Game Scoring Futures
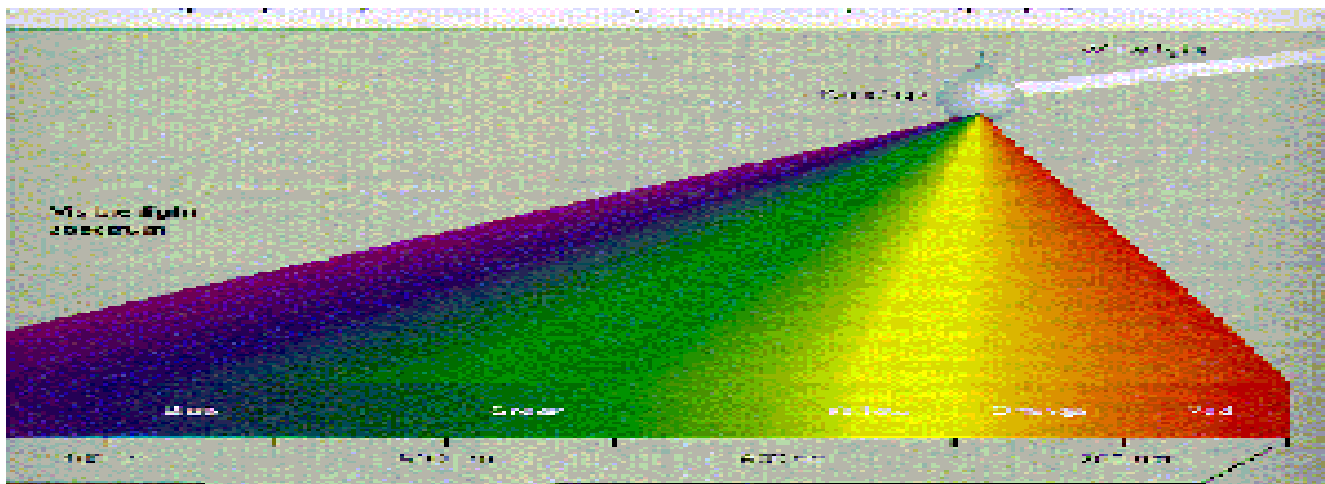
*Where are we headed
and what's it all for anyway?*

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A Game Score Can…

» Appropriately convey and elicit the desired emotion(s) of an ever changing game

» Give a sense of flow to the game experience

» Remain interesting and fresh over the course of extended game-play

» Assist in driving the motivations and engagment of the player

The Spectrum of Adaptability

Pre-rendered music   Game-rendered music

The Current State of the Art
…And Some Sweeping Generalizations

» Content is typically pre-rendered audio files

> Stereo 3-6 minute cues/songs most common
>
> Layered or short sections occasional

» High production values

» Live orchestra and instruments common

» Composition skill excellent overall

» *Implementation very basic*

Put the 'Score' Back In Game Scoring

No More Excuses!

The tools are here and widely available

» Audiokinetic – Wwise

» Firelight Technologies – FMOD

» Microsoft – XACT

» Somatone - CADI

The Infancy of Music Design
…we're barely toddling

A music design includes

» A clear aesthetic for the music style and direction

» An interactive strategy and plan

Game to music engine ties (and visa versa)

⊗ What aspects of the game effect the music and in what way?

Spotting strategy

⊗ Where and at what points during the game will music play?

Music architecture

⊗ What is the makeup of the delivered music and how will the pieces fit together?

» A technology plan

Audio engine and Feature needs

Memory and CPU requirements

» A cue/asset list

Game parameter to music engine ties

Still a gap here, both technically and creatively

» A logic layer between game parameters and music engine?

> Get it in the hands of music designers (good UI)

» Make your score air tight (and bug free)

» Play-test the *golden path*, but also *play at the edges*

» Each game is unique and a multitude of approaches will arise, but a group of common scoring templates and methods may evolve

> Much like a film scoring language has developed

Don't Be Blinded
…By Your Own Amazing Plan

In theory, there is no difference between theory and practice. In practice, there is. -Yogi Berra

Let your ears be the final arbitors!

How Far Can We Stretch Recorded Audio?

...which is still underutilized.

» Edit into much smaller chunks

    Phrases and measures

» Edit into stems or layers

» Run-time time stretching/compression and pitch shifting

» More run-time DSP

The Limits of Recorded Audio

» Pitching and stretching cause artifacting and is CPU heavy

» DSP is typically 'baked in'

Makes seamless transitions more difficult

Less opportunities to link DSP to game parameters

» Smallest practical duration is about 1 measure or 2-4 seconds

» Instrument level variation more challenging

» Harmonic adaptibility very limited

» Rhythmic flexibility limited

The Rebirth of MIDI
…Where Did It Go?

The move away from MIDI over the last decade.

» Ditched in the name of higher production values

"CD Quality", "Filmic", "Live Orchestra"

» Inertia: composers familiar with traditional/linear approach to composition.

Mixed in the studio, then handed off, just like their other gigs

» Lack of tools for interactive music

The few that existed were proprietary

The Rebirth of MIDI
...Hey Wait a Minute. Why MIDI?

» Was and still is used for its small memory footprint
   - FMOD and the iPhone
   - Nintendo DS and Wii

» Further to the right on the 'spectrum of adaptability'

» MIDI data is much more flexible (as data) than wave files and easier to manipulate in an interactive score.
   - Note level access
   - Harmonic and melodic malleability
   - Rhythmic flexibility
   - Orchestration changes are simple
   - Continuous controllers

What (standard) MIDI Lacks
…that would benefit an interactive toolset

» Inherant intro/outro deliniation
   i.e. pickups and endings
» A harmonic/chord map
   Analogous to the conductor track
» Variation within instrument tracks
» A way to group MIDI files into a music set or song

IXMF
Interactive eXtensible Music Format

Interactive XMF is intended to be an open-standard, cross-platform means for audio artists to bundle audio content files with general information and audio implementation instructions.

-the IASIG web site www.iasig.org

Sound Generators
...making MIDI sound oh so good!

It's all about run-time this time

» Software samplers

    DLS2 standard

    Rights issues and sample sets

» Software synthesizers

    Analog modeling, FM, Wavetable

    Physical modeling, Granular

3ʳᵈ Party Synths and Sample Sets
…for run-time environments!

Wouldn't it be cool if you could use the same soft-synths and sample sets in-game that you use in your studio?

What will this market look like?

» Publishers/developers licensing Soft-synths directly

» Audio engine companies including soft-synths in their offerings

» Soft-synth companies gain a 'new market'

» Sample collections optimized for game-scoring needs.
   License terms accommodated to meet in-game use

A Revolution in Harmonic Adaptability?
…Not Quite Yet

We are currently on the ground floor, but where are we headed?

» Melodies/phrases that fit over changing harmonic passages

» Harmonic variation –

Adapting harmonies to fit game-play/mood

Changing harmonic content simply for variation

» Tech trends on the horizon

Harmonic-maps

Harmonic and Melodic analysis

⊕ Celemony Melodyne

⊕ Songsmith

A Word About Algorithmic Music

Al-go-rithm *–noun*: a set of rules for solving a problem in a finite number of steps

» In creating a basic interactive score, you're already creating a music alrorithm of sorts

» Wide use of advanced algorithmic music a ways off

Spore is a notable exception

Lots of work in academia that could cross-over to games.

The Elephant in the Game-room
…Fear of Adaptive Scoring

Why do many composers hold apprehension or even hostility towards greater adaptibility in music?

» "It's hard!" …yes it is.

It's conceptually very different than linear composition

» "There aren't any rules." …create them.

That's half the fun of this nascent industry

» "I'll lose control of my music!" …not really.

Rather than creating a single path for your music to follow (linear), you're creating a purposeful set of parameters for your music to play within.

Community

» Add to the Interactive Audio WIKI
    http://www.iasig.org/wiki
    Work flow examples
    Case studies
» G.A.N.G forums
» List serves

Questions?

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