DIGITAL MUSIC WORKSHOP / 04 / ALGORITHMIC COMPOSITIONS BASICS

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- prerequisites
- techniques

PREREQUISITES
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a few common (musical) techniques that are useful in algoritmic compositions:

- sampler
- scale
- sequencer
- arpeggio

SAMPLER

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a *sampler* can play back *pre-recorded* chunks of data:

see
Digital_Music_Workshop--02--Digital_Audio_Signal_Processing / Sampler

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SCALE

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a scale is a sequence of ordered musical notes.

see Digital_Music_Workshop--03--Music_Basics / Scales

SEQUENCER
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a sequencer can store and playback a series of values (often muscial notes but also other properties). a specific version of a sequencer is the *step sequencer* that is often triggered and *stepped* forward by a beat.

- see `ExampleTechnique01Sequencer`
- see `AppSequenceRecorder` (+ `Quantization`)

ARPEGGIO
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an `arpeggio` is a series of notes, often a broken down chord, that is played sequentially.

see `ExampleTechnique02Arpeggiator`

TECHNIQUES
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a *cheat sheet* of some basic techniques for algorithmic composition:

- modulo
- loops
- visual model
- grammar
- functions

MODULO
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modulo can be used to repeatedly trigger events.

- the `modulo` operation returns the remainder of a division
- notation for the module operation is the percentage sign: `%`
- example ("count from 0 to 3 repeatedly"):
  - `0 % 4 == 0`
  - `1 % 4 == 1`
  - `2 % 4 == 2`
  - `3 % 4 == 3`
  - `4 % 4 == 0`
  - `5 % 4 == 1`
- see `AppAlgorithmicComposition00Modulo`

LOOPS
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using loops of identical or similar structures to create complex emerging patterns and structures:

- see `AppAlgorithmicComposition01Loops`
- see `The Euclidean Algorithm Generates Traditional Musical Rhythms` ("varying number of beats evenly distributed across a number of steps")
- see `Steve Reich: Clapping Music`

VISUAL MODEL
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using visual models to structure parameter manipulation or create a parameter space.

see `AppAlgorithmicComposition02VisualModel`

GRAMMAR
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developing a grammar to organize notes and other paramters.

see `AppAlgorithmicComposition03Grammar`

FUNCTIONS
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using mathematical functions to organize notes and pitches or generate waveforms directly.

- see `AppAlgorithmicComposition04FunctionSineWaves`
- see `AppAlgorithmicComposition05FunctionDSPFormula`

REFERENCES
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see Algorithmic Composition