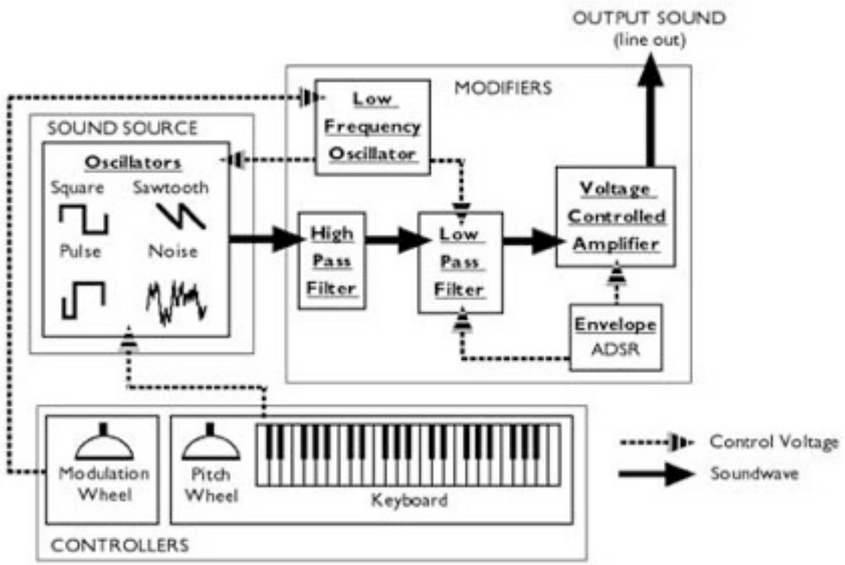
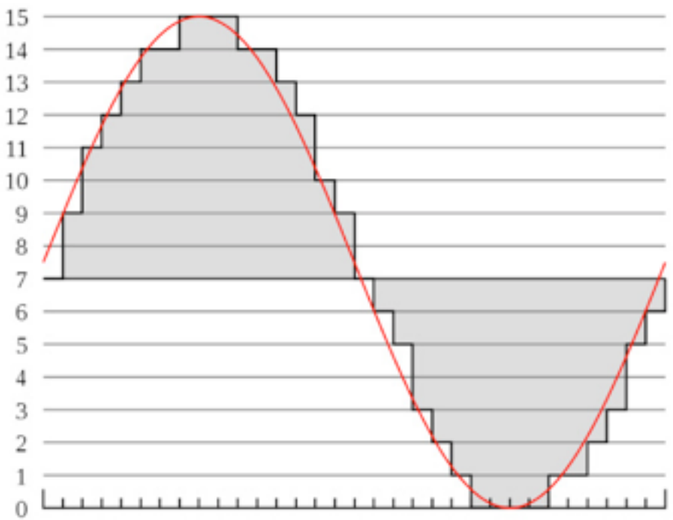
Geschichte und Ästhetik der audiovisuellen und digitalen Medien II

Sound

Prof. Dr. Jochen Koubek

Ton-Techniken





Each digitized sample of audio is assigned a value that corresponds to the amplitude of the analog wave.

Erzeugung

Beeper (PC)

Synthese

Sample (Wavetable)

Red Book (CD)

Raumklang

Mono

Stereo

3D (Audio Point-of-View)

Multichannel

Speicherung

Synthese-Parameter

MIDI

Prozeduren

Samples (.wav, .aiff)

CD

MP3, WMA

Geschichte der Computermusik

http://macgateway.com/featured-articles/sound-card-history/

1981 PC-Lautsprecher

1982 SID (C-64)

1987 AdLib

1987 MT-32

1988 GameBlaster

1985 Paula (Amiga)

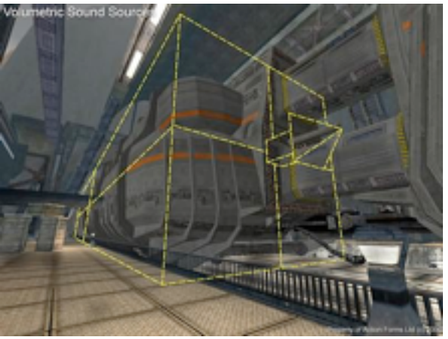
1989 SoundBlaster

1992 UltraSound

1994 SoundBlaster AWE32

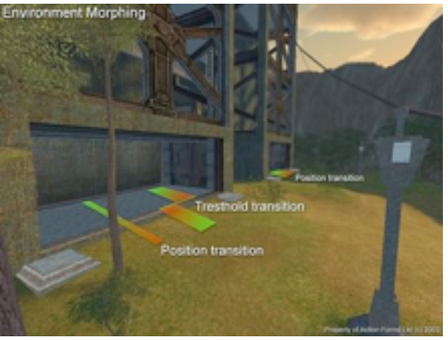
Audio Point-of-View

1



2

3



4

Entfernung: Lautstärke (1)

Position: Stereo, 3D, Multichannel, Surround

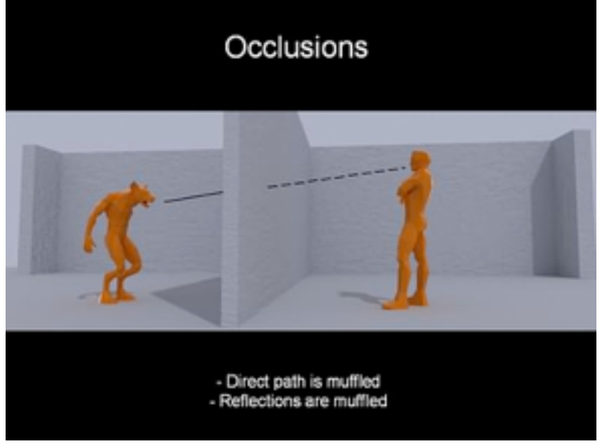
Körper: Volumetrischer Sound (2)

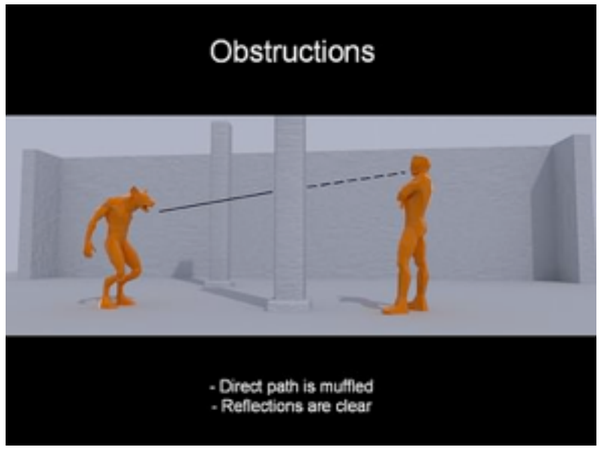
Bewegung: Dopplereffekte (3)

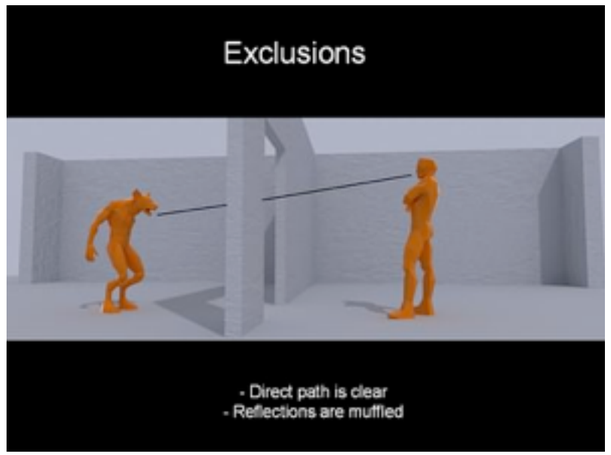
Verdeckung: Filter

Effekte

Umgebung: Environment Morphing (4)







Effekte

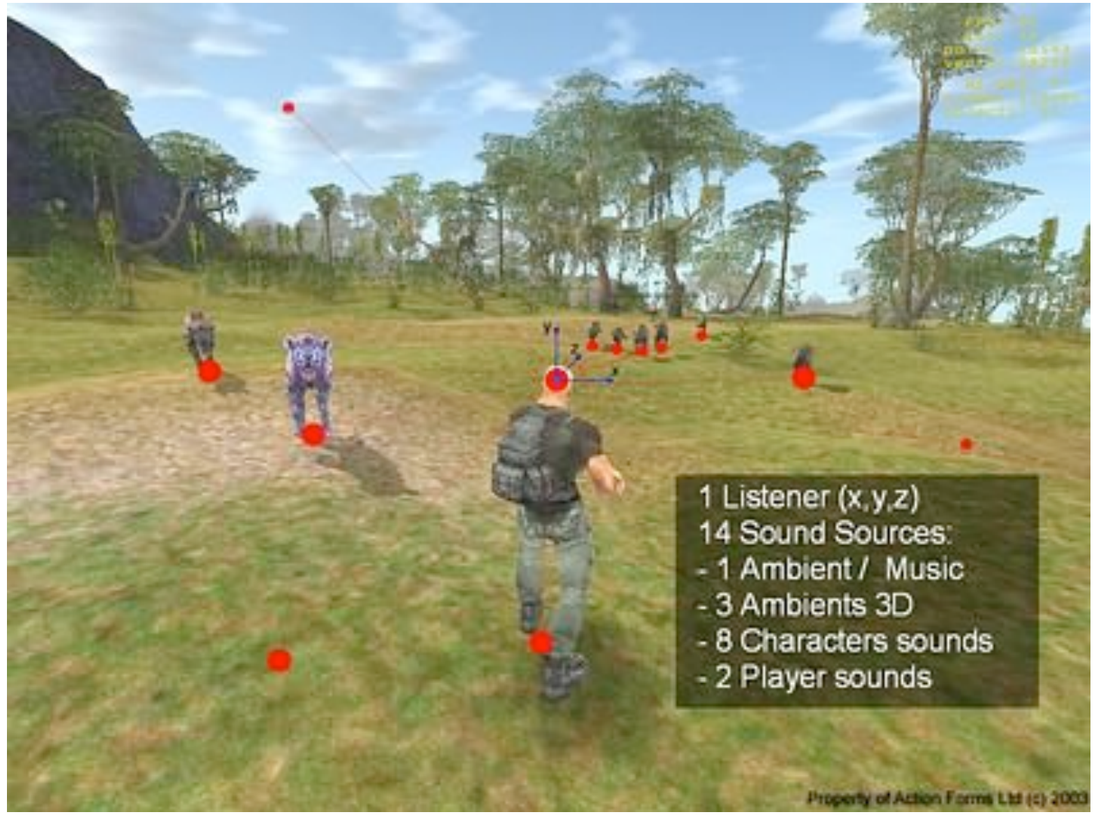
Nicht zu verwechseln mit diegetischer Reaktion auf Spielerhandlungen (s.u.)

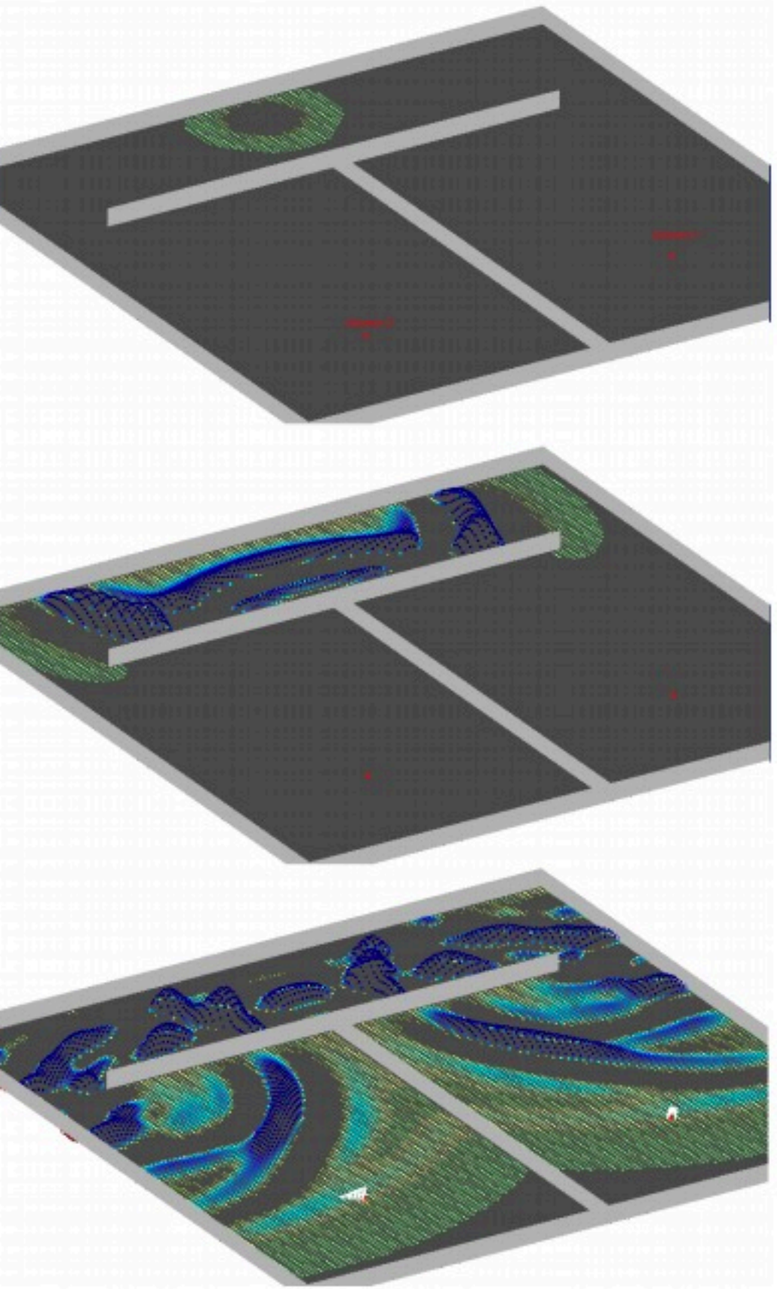
Zeit
- Echo
- Hall
- Chorus

Frequenz
- EQ
- Hochpass
- Tiefpass
- Bandpass

Lautstärke
- Verzerrung
- Compressor

3D-Sound-Mixing

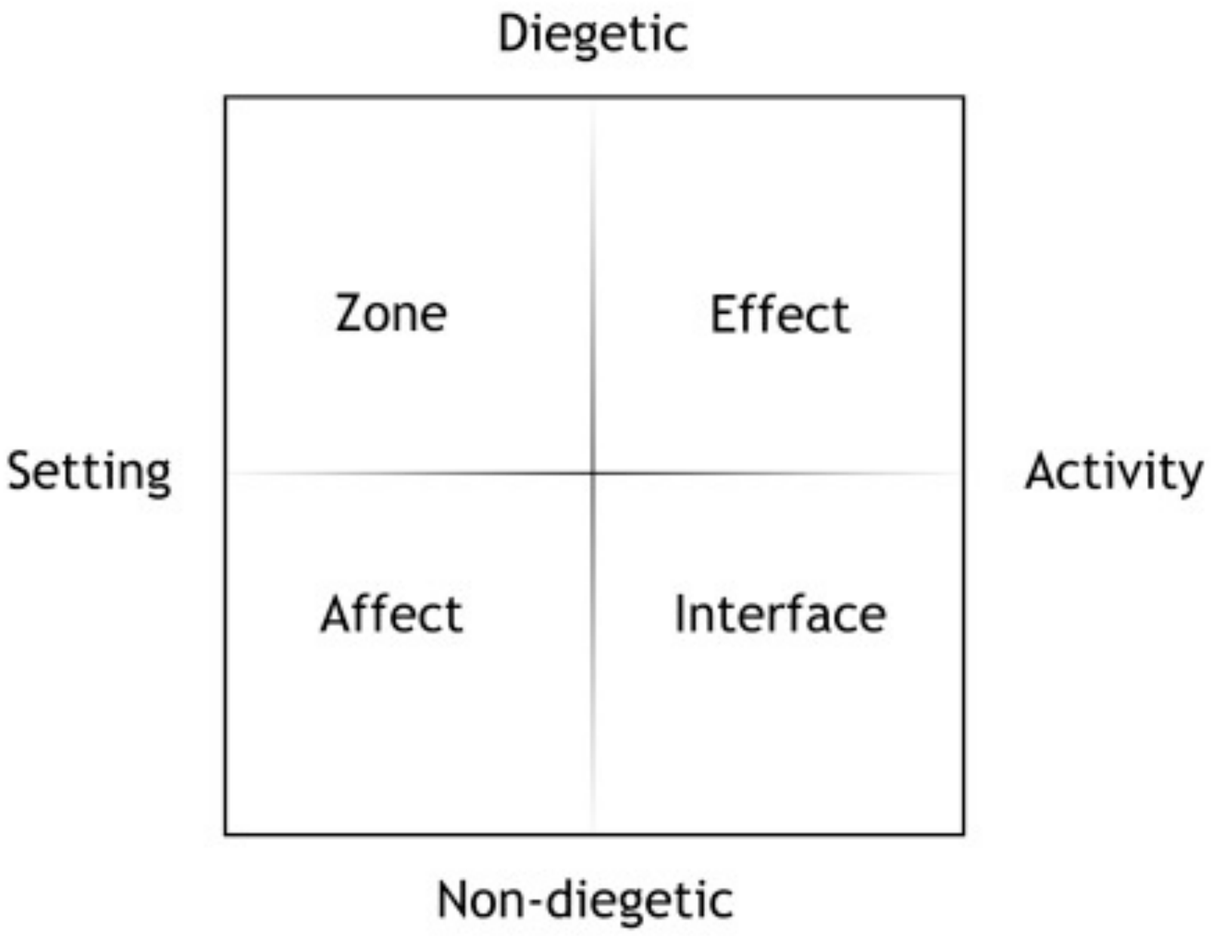




Sound Wave Propagation

Sound Wave Propagation Applied in Games

Game Audio Functions



IEZA-Framework

http://creativehero.es/IEZA

Diegese

Bezogen auf die Erzählhandlung

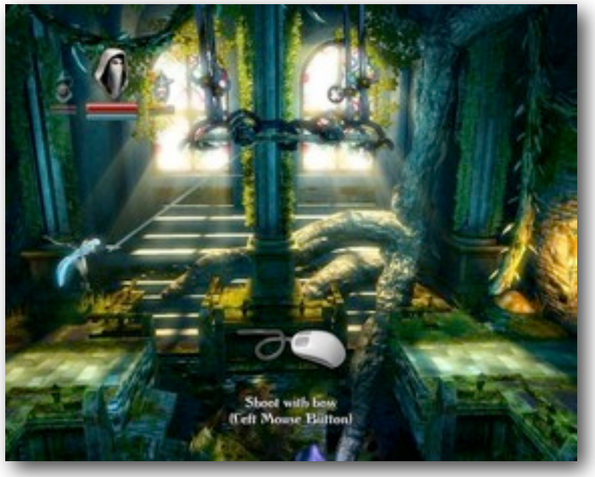
Intradiegetisch

Outrun

Extradiegetisch

Star Wars

Metadiegetisch



Trine

Dynamische Musik

Kameleon, 2012

http://www.youtube.com/watch?v=lXt9mXDjHa0
http://www.kejero.com/

Adaptiv: Passt sich der Spielumgebung an

Interaktiv: Reagiert auf die Spielerhandlungen

Nicht-Dynamisch: Passt sich weder der Spielumgebung noch dem Spieler an

Effekte

z.B. Schritte, Atmen, Waffen, Fahrzeuge, Kollisionen

Half-Life 2

Handlungsbestätigung

Spieler

NPC

Interface

GUI (Graphical User Interface), HUD (Head Up Display), Statusleisten, Pop-Ups

Deus Ex: Human Revolution

Spielerstatus

Waffenstatus

NPC-Status

Belohnung / Bestrafung

Zone

z.B. Wind, Regen, Verkehr, Maschinen

Half-Life 2

Orientierung

Tracking

Anziehen

Abwehren

Affekte

Musik, Ambient Sound

The Secret of Monkey Island
Scumm Bar

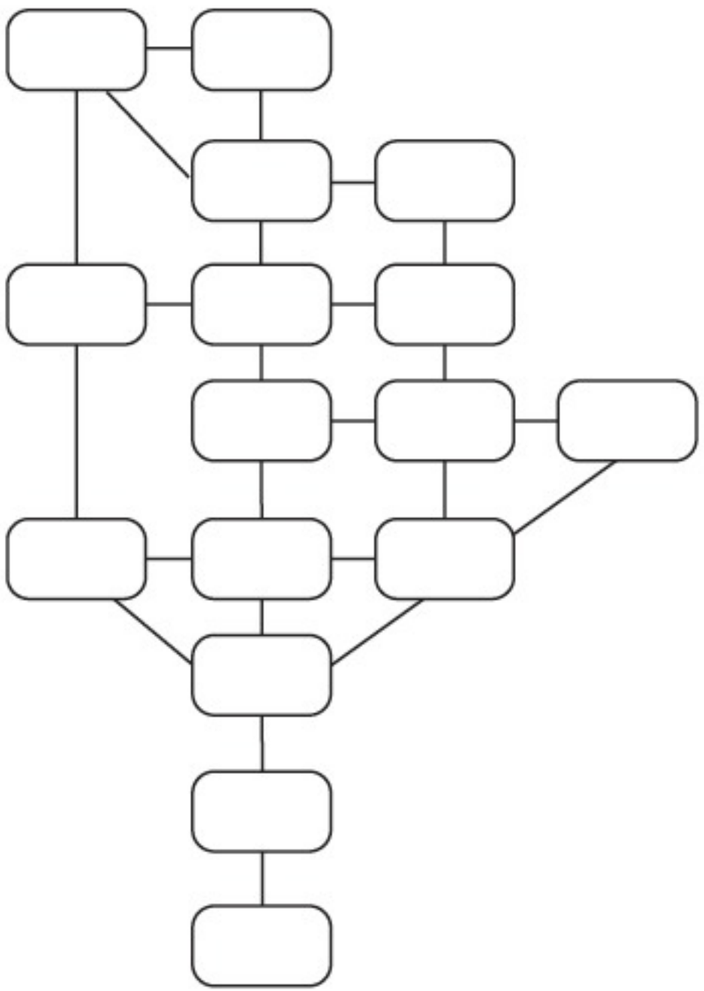
Atmosphäre

Emotionen abbilden

Personen und Gegenstände charakterisieren (Leitmotiv)

Szenen zusammen halten

Variationen nichtlinearer Musik



1. Variable tempo
2. Variable pitch
3. Variable rhythm/meter
4. Variable volume/dynamics
5. Variable DSP/timbres
6. Variable melodies (algorithmic generation)
7. Variable harmony (chordal arrangements, key or mode)
8. Variable mixing
9. Variable form (open form)
10. Variable form (branching parameter-based music)

Karen Collins: GameSound

Dialoge (Speech Sound)

https://www.youtube.com/watch?v=YG9otVyV6GI

Instruktion

Little Big Planet 2

Erzählung

Metal Gear Solid 4

Kommentar

Gespräche

Mass Effect 2

Audio-Games

Pitch Game
Karaoke Revolution, SingStar, Rocksmith, Recorder Master, Songs2See

Rhythm Game (Action)
PaRappa the Rapper, Donkey Konga, Guitar Hero, Rockband, Just Dance, Dance Central, Osu!

Generative Music (Shooter)
Rez, Child of Eden

Reactive Music (Action)
Vib Ribbon, Audiosurf

Exergame (Action)
Dance Dance Revolution, Wii Fit, EyeToy: Kinetic, EA Sports Active, Zumba Fitness