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Evolved Images

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The following pieces were created using an unusual method for constructing procedurally generated images. An interactive "image evolution" system allows a user to select from random variations of equations that generate pictures. The computer provides variations of equations by chance, and the user chooses those that continue and produce the next generation. Eventually complex and interesting results emerge. Although the user is not specifically designing each detail of the image, the general direction can still be controlled. The computer and human work together in a new way – the human provides the aesthetic decisions and the computer provides the element of random chance.

Variations on Representation

This piece was made by inflicting an equation with 19 random changes. The texture in the upper-left square was generated by the original equation. The remaining 19 textures were generated by each of the modified versions of that original equation.

People somehow represent visual experiences in their minds when they remember or imagine them. Forming internal abstractions from raw images is intrinsic to the process of visual perception, and creating images from internal representations is intrinsic to the artistic process.

Computers can also represent some images internally in the form of equations. The textures in this piece were generated by equations that were not understood by the artist because they were "evolved" instead of designed. However, observing the results of random changes to the underlying representation gives clues towards its character.

Such experiments can not easily be performed on people, but observations of people's perceptual and creative behavior and variations on those behaviors, can give clues towards the character of the internal representations of the mind.

Although the internal representations of the mind and those of the computer are likely to be of very different nature, studying each will hopefully give new ways of thinking about the other.