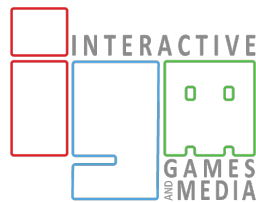
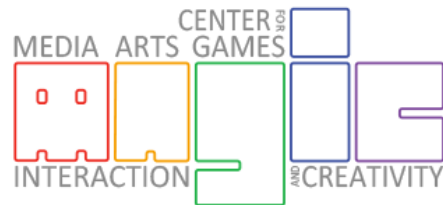


Sounds from *The Garden*

Butt Music from Hell

Al Biles



R·I·T

Case Study: Garden of Earthly Delights



The Triptych





The Game

- Game set in the Hell panel

“Trapped in a world to which they do not belong, players must find a way to escape. Hell is a strange place, with lost souls locked into hells of their own creation.”
- Player Goal

Become the new overlord of the region
- Mechanics: 2 Modes

Spirit: Move freely but can't interact with NPCs
Flesh: Possess NPC bodies, interact, use stuff
- Gameplay: 1st person PoP

Explore and solve puzzles to unlock NPC bodies and possess them

The Project

- 2 years: Most work in spring 2014 & spring 2015
- 12+ faculty, 30+ students from 5+ academic units
- Lots of teams
 - Game design
 - Concept art
 - 3D modelling & animation
 - Textures & UI
 - Development (programmers)
 - **Audio**
 - Research

Quick Project Critique

- Great learning experience...
- Goal morphed
 - From: serious/educational game aimed at the Prado
 - To: an adult-ish game that embraced the hell part
- Scope: Too ambitious (What else is new...)
- Semester: Artificial timeline constraint
 - Students doing final projects for a class
 - All came in at end of semester: No time to integrate
- Bottom line: Needs more polish

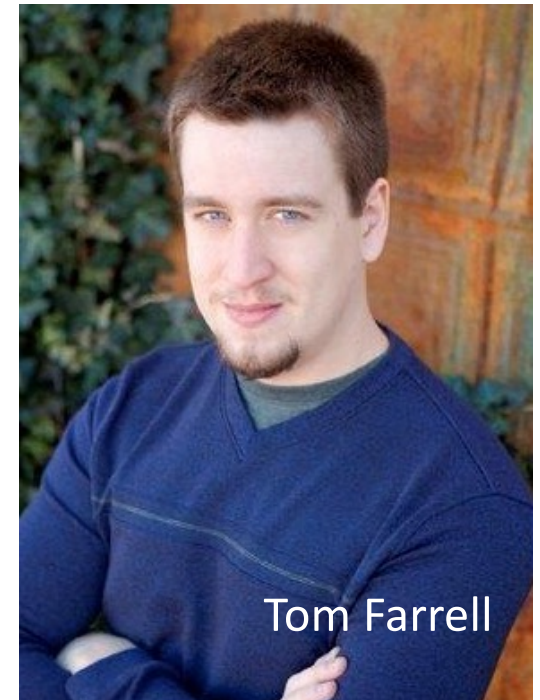
Audio Assets

- 140+ individual assets used, all original
 - Lots of SFX, voice work
 - Some ambient, interface sounds
 - Only one piece of music
- Simple interactivity => No middleware needed
- Used Unity localization for some sounds

Audio Team

- Faculty lead
- Students from Interactive & Game Audio class
 - 2 students from spring 2014, 4 from spring 2015
 - Their final projects
- I defined initial list of needed assets, served as consultant, basically stayed out of the way
- Students did all production work & delivered assets to programmers, except...
- ...I did the tune






Audio Students!








SFX / Foley

- No library sounds in final game
- Recorded either in sound lab or in field (literally)
- Sounds for all occasions
 - Footsteps (walk cycles)
 - Cards, coins, knife sounds, mugs clanking
 - Opening doors, crates; picking things up, dropping
 - Heartbeats, dismembering, soul sucking, possession
 - Drinking, pouring, potion sounds
 - Interface sounds





For example: Walk Cycles

- Record lots of footsteps individually or together
- Edit them together into a loop
 - Maybe have alternative loops
 - Maybe have alternative footsteps within a loop
- Different surfaces
 - Leaves 
 - Mud  
 - Water 
 - Wood 

More Foley Examples

- Scroll Opening 
- Fire on Spawn 
- Happiness-Sucking Potion 
- Death Gargle 
- Swan Death 

Ambient Examples

- Ghost whispering 
- Wind 
- Demon horde skittering 
- Scary Voice 

Voice Work

- Dialogs handled with text
 - User interaction uses dialog boxes
 - Decided not to pronounce NPC text
- Did lots of voice acting for several mechanics
 - Reassembling/disassembling wife's body
 - Boss battle with the rabbit
- Lots of ambient speech: Voices in a mob

Voice Work Examples

- Intro Announcement 

- Wife (dis)assembly



- Crowd heckling at boss battle



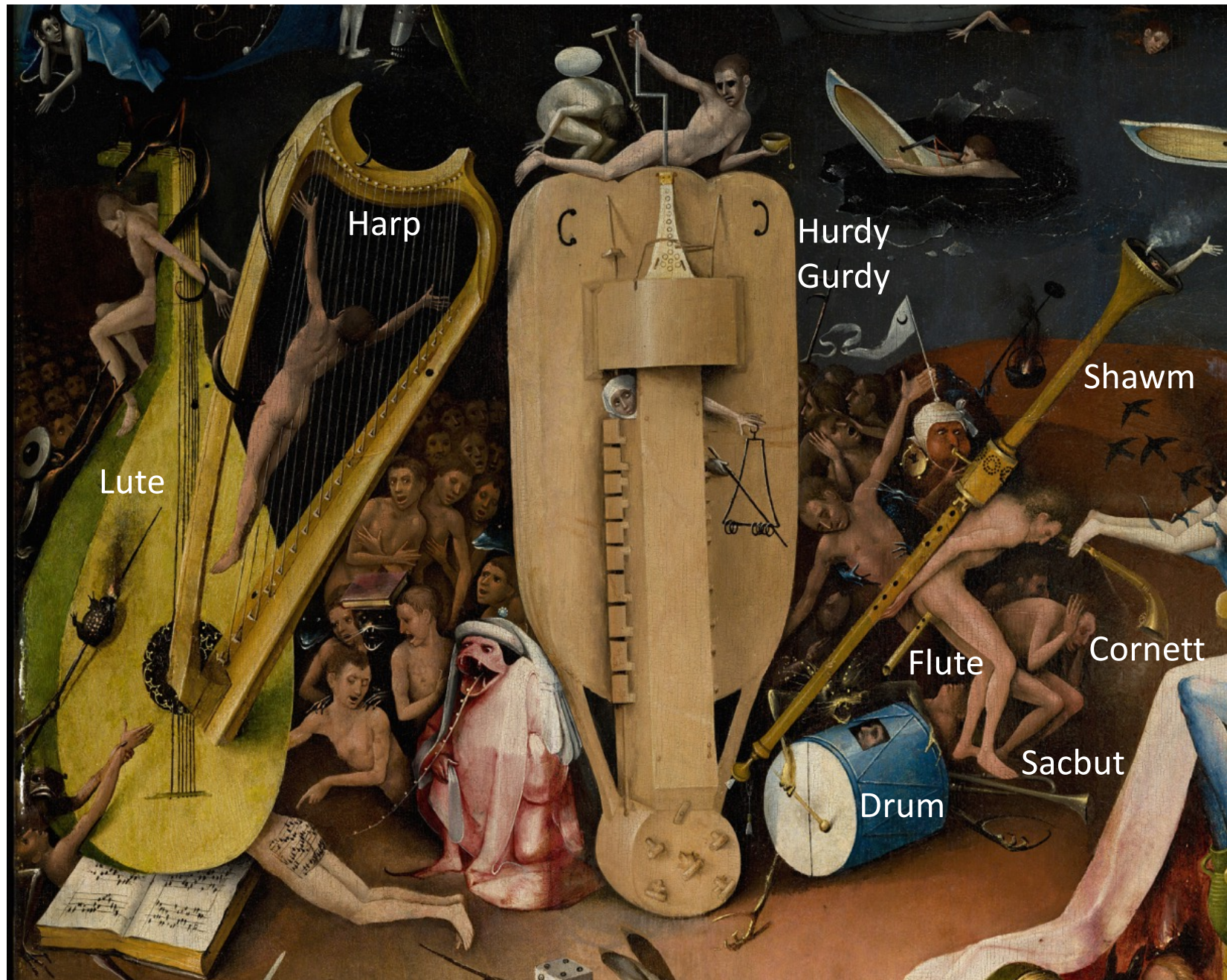
- Oooohhh!



Music

- No theme or background music
- Only one tune: Linear & diegetic
- Used in mechanic where player solves audio puzzle to unlock tune & bestows new ability
- Leveraged irresistible feature of painting...

The Band!



The Butt Music



Butt Music Aligned



- Plainchant Notation
- Four-line staff for note pitches
- No note lengths
- No measure lines
- No time signature
- Supposed to have lyrics
- Gregorian Chant

Real Plainchant

Clef: This line is C

Climacus: a Neume

Vertical Line: Pause or rest
Longer Shorter

Punctum

III.





















































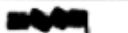

























XVII. s.

5.

C Rédo in únum Dé- um, Pátrem omnipoténtem,

factó-rem cæ-li et térræ, vi-sibí-li-um ómni-um, et

invi-sibí- li-um. Et in únum Dóminum Jé-sum Chrí-

TABLE 1: Plainchant notation of the fifteenth century					
	Roman	Ambrosian	Gothic	Hungarian*	Modern Transcription
Punctum					
Virga					
Podatus					
Clivis					
Climacus					
Scandicus					
Torculus					
Porrectus					
Cephalicus					none
Epiphonus					none
Bivirga					 or 
Virga cum orisco**					with ornament
C clef					substitute G clef
F clef					
B rotundus					
B naturalis					
B quadratus					
Custos, Direct					

* Hungarian notation, gothicized by Austrian influence into a form called Messine-German, spread over an area that coincides with the borders of medieval Hungary. See the introduction to *Missale Notatum Strigoniense ante 1431* in Posonio, ed. Janka Szendrei and Richard Rybaric (Budapest, 1982), pp. 46–67.

** A name coined here to describe the combination of virga and oriscus that commonly appeared in late fifteenth-century manuscripts and printed books.

- Neumes tell how to sing a syllable of the text
- Pitch [sequences] for a single syllable
- Several different systems
- Replaced by our familiar 5-line staff
- Still used in some churches today

Bosch Was No Musician



- No Lyrics: Blasphemy!
- Clef painted out?
- Neumes don't match any known system (just a brush gesture?)
- Neumes don't line up well with lines, so pitches are ambiguous
- Bosch likely using music as "decoration," not as actual music

Music as Decoration



What the Hell...

- Transcribe it anyway!
- Others have done this
- Recently in February, 2014
 - Amelia Hamrick
 - Student at Oklahoma Christian U.
 - Straightforward interpretation
 - Impose 4/4 time by default
 - Initial blog post went viral
 - Got recorded with choral “lyrics”



Amelia's Transcription

Amelia posted a piano version of the torture-victim's backside hymnal

Adapted from Hieronymus Bosch's Garden of Earthly Delights



Hieronymus Bosch



Choral Recording

- Gregorian chant in a really, really big cathedral
- On repeat, imposed 3/4 time with guitar & bass
- Alleged lyrics:

Butt song from hell,

This is the butt song from hell.

We sing from our asses while burning in purgatory

The butt song from hell,

The butt song from hell.

Butts!



AI's Interpretation



- Assume C clef
- Assume all neumes are punctums
- Interpret notes as literally as possible
- Handle ambiguities as musically as possible
- Use butt crack as rests in bottom two staves
- Use instruments from the painting

Butt Music

from Garden of Earthly Delights

Hieronymus Bosch
as told to Al Biles



Al's Score

Assume all quarter notes in C major (white keys on piano)

Set drones to C

Two butt-crack rests

Add a pitched drum line to provide an uneven rhythm

Hold the last note

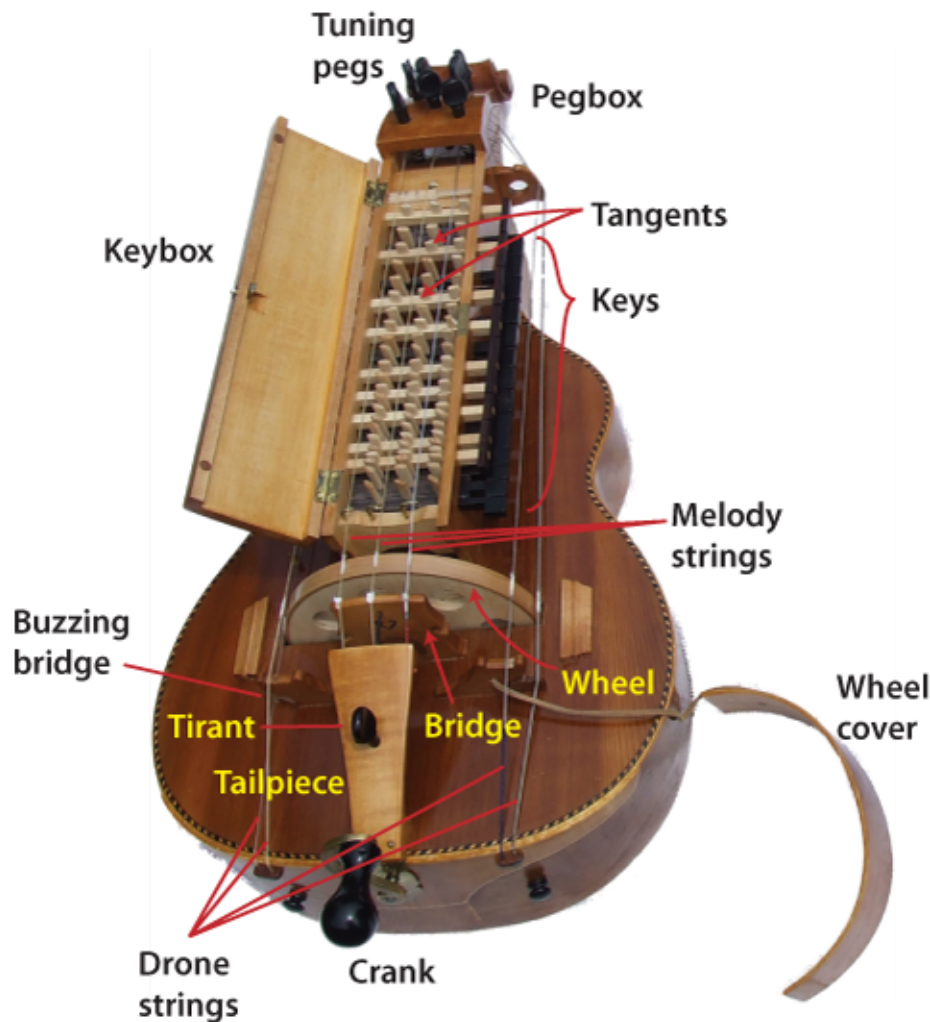
Rendered with MIDI



Hurdy Gurdy

- Decided to play the melodic line on a Hurdy Gurdy because:
 - It's a really cool period instrument
 - This is the first depiction of a **buzzing drone string** (called a dog)
- You can allegedly buy replicas of this one for \$5000 (!)

Anatomy of a Hurdy Gurdy



- Rosined wheel excites strings as it's cranked
- Keys shorten strings like an autoharp
- Keys don't affect drone strings
- Buzzing bridge adds different timbre to one drone string
- Basically a string version of a bagpipe (also existed)

Faking a Hurdy Gurdy

- Synthesized with MIDI instruments
- Used a Yamaha MU-128 tone generator (synth)
- Melodic line doubled on two instruments:
 - A weird, physically modeled bowed instrument
 - A detuned sitar
- Drone is two octaves using a Chinese Jing Hu
- Drum is a Japanese Taiko Drum (pitched)
- Recorded a MIDI “performance”

Butt Music

from Garden of Earthly Delights

Hieronymus Bosch
as told to Al Biles



Butt Crack



Butt Crack



AI's Recording

Monaural mix with a
stereo reverb

Not localized in game,
just played back

Game mechanic:
Player discovers first
few notes of the tune,
which triggers entire
tune & unlocks new
ability



Questions?