

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

Prof. Phani Tetali and Phidi Pulu

IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation>



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

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Source:

<https://www.dsource.in/course/limited-animation/introduction>

Introduction

Limited animation is a technique or process in animation where reusing of animated frames, mirroring of images (characters) and drawing new frames only when necessary are done to limit down the work, save time and ultimately reduce the budget.



Limited Animation runs on 4-12 or 8-12 frames per second. It started as an artistic experiment, later its cost cutting capability made it more popular.



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

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Source:

<https://www.dsource.in/course/limited-animation/history>

History

Limited Animation could be traced back to films like “The Newlyweds” by French animator Emile Cohl (1857-1938). He adopted this film from a popular comic strip by McManus in an American newspaper. It included recurring players, but featured little to no actual animation of them; most of the human figures were static. But it was later that this technique of Limited Animation was popularised.

Traditional animation, another technique in animation considered to have been started by Emile Cohl a French animator in 1908 with his film “Fantasmagorie”. Disney later popularized this technique. Here the animation runs on 12-24 frames per second, almost replicating the simulation of reality. Using this heavy approach of animating frame by frame in one or two Disney dominated the Golden age of Animation. It was in this era a handful of Bosko cartoons in the early years of the Looney Tunes series did survive used the technique of Limited Animation.

Using this technique they could produce shorts comparable to the shorts given by Disney in just a half the budget to the budget of Disney. It was “The Drover Boys” 1942 an animated film by Chuck Jones that became the first prototype for Limited Animation but the pressure from Warner Brothers curtailed much further use of this technique. Studios like United Productions of America (UPA), Metro-Goldwyn-Mayer (MGM) and Hanna-Barbera revived this technique of Limited Animation. Initially it was a way to stand apart from Disney, but in very short order it became a popular way to save time and money.

The Animators could experiment with the different medium, style and art to any possibilities using Limited Animation technique. It was only after Bobe Cannon’s (an UPA artist) animation “Gerald McBoing Boing” that Limited Animation was accepted in major Hollywood cartoon studios. Gerald McBoing Boing was shown in 1951 and it won an Oscar for that year.

A part of popularity of Limited Animation can also be attributed to the arrival of Television. TV had become a very common commodity in every household; soon everyone was hooked onto TV for entertainment at the expense of going to the Cinema. Weekly cartoon series on TV became popular. This became a challenge for studios to produce more number of animations in a short span of time. It was impossible to produce such mass of animation shorts in a short span of time using the Traditional method but could only be achieved using Limited Animation techniques. Hence, more and more animators and studios started adopting the Limited Animation method.

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

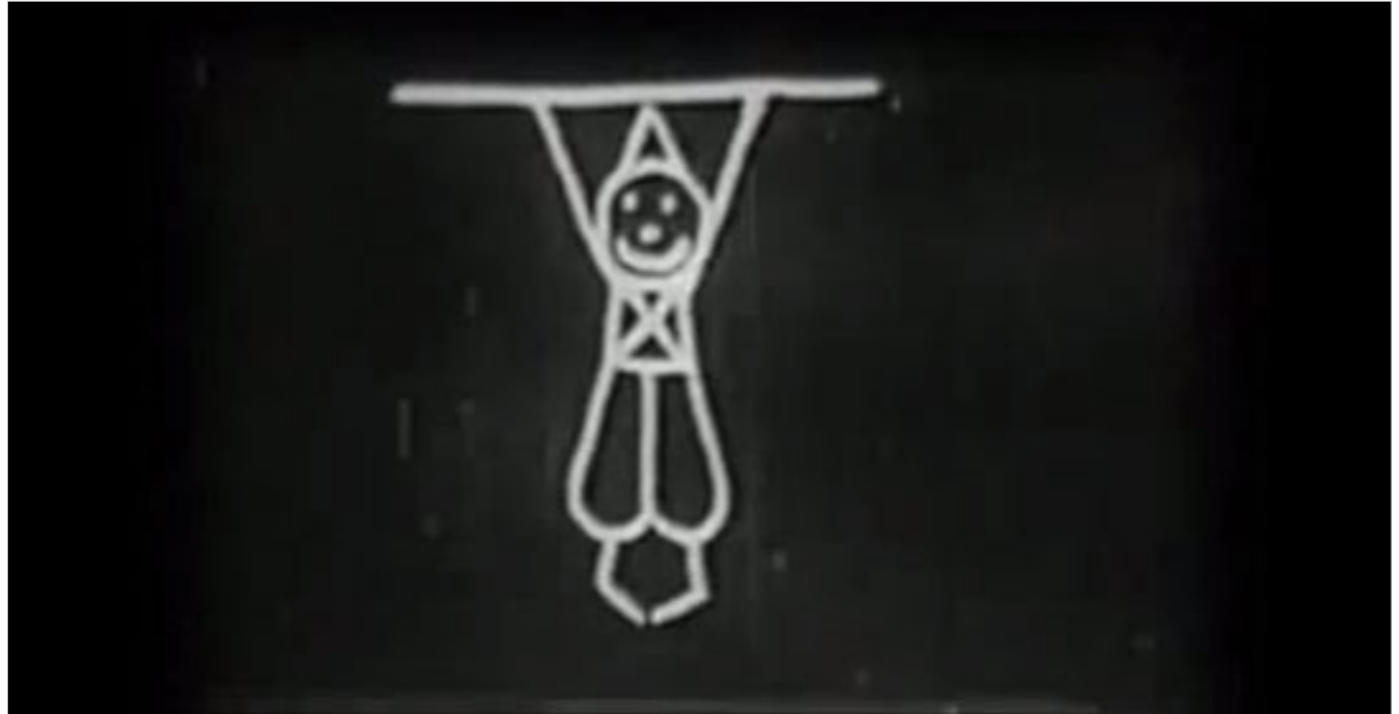
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1. Introduction

2. History

3. Development

4. Techniques

5. Processes

6. References

7. Video

8. Design Tools

9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique
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Source:

<https://www.dsource.in/course/limited-animation/development>

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Development

Limited Animation started in United States, but the technique had developed and flourished in Japan. Here, this technique was experimented a lot and new heights were achieved. During 1950s-1960s, Japanese cartoons made improvements on the production of the Limited Animation. Initially, the Japanese animators followed the Traditional method of animation like Disney. *For example* “Panda and the Magic Serpent” (Hakujaden 1958) by Studio Toei Doga.

The method was expensive and the competition from foreign studios like Disney made it even more difficult to continue with this Traditional method. Hence to cut down the cost Limited Animation method was adopted.



Unlike American Limited Animation, which started as an experimentation rather than cost cutting, the Japanese Limited Animation started as a cost cutting measure but later more artistic explorations were done. Based on the reducing of in-betweens, Japanese animators developed a new limited animation technique called “Back System”. That is, placing drawings of the same scenes on file: to be used repeatedly. This way the cost became even lower.

TV was popular in Japanese homes and in the year 1963, the first Japanese TV cartoon series “Astro Boy” by Osamu Tezuka made its first show in this year. The animation even being limited, it had created a distinctive technique, with a unique character design. This animation style came into being with its distinctive name “Anime”.

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<https://www.dsource.in/course/limited-animation/development>



A new turning point of limited animation came from the ending of the 20th century, when digital animation art spread widely. GIF animation started and was mostly used for web. The gif animation was so “limited” that it usually composed of traditional key frame drawings, without in-betweens. Most of gif animations were cycle system. GIF animation could only be a short piece but not an artwork, it had to be 16 bit, and therefore, its maximum color pallet was 256 colors.

The real revolution came when macromedia Flash (now Adobe Flash) was popularized, more and more individual could product his or her own animation films on PC. Even the beginning of Video Games made this method popular. Now the use of this method has become common, it can be seen on Flash Animation, Motion Comics, PowerPoint animation etc.



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

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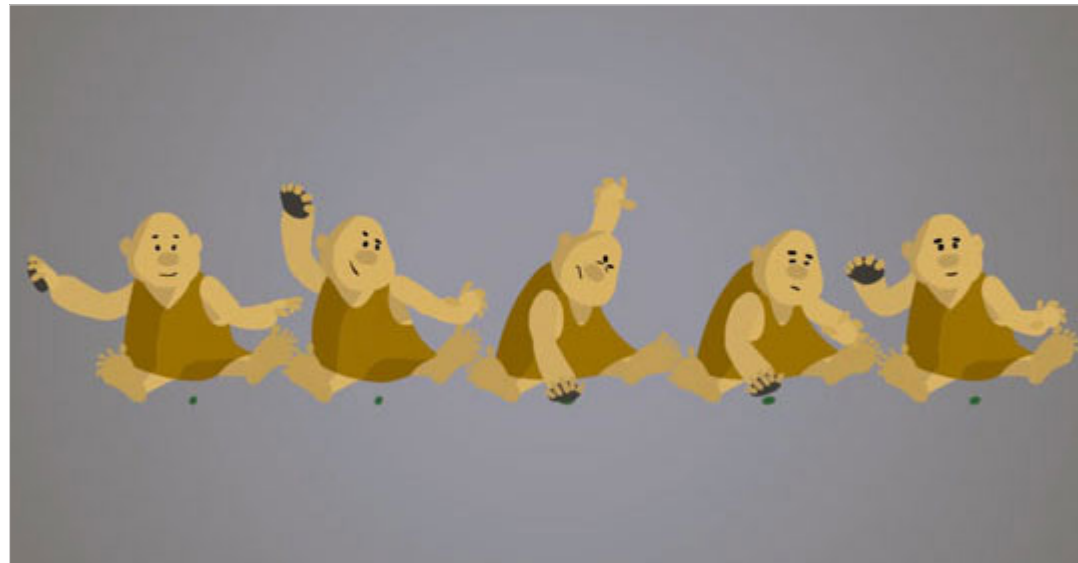
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Techniques

Limited Animation's basic purpose is to reduce the budget and it does: By using these techniques:

- Cels and sequences of cels were used repeatedly - animators only had to draw a character walking once.
- Characters are split up and drawn in separate layers: only portions of a character, such as the mouth or an arm, would be animated on top of a static cel.



- Clever choice of camera techniques, angles and editing.
- Using of mirror image of the cell to represent the opposite angle also known as Cel reversal. Most of the cartoon characters are drawn symmetrically to expedite this technique.

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

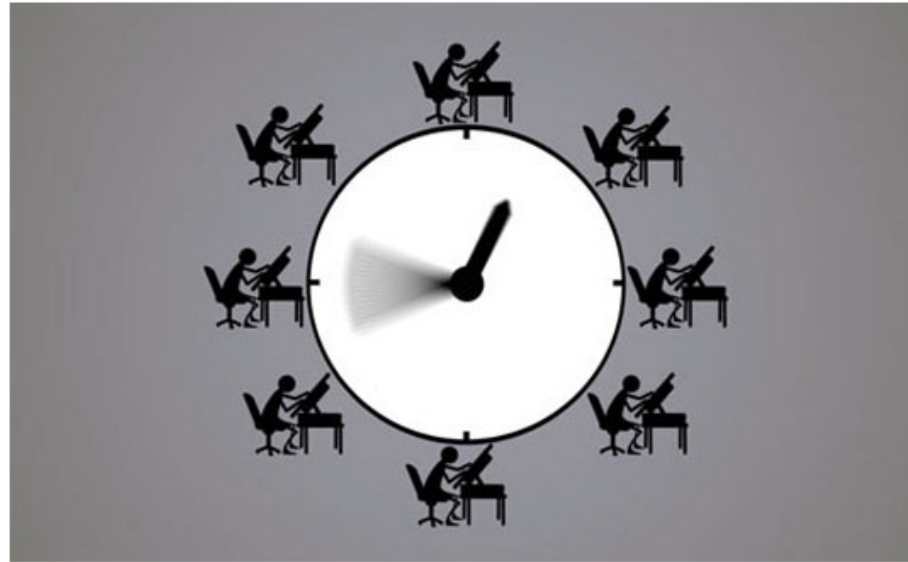
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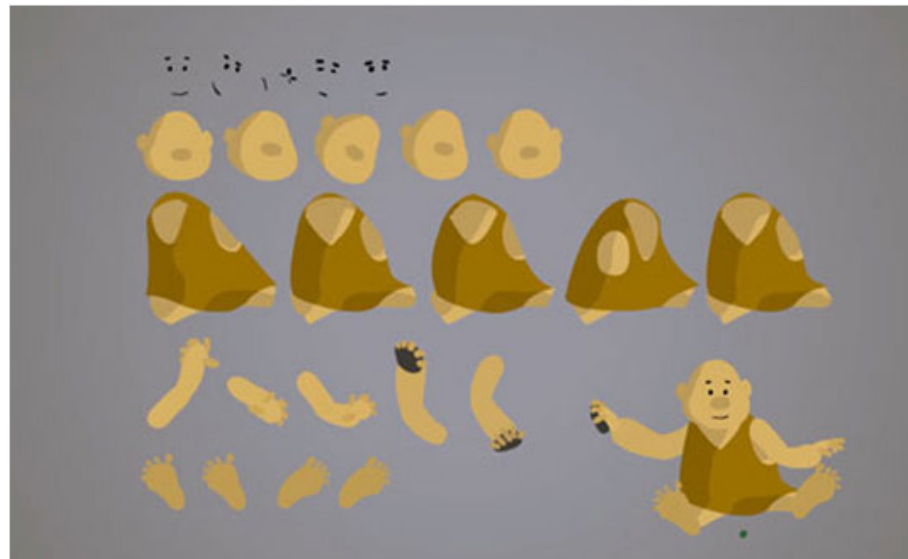
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Source:

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- Here more emphasis was given to voice talent than visuals.
- Use of Libraries i.e. before animating, all the parts of the character are drawn separately in different layers and are kept in library. Later those drawings are used from the library according to the requirement of the animation.



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique
by

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IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation/techniques>

- Extensive recaps of previous episodes or segments, to cut down on the amount of new material necessary (used often in serial shows like *Rocky* and *Bullwinkle* or *Underdog*).
- Syncro Vox is a process in Limited Animation that involves pasting a film of the moving lips of a real-life person over a still frame of an “animated” character to give the appearance that the character is doing the talking. Cambria Studios held a patent on the technology, and as such, it was primarily used on their productions, such as *Clutch Cargo*; it still has limited use today, the most widely known example being the online series *The Annoying Orange*.
- Chuckimation, another notoriously low-budget process, simply moves various “animated” figures by hand or by throwing them across a space. Most commonly used with stop-motion animation, it usually does not allow for characters’ mouths to move.



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

Prof. Phani Tetali and Phidi Pulu

IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation/processes>

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Processes

Types of Processes:

Digitalization has completely revolutionized the way once animation was done. It has helped in speeding the animation process and even added more creative possibilities.

Budget and time has always been a crucial deciding factor for Animation. For Limited Animation it is even more crucial and the invention of TV has challenged the animators even more to create animation in lesser time with low budget.



Lets have a look at how the animation can be minimized for Limited Animation:

The character designs including BG and other props for the Limited Animation are very simplified and stylistic rather than being very realistic. Mostly they are symmetrical to make the drawing easier and faster. Each part of the character that is to be animated is drawn indifferent layers. These parts are then archived and saved in a Library, which are later swap according to the requirement of the animation where as the static or non-animated part remains as it is.

This process makes it easier for the animators to use the same parts of the character repeatedly for different frames according to the requirement; by this one does not have to keep drawing the same part/static images

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

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IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation/processes>

again and again for every frame.



Gesture.



Library.

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

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IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation/processes>

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Being limited the animations are bit jerkier, far from realistic and very smooth. But still the animation looks believable and works well with these simple and stylistic characters. This type of jerkier animation would hardly work for more realistic characters.

Using Loop and Pan Animation - is one of the prominent features of Limited Animation. For instance, a walk cycle or a run cycle, here moving the character from one end to the other would have taken a lot number of drawings consuming more time. But if one complete walk or a run cycle is drawn and is kept in loop, where as the background is pan, it creates an illusion of the character moving from one end to the another end. And this can be achieved in fewer drawings in much lesser time.



Loop.



Many drawings in loop.

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

Prof. Phani Tetali and Phidi Pulu

IDC, IIT Bombay

Source:

<https://www.dsource.in/course/limited-animation/processes>

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Motion Tween is a feature in most of the animating software that allows doing simple object animations. One can create a motion tween, which will automatically move the object from the beginning location to the end location. Here the animator does not have to draw the in-betweens but only have to drag the object from the starting point to the end point. Rest the in-betweens are calculated by the computer and generated, which animators does not have to draw.

Smear pioneered by Chuck Jones with his film 'The Drover Boys' is one of another ways of cutting down the drawings in animation. Smears in animation are frames between two key frames, which holds a whoop or an elongated shape to describe or convey an exaggerated motion. One can create dramatic and fast motion using it in just few frames. Another is multiple animations where a single frame contains three or more drawings of the same part describing the motion.

*Smears.**Smears-gestures.**Multipels.*

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Limited Animation

Budget Cutting and Time Saving Technique
by

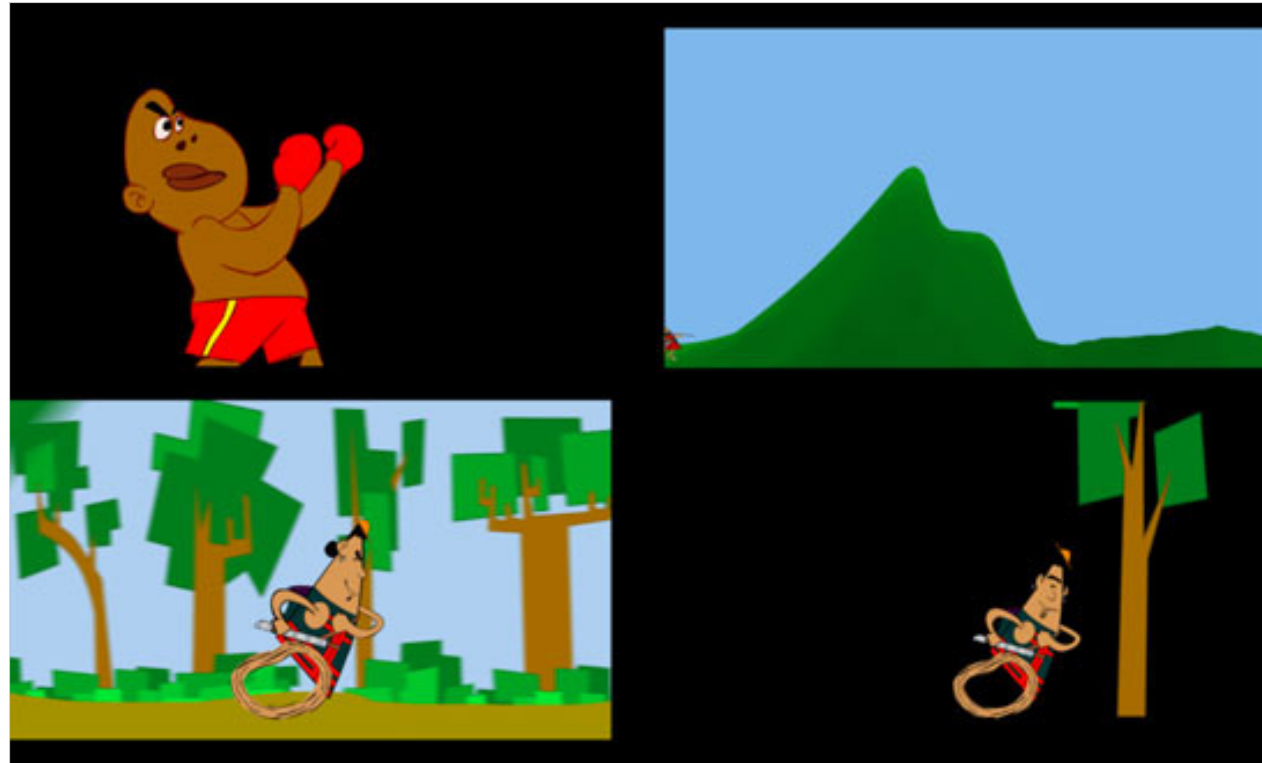
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Camera Angles and cuts are other tricks to cut down the animation. Also music, voices and effects play a greater role in cutting down the animation.

There can be many more ways to cut down the animation if figured out. Here one has to keep in mind that the animation being limited should still convey the story clearly.



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

by

Prof. Phani Tetali and Phidi Pulu

IDC, IIT Bombay

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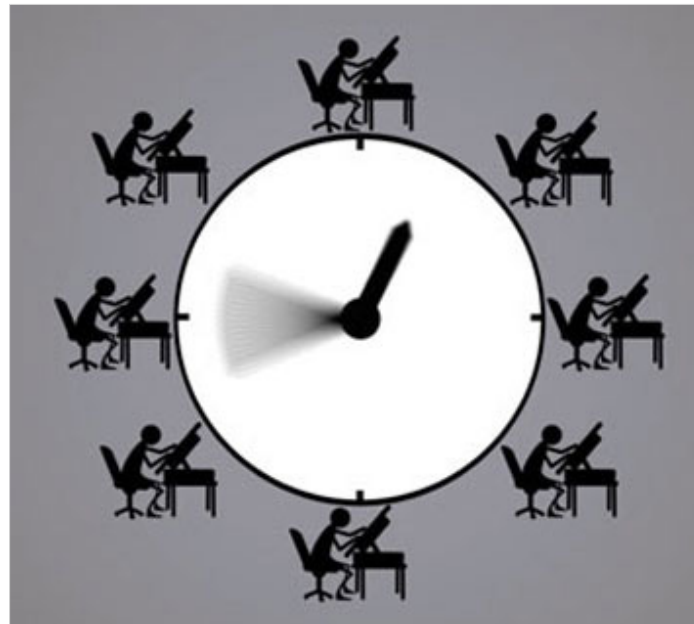
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1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details



Design Course

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Source:

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Video



Introduction



Processes

1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

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Source:

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Design Tools

Animation Design:

Animation is a method of photographing successive drawings, models or even puppets to create an illusion of movement in a sequence. Animation Tool is developed by IDC, IIT Bombay. It is an interactive web space where students can learn about the basics of animation. There are four main types of animation that are commonly used: 2D Traditional Animation, 2D Computer Animation, Stop Motion Animation, and 3D Computer Animation. There's also something called Experimental animation, where you can mix different types of animation together. The Animation Tool teaches things like Straight Ahead, Pose to Pose, Stretch and Squash, and Slow in Slow out, which are all important for making animations look good.

For more information visit: https://dsource.in/tool/animation_tool/



1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details

Design Course

Limited Animation

Budget Cutting and Time Saving Technique

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1. Introduction
2. History
3. Development
4. Techniques
5. Processes
6. References
7. Video
8. Design Tools
9. Contact Details