

SIGGRAPH 96

23rd International Conference on Computer Graphics and Interactive Techniques

COURSE NOTES 20

INTRODUCTION TO DIGITAL COMPOSITING

COURSE NOTES 21

INTERMEDIATE DIGITAL COMPOSITING

Monday, August 5, 1996

Ernest N. Morial Convention Center, New Orleans, LA

ORGANIZER

Ron Brinkmann, Sony Pictures Imageworks

LECTURERS

Jerome Chen, Sony Pictures Imageworks

Gary Jackemuk, Digital Domain

ABSTRACT

This course covers the basic terms and processes required to understand digital compositing, particularly as it applies to a production environment. It details basic operations used to combine multiple image elements into a single seamless image or image sequence.

ABOUT THE LECTURERS

Ron Brinkmann (chair)

Mr. Brinkmann is a Computer Graphics Supervisor at Imageworks. Joining the company at its inception four years ago, he has been heavily involved in the design and continual refinement of the facility's digital production pipeline. Feature Film work includes: *Last Action Hero*, *In the Line of Fire*, *Tall Tale*, *Hideaway*, *Speed*, *Die Hard with a Vengeance*, *James and the Giant Peach* and the as-yet unreleased *The Ghost and the Darkness*. Ron has spoken at local SIGGRAPH meetings, has written articles for BYTE and Workstation Magazine, and was nominated for a British Academy Award for his effects work on *Speed*.

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Ron Brinkmann

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Jerome Chen

Mr. Chen is a Computer Graphics Supervisor at Imageworks, joining the company at its inception four years ago. He was heavily involved in the design and continual refinement of the facility's digital production pipeline and served as Computer Graphics Supervisor on visual effects work for *James and the Giant Peach*, *Phenomenon* and *Hideaway*. His other feature film work includes *In the Line of Fire*, *The Pelican Brief*, *Look Who's Talking Now*, and a theatrical film trailer for SDDS (Sony Dynamic Digital Sound). Jerome has been a guest speaker at the UCLA Computer Animation graduate program, and was also a presenter at the 1994 SIGGRAPH Wavefront User's Group seminar.

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Gary Jackemuk

Mr. Jackemuk is a Digital Artist/Technical Director at Digital Domain. He joined the company at its inception almost three years ago. Has worked as a graphics programmer prior to working in production. Feature Film work includes: *Interview with the Vampire*, *Strange Days*, *Apollo 13* and numerous commercial work. Gary has spoken at SIGGRAPH meetings, and given talks on compositing at UIUC and UIC's EVL lab. Gary was the Student Volunteer Chair in 1994 and Contributor to the SIGGRAPH 1994 Electronic Theatre.

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Course Schedule



Part I

1. Course Introduction Time: .25 hr.....1-1
Introduction to Digital Compositing
Montage of film and television composites
2. Definitions: What is a Composite? Time: .25 hr.....2-1
Explanation of a Composite
Digital Compositing Tools
Basic Terms
3. Image Formats and Data Storage: .50 hr.....3-1
RGB(A) Images
Bit Depth: 8 versus 16 bit
Linear versus Log Data Space
Image Input Devices
4. Image Manipulation: Single/Multi Image Operators Time: .75hr....4-1
Introduction
Single Image Operators
Multi Image Operators
5. Matte Generation Time: .50 hr.....5-1
Bluescreens & Greenscreens
Difference & Garbage Mattes
6. Image Tracking and Stabilizing Time: .50hr.....6-1
7. Techniques in a Good Composite Time: .50 hr.....7-1
8. Question Session Time: .5hr

Part II

1. Course Introduction Time: .25 hr.....1-1
Montage of composite
Review of terminology from Part I
2. Preparation of Elements Time: .25 hr.....2-1
3. Damage Control! Time: .50 hr.....3-1
4. What Makes a Good Composite? Time:.75 hr.....4-1
5. Demo of composite from the film 'Speed' Time: .50 hr.....5-1
Ron Brinkmann
6. Demo of composite from the film 'James and the Giant Peach' Time: .50 hr.....6-1
Jerome Chen
7. Demo of composite from the commerical 'Mercedes Benz Rhinos Time: .50 hr.....5-1
Gary Jackemuk
8. Question Session Time: .5hr
All Speakers

Digital Compositing

Course Notes



Table of Contents

1. Introduction
 2. Definitions: What is a Composite?
 3. Image Formats and Data Storage
 4. Image Manipulation
 5. Mattes
 6. Image Tracking and Stabilizing
 7. Dealing with Non-Square Pixels
 8. Efficiency
 9. Preparation of Elements
 10. Element Repair
 11. The Final Touches
- Appendix: Common Image File Formats
- Bibliography

Introduction: Digital Compositing

1.1 Introduction