Lecture07: Evolutionary Art

1. What Is Evolutionary Art
2. Mutator
3. Mutator Applications
4. Summary
Most, if not all, genetic art systems, and many organic art systems, are

• evolutionary

Fitness function (evaluation) for the evolutionary process.

so called, evolvers (creators) are used which use human interaction as a

poetry with the use of an evolutionary process on a computer. In general,

Evolutionary Art is the "science" of producing art (images, music or even

What is Evolutionary Art
computer artwork without them needing to delve into the actual
"generation." Evolutionary systems allow the artist to generate complex
The results of this "selection" are then used to produce the next
advanced systems allow the artist to assign a "goodness" factor to each child.
produce a number of "children," which are then selected again. The more
parent pictures or virtual sculptures are mutated and/or crossed to
manner analogous to natural selection. In all evolutionary art one or more
development of a piece of work through some form of "selection." In a
The basic idea behind evolutionary art is that the artist is able to control the

Idea of Evolutionary Art
Neither user nor machine could produce alone what they produce together.

The user then exercises creativity and aesthetic judgment within that space.

Creativity takes place.

The creator has designed the genetic space within which exploration and

Both creator and the user of evolutionary art systems.

Creator

meta-artist.

Who is the Real Artist
2. Two parents can be selected to create 7 children by crossover.

mutation;

4. User selects favourable which is archived and used as parent for next stage of

3. Present 8 mutated forms (plus parent) to the user;

bend, twist);

2. Generates gene vector containing transformation rules e. g. grow, stack,

of ribs);

1. Establish structure from set of primitives (ribs) to produce horns (collection

Mutarator
approaching a good form, lower mutation rates give sensitive control.
value gives widely differing mutations, and is suitable at the start. When
mutation /

-\n
\textbf{Mutation}
3. Dominant and recessive genes: Pick up the strongest characteristics of each

random weighted average.

weight create (1.3, 1.7, 1.4) and (1.5, 1.2, 1.9) in the random weighted average.

weighted average: weighted average of the two parents vectors. The same

one parent, and the remainder from the other.

1. Splicing: Reels on the ordering of genes. The first n genes are chosen from

CROSSOVER

Yong Liu
covers, clothing patterns.

- Computer artworks: computer games, computer screen savers, CD album
- The model should not be an easily defined formal objective.
- Output: It should not take too long to run the model and for the user to judge the
  model.
- The model must have an output that the user can judge subjectively.
- Someone must be able to define a parameterized model.

What Make a Good Application for Mutator
Summary

1. Ideas of Evolutionary Art.
2. Mutator: Interactive creation of artistic images.