**IB Film 2: W58.1**

**Computer Generated Imagery and Digital Effects**

Here is a top 10 list of WORST CGI movie effects.

**Watch This:**

<https://www.youtube.com/watch?v=5ZlOn9V_MmE>

Computers Expand Film

Computer-generated imagery (CGI) are images that are created directly from a computer.

Digital effects can be computer-generated and manipulated images from a film, photograph, or painting that are then digitally altered.

Computers have revolutionized the film business.

Early computers helped special effects artists develop complex traveling matte shots.

### **1960' and 1970's**

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In 1968, a group of Soviet physicists printed hundreds of digital frames to create an animation of a moving cat.

In 1971, a Hungarian-born animator named Peter Foldes created a computer-assisted short film called Metadata.

In 1976, a film called, appropriately, Futureworld, featured the first example of three-dimensional (3-D) graphics.

This was followed closely by Star Wars: Episode IV (1977) where computers were used to enhance the climactic trench-running scene (wire-frame models used for targeting).

Have a look at the trench-running scene Use the force, Luke from Star Wars: Episode IV.

**Watch -**[Star Wars: Episode IV](https://youtu.be/DOFgFAcGHQc)

Two important films of the 1980s showcase big leaps forward in digital effects and imagery.

### **TRON**

Here is the the Light Cyle scene in the original TRON (1982) with a full 15 minutes of purely computer-generated imagery.

This sequence was also significant as it represented extensive use of 3-D images.

The Evolution of GCI in Tron:

**Watch -**[TRON Light Cycle sequence](https://youtu.be/-BZxGhNdz1k)

### **TRON: Legacy**

To see how GCI has evolved and how the Tron franchise revamped the Light Cycle element, check this sequence from TRON: Legacy (2010).

**Watch -**[TRON: Legacy](https://youtu.be/kn4SUk6p1fg)

### **The Last Starfighter**

The Last Starfighter (1984) is even more ambitious. This film showcased computer-generated spaceships as opposed to the more traditional model work (think of the models in the original Star Wars).

**Watch -**[The Last Starfighter](https://youtu.be/H7NaxBxFWSo)

### **Young Sherlock Holmes**

In 1985, Lucasfilm helped Steven Spielberg create a convincingly realistic computer-generated character for Young Sherlock Holmes.

In the film, the main character has to fight a stained-glass knight who comes alive and jumps out of a window frame.

In the same year, a group of animators created the first computer-generated music video, Money for Nothing, by Dire Straits.

**Watch -**[Young Sherlock Holmes stained glass Knight scene](https://youtu.be/uOsxXi-tu_U)

**Watch -**[Dire Straits, Money for Nothing](https://youtu.be/wTP2RUD_cL0)

### **The Abyss**

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By the late 1980s, we had seen computer-animated short films such as Tin Toy (1988), with realistic CGI animals and Labyrinth (1986) with a totally convincing 3-D water effect.

The Abyss (1989) directed by James Cameron used the same water effect.

**Watch -**[The Abyss water creature scene](https://youtu.be/xNLtPLFECNw)

### **Terminator 2**

The same program was used to create the 'liquid metal man' for Terminator 2 (1991).

**Watch -**[Terminator 2 trailer.](https://youtu.be/lwSysg9o7wE)

### **Motion Capture**

Computerized motion capture, where the actions of the actors are sampled and mapped to a three-dimensional model on the computer, was first used on a feature film in 2001.

Final Fantasy: The Spirits Within used this technique to create highly realistic-looking characters and action.

Other examples of this technique include -

The Polar Express (2004)

Avatar (2009)

The Adventures of TinTin (2011).

## CGI in Animation

In France, Maurice Benayoun and Francois Schuiten conceived and produced a series of computer-animated shorts, called Quarxs (1990), each 3 minutes long and featuring gremlin-like creatures.

A few years later, the Canadian show ReBoot was released as the first half-hour long, computer-generated animated series.

Of course, any discussion of CGI cannot leave out Toy Story (1995), the first CGI-feature-length animation.

## Digital Effects and Manipulations

In 1999, another digital milestone was reached when effects artists in Fight Club created facial deformations on a synthetic human.

This is an example of a CGI / digital effect that is not meant to be celebrated - or even noticed.

Rather, it is there as part of the design or, in some cases, to fill gaps like the one left in Gladiator (2000).

Oliver Reed was playing Proximo in the Ridley Scott film, but died halfway through production. A body double was used for the remaining scenes, and CGI was used to map a three-dimensional image of Reed's face into the shots. Similar techniques are now commonly used on stunt doubles.

Other examples of hidden CGI would include things like digitally enhancing the size of a football crowd in Forrest Gump (1994) or creating a completely convincing set of Winklevoss twins for The Social Network (2010).

In many ways CGI/digital effects are ubiquitous.

They are used in ever-increasing ways, often because digital effects are now cheaper than many practical or on-set effects.

So, while we can still be amazed by spectacular space ships and entire cityscapes rolling over like a tidal wave, we are also constantly being exposed to less self-conscious and much more subtle uses of CGI and digital effects - an illusion within an illusion, so to speak

# **The Good, The Bad and The Ugly of CGI**

After covering CGI and seeing good / bad examples of groundbreaking implementation of this cinematic element, provide your opinion on a film’s good / bad CGI.

What was good / bad about it?

How did it affect your viewing experience?

Provide specific examples and even post a viewable example (via embedded URL) if you can.