

Sound



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

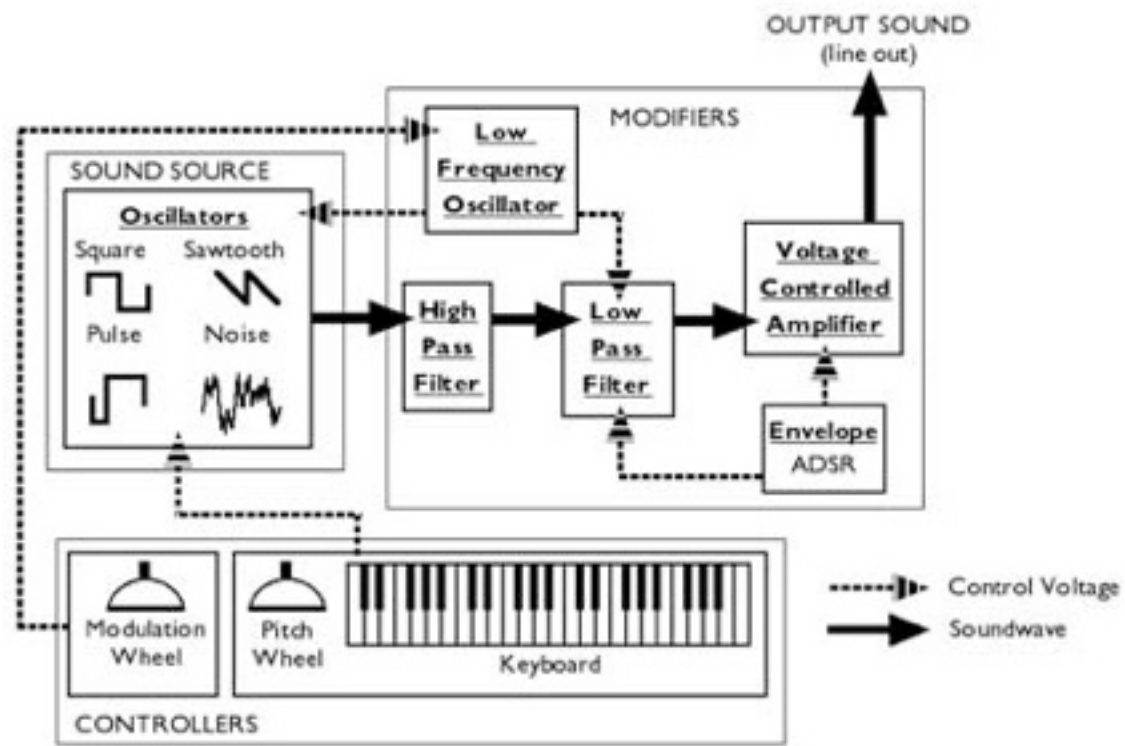


1992 UltraSound



1994 SoundBlaster AWE32

Ton-Techniken



Erzeugung

Beeper (PC)

Synthese

Sample (Wavetable)

Red Book (CD)

Speicherung

Synthese-Parameter

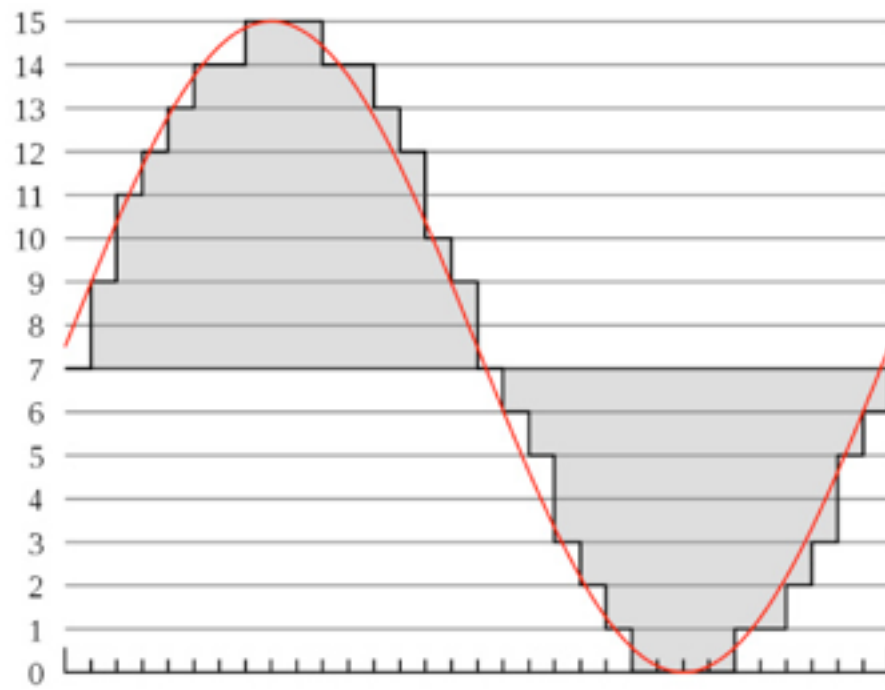
MIDI

Prozeduren

Samples (.wav, .aiff)

CD

MP3, WMA



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

Raumklang

Mono

Stereo

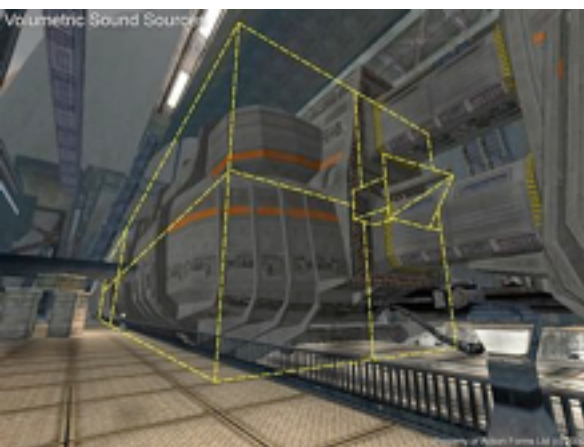
3D (Audio Point-of-View)

Multichannel



1

Audio Point-of-View



2

Entfernung: Lautstärke (1)

Position: Stereo, 3D, Multichannel, Surround

Körper: Volumetrischer Sound (2)

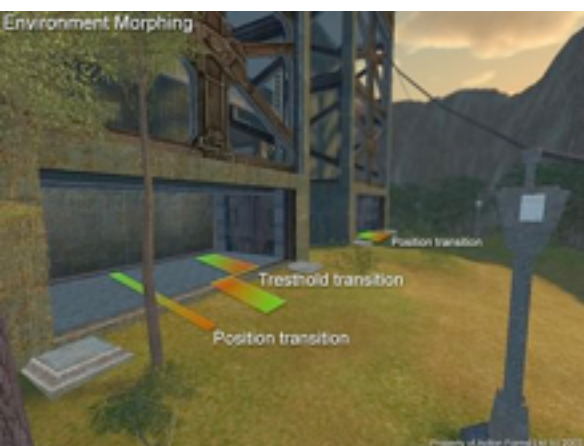


3

Bewegung: Dopplereffekte (3)

Verdeckung: Filter

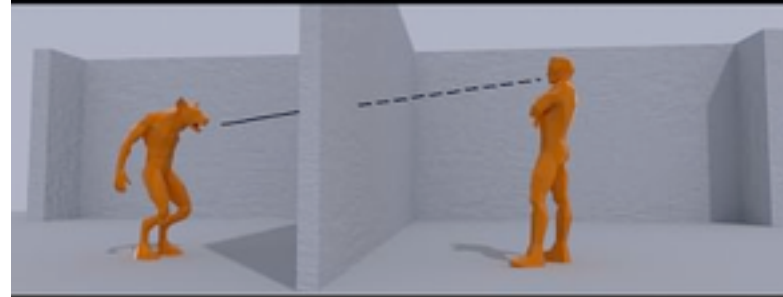
Effekte



4

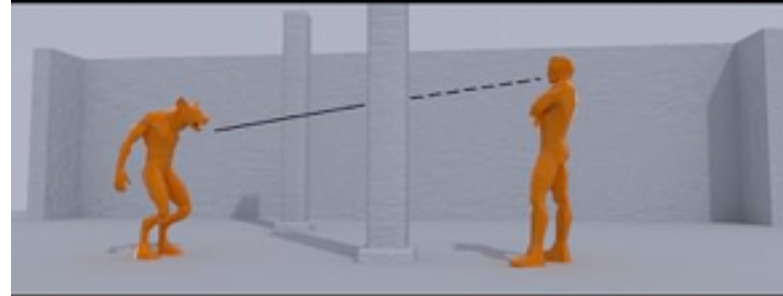
Umgebung: Environment Morphing (4)

Occlusions



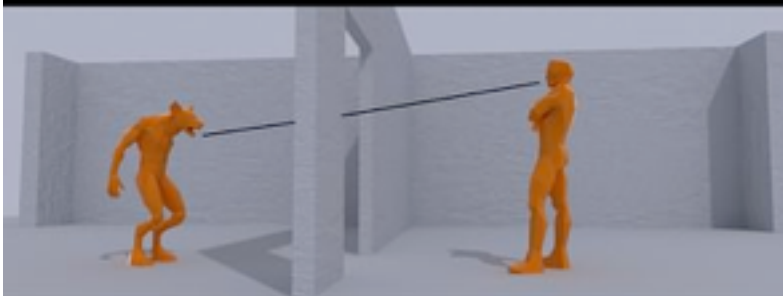
- Direct path is muffled
- Reflections are muffled

Obstructions



- Direct path is muffled
- Reflections are clear

Exclusions



- Direct path is clear
- Reflections are muffled

Effekte

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

Zeit

Echo

Hall

Chorus

Frequenz

EQ

Hochpass

Tiefpass

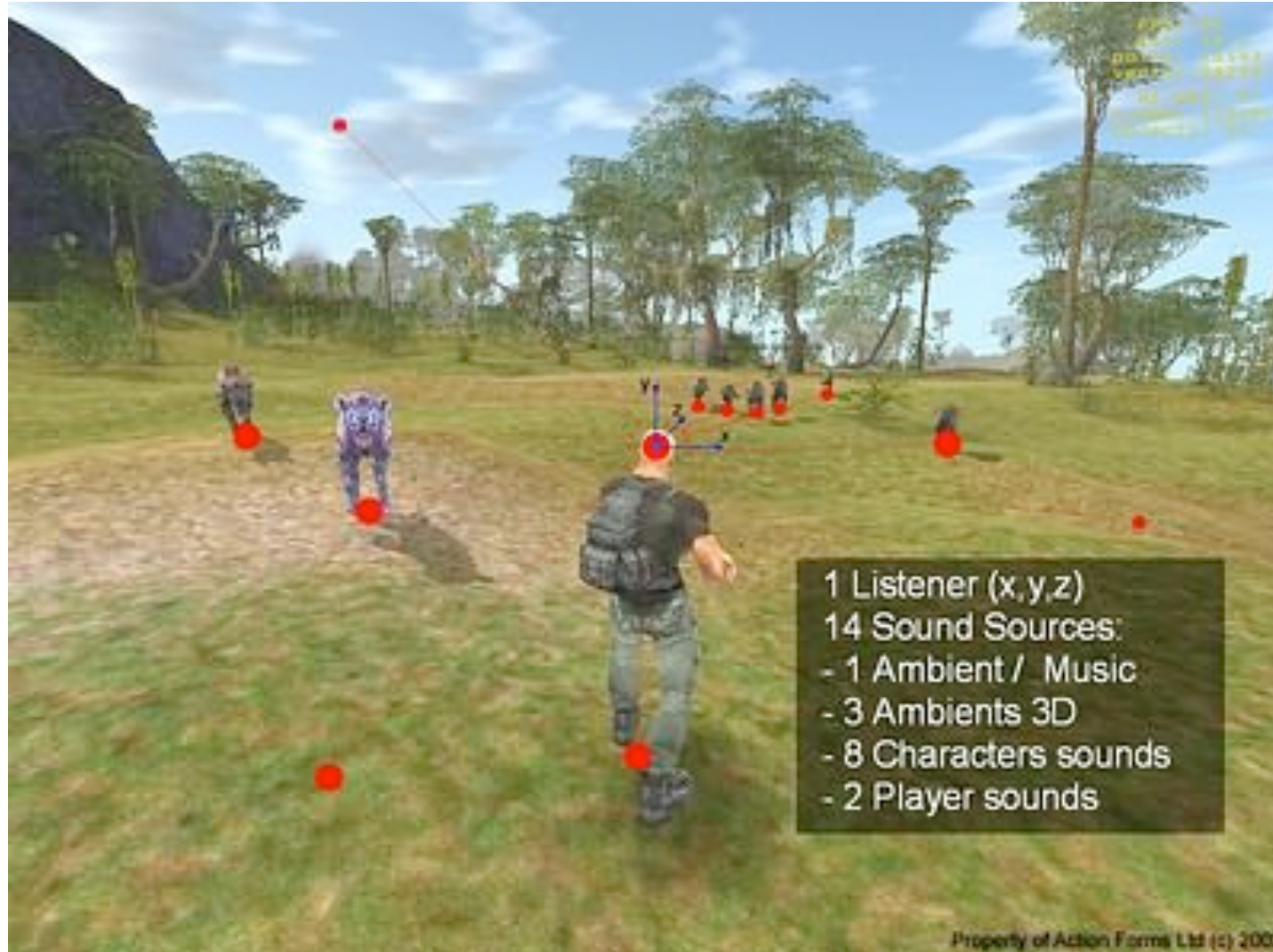
Bandpass

Lautstärke

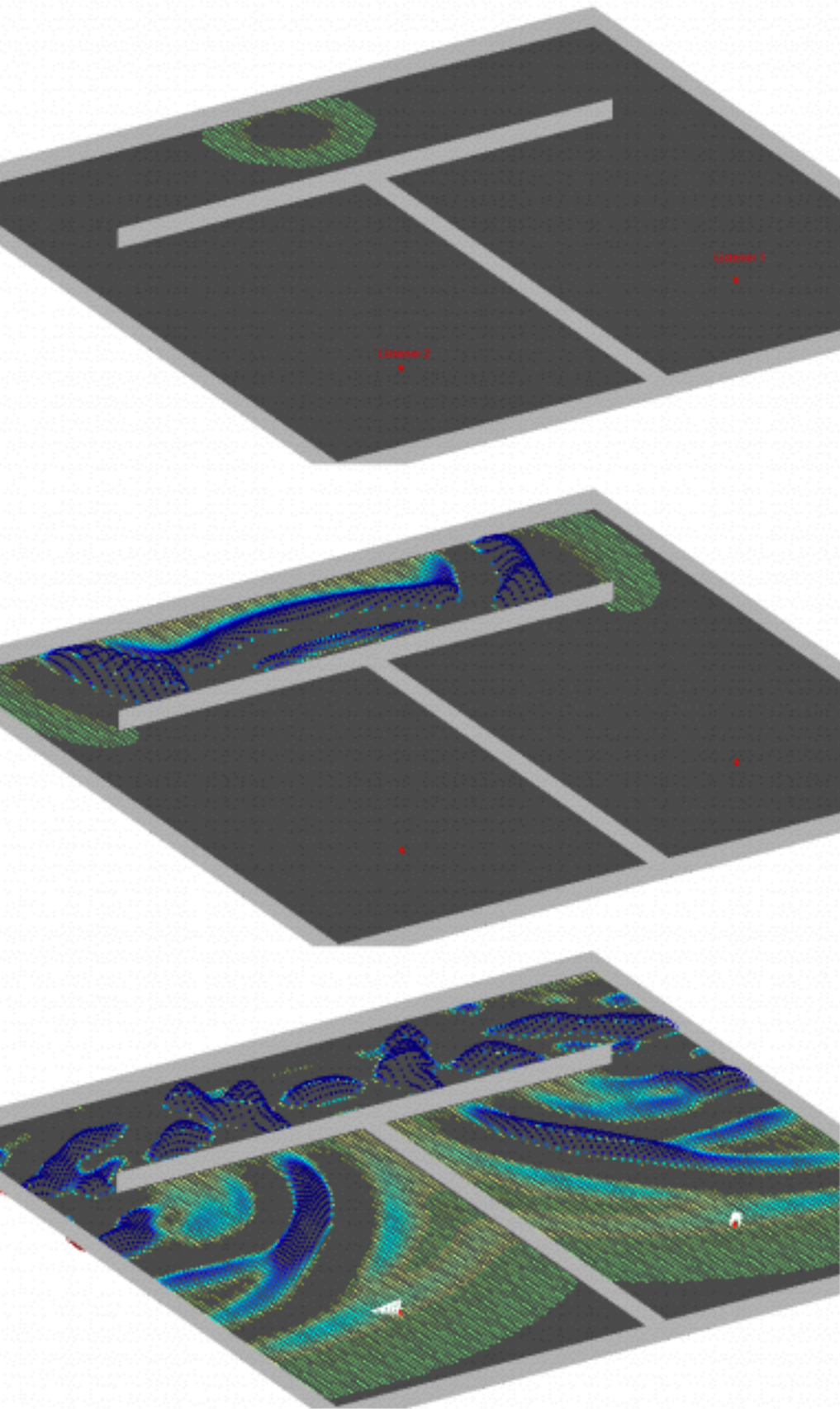
Verzerrung

Compressor

3D-Sound-Mixing

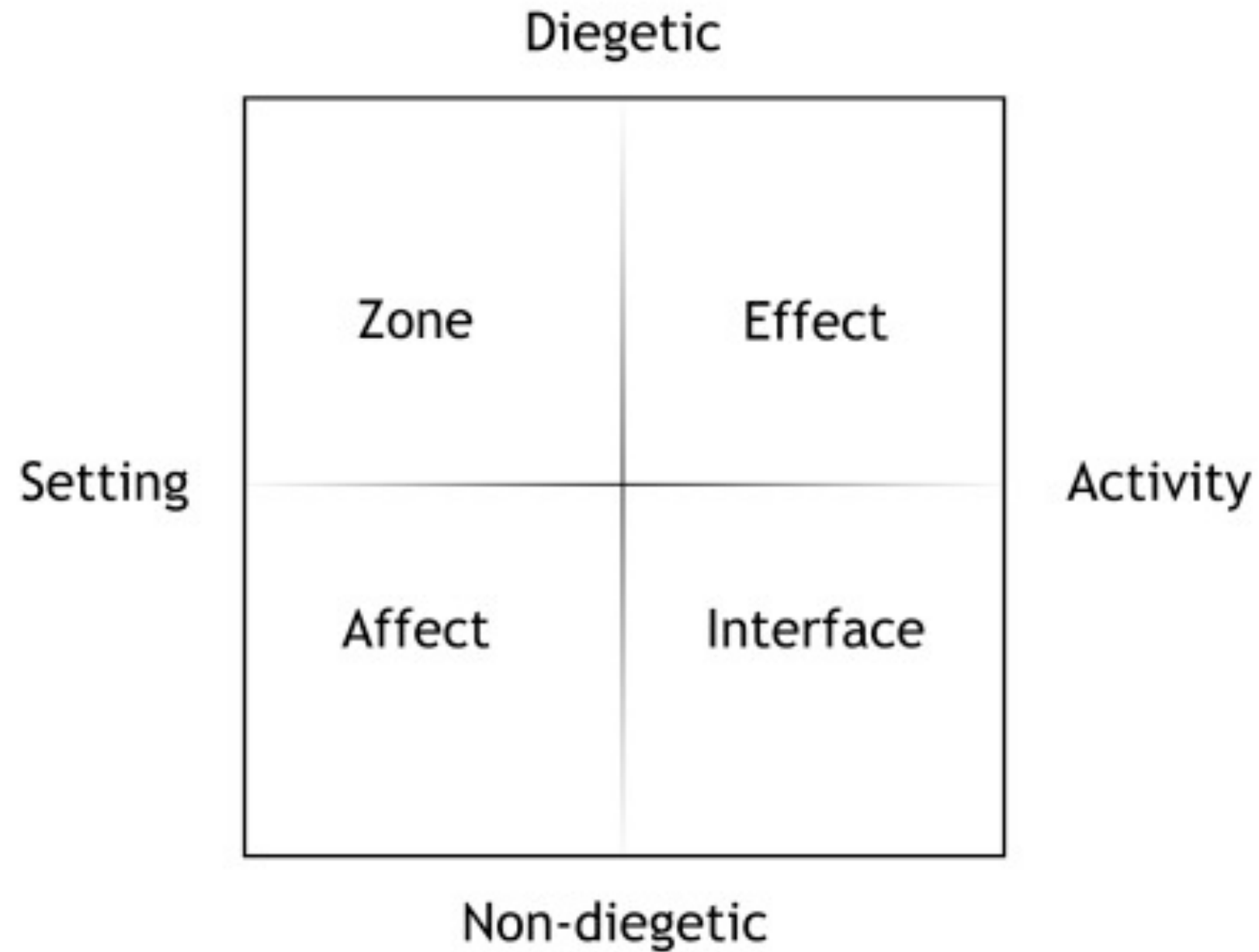


Sound Wave Propagation



Sound Wave Propagation Applied in Games

Funktionen von Game Audio



IEZA-Framework

<http://creativehero.es/IEZA>

Diegese

Bezogen auf die Erzählhandlung

Intradiegetisch



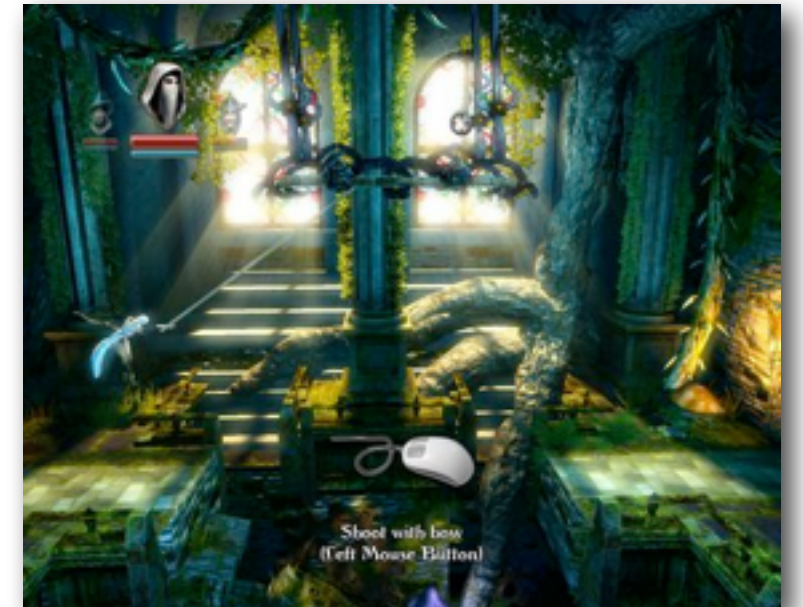
Outrun

Extradiegetisch



Star Wars

Metadiegetisch



Trine

Dynamische Musik



<http://www.youtube.com/watch?v=IXt9mXDjHa0>

<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

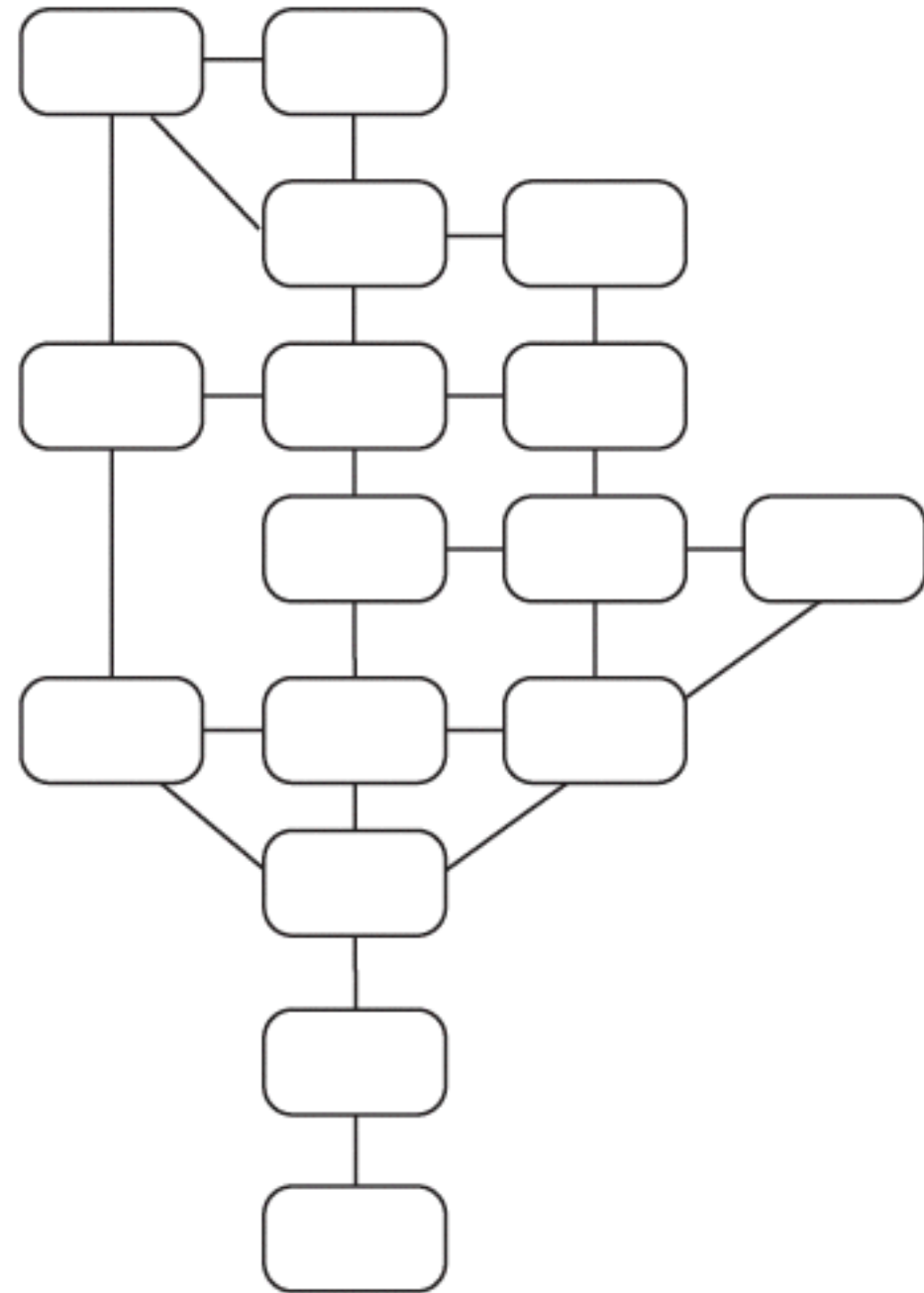
Atmosphäre

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)

Dialoge (Speech Sound)



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

Instruktion



Little Big Planet 2

Erzählung



Metal Gear Solid 4



Bastion

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, FractOSC

Reactive Music (Action)

Vib Ribbon, Audiosurf, Symphony

Exergame (Action)

Dance Dance Revolution, Wii Fit, EyeToy: Kinetic, EA Sports Active, Zumba Fitness

