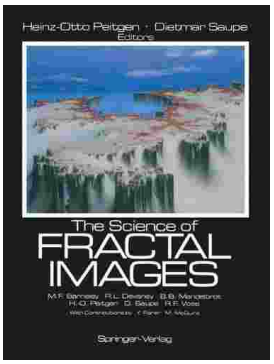
The Science of Fractal Images



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0 of 0 people found the following review helpful. Fractals in Fractals with code.By HarvardGradFractals everywhere in everywhere. Well explained.0 of 3 people found the following review helpful. Seems to be more about nice picturesBy CustomerSeems to be more about nice pictures than any application to real world problems.I guess I should have read the title before I purchased, rather than just the ratings.I was also expecting more colour graphics, as it is their relegated to a few pages here and there rather than interspersed throughout.12 of 13 people found the following review helpful. Great book on fractals and imagingBy calvinnmeThis old book is a timeless gem. It goes into the details of the mathematics of fractals and also shows well-commented C code for producing fractal imagery along with good color illustrations.Chapter 1, "Fractals in Nature", uses computer generated images to build a visual intuition for fractal as opposed to Euclidian shapes. There is also a mathematical characterization with Brownian motion as the prototype.In chapter 2, "Random Fractal Algorithms", randomness is introduced into the algorithms discussed in chapter one as a way of simulating natural phenomena. Ideas are extended to higher dimensions. C programs that produce mountain ranges using these ideas are presented, along with the resulting imagery.Chapter 3, "Fractal Patterns Arising in Chaotic Dynamical Systems", turns to the topic of dynamical systems and is less mathematical than the first two chapters. There is some mathematics and some illustrations in 2D and black and white that should be familiar to any student of dynamical systems.Chapter 4, "Fantastic Deterministic Fractals", demonstrates how genuine mathematical research experiments open a door to a new reservoir of fantastic shapes and images. Programs are shown that extend the ideas of chapter 3 into truly beautiful fractals. Ideas here stay mainly in 2D.The final chapter, "Fractal Modelling of Real World Images", draws from the material of the previous chapters to present C programs that produce clouds, vegetation, smoke, and mountain ranges, all by altering a few of the parameters in the sample code presented by the authors.This book is much better than more recent titles that bury their algorithms in complex high level languages or "toy books" on the subject that provide dumbed-down applications and in which the simplest possible explanation of fractals is given with no insight. I highly recommend this book to anyone interested in understanding fractal mathematics and in using that mathematics to produce stunning visual effects.

This book is based on notes for the course Fractals:Introduction, Basics and