

Introduction

CS4340 Digital Special Effects

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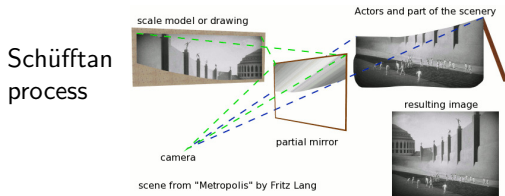
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Special Effects

Special effects (FX) are imaginary things brought to life in movies or TV.



Two traditional types of FX:

- **Optical FX**

- Created optically, e.g., multiple exposure, Schüfftan process, or
- during post-production using an optical printer.

- **Mechanical FX**

- Created using mechanized props, scale models, pyrotechnics, etc.
- **Atmospheric FX**: create wind, rain, fog, snow, clouds, etc.

Digital Special Effects

Digital special effects (VFX) became available in 1990s and have revolutionized media industry.



(a) The Abyss (1989)



(b) Terminator 2 (1991)

- Use computer generated imagery (CGI).
- CGI gives film-makers greater control.
- CGI allows many effects to be accomplished safely and convincingly.

VFX is now used in nearly every production.

Many VFX companies have appeared:

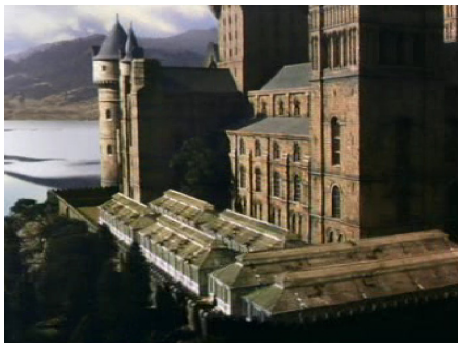
- Double Negative (Vancouver, London, Singapore)
- DreamWorks Pictures (Universal City, California)
- Lucasfilm and Industrial Light & Magic (California, Vancouver, London, Singapore)
 - Founded by George Lucas to bring StarWars saga to silver screen.
 - Pioneer in various FX techniques.
 - One of the oldest and most respected effects companies in the world.
- Rhythm & Hues Studios (Los Angeles, Mumbai)
- Weta Digital (Wellington, New Zealand)
 - Famous for The Lord of the Rings trilogy and King Kong.
- and many more

What makes VFX interesting and captivating?

- VFX must look realistic, so that it is believable.



- VFX must blend into the real scene seamlessly.
- The viewers do not realize it's there.



- Good VFX add story-telling elements, but erase the tracks.



Compare VFX with Animation

- Computer animation involves only CGI elements. VFX involves real visual elements, and sometimes, CGI elements also.
- VFXs require the CGI elements to look realistic. Computer animation can look like cartoon.



(a) Cartoon characters.



(b) Realistic character.

Production Process

VFX is created as part of a film production to add storytelling elements.

There are three stages in a production [Kel00, KM01]:

- 1 Preproduction
- 2 Production
- 3 Postproduction

Good learning examples:

- The Lord of the Rings DVDs: Appendices 1 to 6.
- Forrest Gump DVD Disk 2: Behind the Magic of Forrest Gump.

Preproduction

- **Project proposal**: summary used to sell project.
- **Premise**: concise statement of story.
- **Synopsis**: short description of basic story line.
- **Treatment**: plot summaries in short-story form.
- **Scripts**: production guides on paper, will be seen or heard in finished product.
- **Budget**: how fund will be spent.
- **Storyboard**: graphic visualization of shot sequence.

Production

Begins with design, setup, rehearsal, followed by live shooting

- Conceptual design: artistic concepts of visual elements in pencil and paper and small sculptures.
- Set construction: construct set, miniatures, etc.
set up stage, cameras, lighting, rigs.
- Document the set: for use in creating special effects.
- Props construction: construct props, prosthetics, etc.
- Costume design: design and make costumes.
- **Rehearsal**: rehearse dialogues, moves, camera moves, etc.
- **Live shoot**: shooting of live actions.
- **Create CGI**: Create CG models, animate, render animation into CGI.

Postproduction

- **Film editing**: edit footages into a locked footage.
- **Digital compositing**: compose various VFX elements into the locked footage to create the VFX.
- Music scoring: perform and record music.
- Sound recording: create and record sound effects, re-record dialogues.
- Sound mixing: add dialogue, sound effects, and music into the locked footage to produce the final footage.
- **Print**: turn the final footage into film prints or DVDs.

That's the traditional postproduction sequence.

In the production of The Lord of the Rings trilogy, a lot of them are overlapped to save time.

Summary

- VFX must be realistic to be believable.
- VFX must blend into real scene seamlessly.
- 3 stages in production process: preproduction, production, postproduction.

References



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