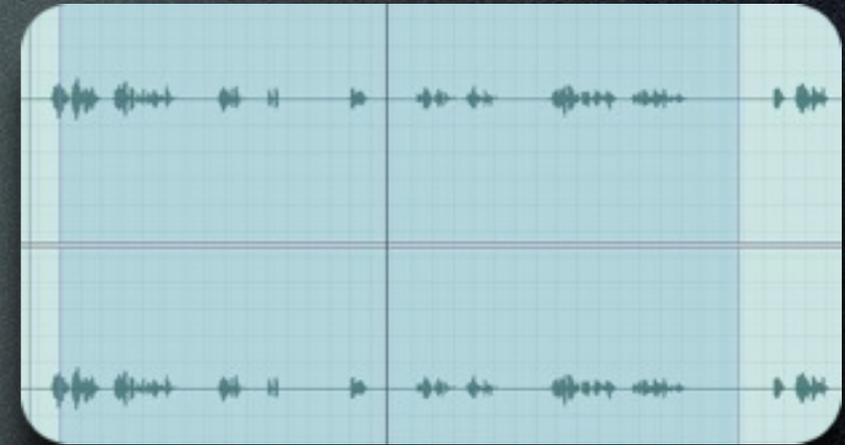

Thin

Good

Thick

Recording Sound

- Stop and listen to your environment

- Every place has it's own ambient sound, or background noise

- Try to eliminate 'noise' from things like heating/cooling systems, computers, refrigerators, the television in the next room, traffic, etc...

- Record all dialog in the same place so ambient is the same

- Record at least 30 sec. of ambient that can be looped
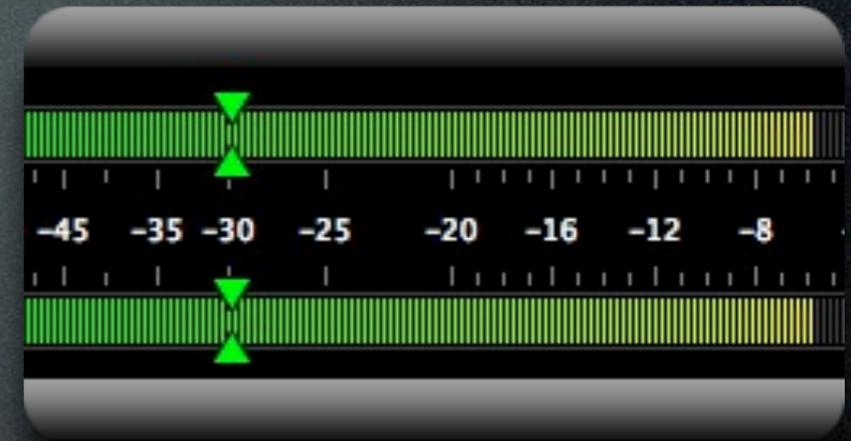

- Wear headphones to hear what's recorded!!!
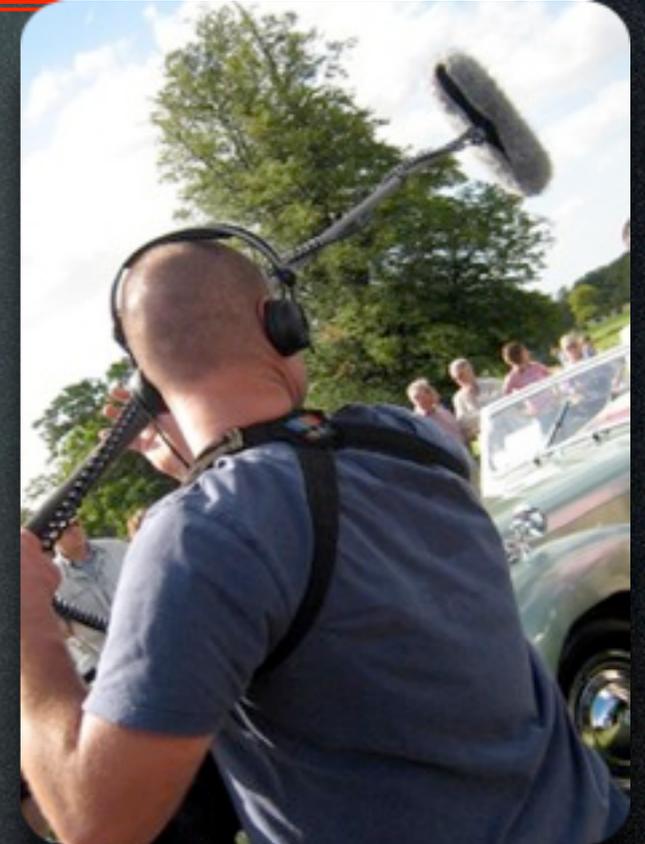
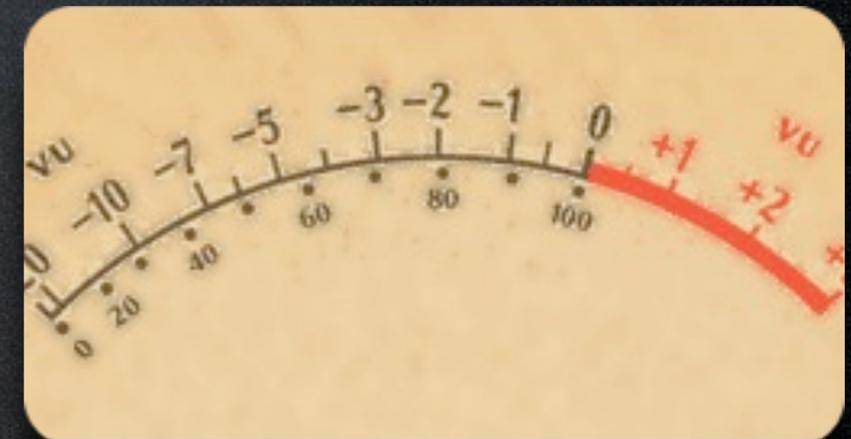Live "Recording" – 30 secs. of room tone

Why they say "quiet on the set"

Recording Sound

- Watch your meters to be sure your level is not too high or too low

- Get a nice solid level so you don't have to amplify in the software

- Good levels top around the -12 (green) to -6 (yellow) on a peak meter

- Peaking in the red should be avoided
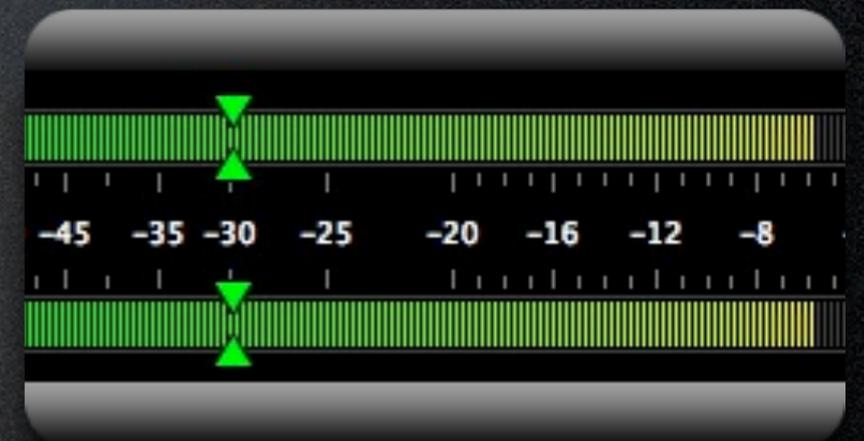
Peak meter
(for digital)

VU Meter
(for analog)

Manipulation & Post

- Built-in effects

    - EQ

    - Reverb

- Speed changes

    - Chip and Dale

    - Slow mo

- Adjust levels for voice

- Mixing sound

    - Last thing you do for a film, is watch the meters

Peak meter
(for digital)

Organizing Tracks

V1	Video
A1	Dialogue--1st character
A2	Dialogue--2nd character
A3	Sound FX
A4	Sound FX
A5	Ambient
A6	Music

Dip levels for music during dialog

CLOSING WORDS

- Microphones don't have a brain; you have to do the thinking for them

- Sound is a completely different storytelling device; use it to tell your story

- Don't just throw Top Gun music to every jet plane scene you have, or the latest pop ballad to every love scene; think about what the music does for the piece