The Art of Fluid Animation

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This book presents techniques for creating fluid-like animations with no required advanced physics and mathematical skills. It describes how to create fluid animations like water, smoke, fire, and explosions through computer code in a fun manner. It includes a historical background of the computation of fluids as well as concepts that drive fluid animations, and also provides computer code that readers can download and run on several platforms to create their own programs using fluid animation.

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KEY FEATURES

- Presents visually rich techniques for creating fluid-like animations, such as water, fire, smoke, and explosions
- Gives historical background of the computation of fluids and concepts that drive fluid animations
- Requires no advanced physics or mathematical skills
- Includes computer code that can be downloaded and run on several platforms
- Introduces the author's simple "stable fluids" algorithm

SELECTED CONTENTS

Introduction. Observations, Equations, and Numbers. Euler–Newton Equations or Navier–Stokes Equations. The Early Days of Computational Fluid Dynamics. Kolmogorov and Turbulence. Introduction to Fluid Animation. Intermezzi. A Simple Fluid Solver. The Little Computers Who Can Handle Fluids. The Smart Phones Who Can Handle Fluids. Fluid FX: Version 2.0 of Autodesk Fluid. Show Time! MAYA Fluid Effects. Fluids on Arbitrary Surfaces. Control Freaks! How to Make Fluids Do What We Want. Real Experiments, Computer Experiments, and Validation. Epilogue: Let's Call It Quits.

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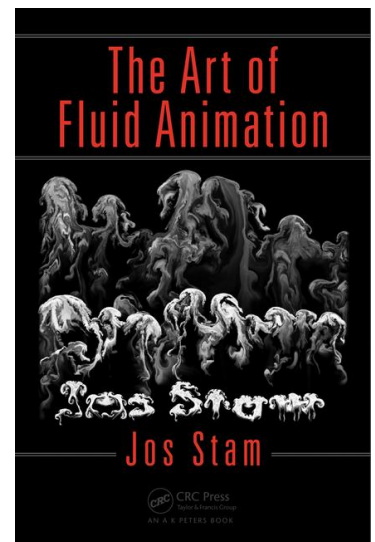
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