

The Nature of Code

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Draft Table of Contents -- EXTREMELY ROUGH AT THIS POINT!

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Introduction

Prelude: A Brief History of Numbers

- probability
- randomness, perlin noise
- algebra?
- more. . .

Part I: Physics

Chapter 1: The Building Blocks -- Vectors, Motion

Chapter 2: Forces

- made up forces
- attraction / magnetism
- friction / viscosity

Chapter 3: Oscillation

- trigonometry
- springs
- pendulums

Chapter 4: Collisions

- ball vs. wall
- ball vs. ball
- other shapes

Chapter 5: Particle Systems

- advanced OOP

Chapter 6: Can we do all of this stuff in 3D?

Part II: Generative

Chapter 7: Autonomous Agents

- craig reynolds steering behaviors. . .flocking

Chapter 8: Strange Attractors?

Chapter 9: Recursion / Fractals

Chapter 10: L-Systems

Chapter 11: Cellular Automata

Part III: Machine Learning

Chapter 12: Genetic Algorithms

- searches
- interactive evolution
- ecosystems

Chapter 13: Neural Networks

Chapter 14: Statistical Learning (?)

Other stuff?

- optimization (verlet?)
- bin-lattice subdivision thingie
- openFrameworks?