Music Composition

• About 40 years making

• Interdisciplinary - music, acoustics, psychology, math, physics, programming, AI...

• How people hear and understand rather tradition or cultural artifacts.

• Tried to bring nature into music - chaos
This is the Outline

• Chaotic Sounds
• Aesthetics
• Computers in Music
  Algorithmic Composition -
  & How Not to Do It
  Relationships vs Mimetic Content
• My Current system
  Structure - Cognition Models - Articulation
  Future
• More About Cognitive Models
• Conjecture
• Examples
Chaotic Sound

- Stream  Edited stream chopped
- Crowd    Edited crowd chopped
- Crowd    Edited crowd repetition
Aesthetic Tools

- Novelty and familiarity - memory
- Primary senses
- Relationships - constant and changing
- Structure and surface
- (Information) density
Computers & Music

Nobody asks Yo Yo Ma
“Now let’s hear you do it without the cello”

- Fast accurate computation for
- modulations dissonances, density…
- Well controlled relationships
- Well controlled changes
- Continuity and complexity
Algorithmic Composition

Modern algorithmic composition strategies include

• Markov Models
• Generative Grammars
• Bayesian Networks
• Transition Networks
• Linear Dynamic Models
• Chaos - Nonlinear Dynamic Models
• Genetic Algorithms
• Cellular Automata
• Artificial Neural Networks
• All above mixed with Predicate Logic

Most efforts are mimetic - based on parsing and copying previous “successful” compositions
Mimetic Content

Meme is unit of imitation

For music this is roughly equivalent to semantics - basis for traditional music

Most algorithmic systems are mimetic
My system uses relationships
Relationships…
mean more than memes
Changes to generative logic are usually inaudible without training.
GENERATIVE LOGIC

- Modulated Waveforms
- Chaotic models and phenomena

DEEP STRUCTURE
Randomness doesn’t work
Mimic some aspect of consciousness in a simple form
ARTICULATION

- Communication
- Instruments - players
- Voices
- Scoring
- Improvising

Computer allows presentation of some aspects more accurately than human performance
Proposed Modifications
almost all in cognitive model
Coping with Chaos

- Similar strategies for using chaos into music
- Ignore parts
- Look for trends
- Look for constants
- Look for relationships
- Slice time in smaller increments - fast response
- Slow down
- Reduce distractions
CONJECTURE

Once we learn to create effects they can be modulated very accurately over very long time spans - years

May lead to learning about perception and memory

 Might help to modify consciousness in directed fashion much the same way as study, sports, or meditation

Music composed in this manner might be used to enhance work or study, stress reduction
Examples

Stream01
Take It As It Comes
Can You Tell Me a Secret
Balance Included
Wait_
Romantic Argument
List of Oceans
Signs of Flight
Every Other Corner
Memories
Algorithm & Blues
Down by the Sea
Sand Castles
THAT’S ALL FOLKS!