Chapter 23. Meeting 23, Approaches: Expert Systems and Style Emulation

23.1. Announcements

• Sonic system reports due and presentations begin: 11 May

23.2. A Model of a Particle Feedback Systems

• Review

23.3. Quiz

• 10 Minutes

23.4. Style Experts

• Style emulation

　1. One of the earliest approaches to generative music

　2. Often justified has offering musicological or analytical features

　3. Often valued because various forms of testing are possible

• Expert systems

　1. Sometimes considered a type of AI

　2. Typically used to solve non-trivial problems where probabilistic recommendations are valuable

　3. Notoriously narrow

23.5. Reading: Ebcioglu: An Expert System for Harmonizing Four-part Chorales

- Ebcioglu, K. 1988. "An Expert System for Harmonizing Four-part Chorales." *Computer Music Journal* 12(3): 43-51.

- What is meant by the term "analysis by synthesis'? Is such an approach broadly applicable in music?"

- Why do the author's reject the approach of coding musical rules in a programming language, and instead offer what?

- The authors distinguish their approach from that of generating a random solution and testing the results: what is different in their approach?

- In general terms, describe the steps used to create chorales.

- Did the authors find that published theory texts were sufficient to implement their generative techniques?

- What are the main chorale views used?

- What level of results do the author's report achieving?

- What hardware were the using, and how quickly could it solve harmonizations?

23.6. Recreating Works of the Past

- Is their historical or musicological value to recreating works of the past?

- Is their aesthetic or artistic value to recreating the works of the past?

- Listen: 21 April 2006: Radio Lab, WNYC, show #202

23.7. Reading: Cope: Computer Modeling of Musical Intelligence in EMI

- Cope, D. 1992. "Computer Modeling of Musical Intelligence in EMI." *Computer Music Journal* 16(2): 69-83.

- What are the basic steps used in the production of music with Cope's EMI system?

- How is music represented and what parameters are taken into account?

- What role does the pattern matcher play? What does it match?

- Given Cope's description, how does the augmented transition network (ATN) differ from something like a Markov chain?

- Is Cope's description of EMI sufficient to understand the techniques of production?

- Cope claims that musical intelligence is a "simulation of musical thinking"; does the EMI system approach musical intelligence?

23.8. Listening: Bach, Virtual Bach, and Cope

- Listening: Cope, *Three Inventions, after Bach, No. 1*, 1997

- Compare to Bach Invention No. 6 in E Major

- Listening: Cope, *Three Inventions, after Bach, No. 2*, 1997

- Compare to Bach Invention No. 8 in F Major

- Listening: Cope, *Three Inventions, after Bach, No. 3*, 1997

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