

Has the evolution of 2D Digital Design Technology allowed modern designers more or less creative freedom?

*'So, what is creative freedom? We can make what we want, how we want.'*<sup>1</sup>

Creative freedom is being able to push the boundaries. Whether it be imitating life as accurately as possible, or complete fantasy, modern designers have that freedom. Designers now, have tools unimagined in the 1950s and early 1960s, a host of digital design technology that can even be compacted into a solitary desktop PC. Once it was only dreamed about, now it is reality.

Original 2D design relied much upon drawing out ideas, and hand painting them. This process consumed a lot of time, and the resources equally consumed a lot of money. In animation, this was most clear, as designers would have to draw and paint thousands of frames for mere seconds of film. Larger production companies would often have senior animators draw key frames of an animation, and use the junior animators to fill in the gaps, dividing the time more efficiently. Digital design technology was soon advanced enough to replace the juniors drawing the frames between each key frame.

*Using this technique [key frame animation] the artist draws key images at selected intervals in the animation sequence and the playback program computes the in-between images by interpolation.*<sup>2</sup>

The development and evolution of this digital design technology helped designers to speed up the process, and even make the final animation more realistic, even by the mid-1970s.

---

<sup>1</sup> Baz Luhrmann (II) Quoted Andrew, G., 'The Guardian/NFT interview Baz Luhrmann (II)' <[http:// film.guardian.co.uk/interview/interviewpages/ 0,6737,549699,00.html#creative](http://film.guardian.co.uk/interview/interviewpages/0,6737,549699,00.html#creative)> 2001 (Accessed 13.12.06).

<sup>2</sup> Burtnyk, N., Wein, M., 1976: 'Interactive Skeleton Techniques for Enhancing Motion Dynamics in Key Frame Animation', *Communications of the ACM (Association for Computing Machinery)* 19: 10

One company, particularly noted for early work in computer animation, was Information International, Inc. more commonly referred to as Triple-I or III. They were founded in 1962, but in the early 1970s, Gary Demos and John Whitney, Jr. began to use computer imaging for animation – most notably *Westworld* in 1973. *Westworld* used computer imaging to achieve the 'android vision' effect. In 1976, the same company animated a head for *Futureworld*, and achieved the first appearance of 3D computer graphics in a film.

However in the 1970s, the computing power taken to create these images was large. Images could take hours if not days to render, and often it required a super computer. Information International Inc. owned the Super Foonly F-1, the fastest PDP-10 ever made. The computing power was used to help create Disney's *Tron* in 1982, alongside MAGI, Robert Abel and Associates and Digital Effects. Gradually as computing power increased through the decades, the speed and efficiency of the digital design technology increased and the size of computer required decreased.

In the 1990's, there was exponential improvement in the use of digital design technology to enhance animated sequences. Disney introduced computer-generated sequences subtly into *Beauty and the Beast* in 1991. The following year, the magic carpet of *Aladdin* was computer animated, and took a significant role. The use of digital design technology allowed a return for some to the 1940's realism, where 2D animation had been drawn as realistically as possible, before the departure to more 'cartoon-like' animation in the 1950's and 1960's. The 1940's realism had been achieved by filming real scenes and then trying to copy them as accurately as possible through animation. In 1942 *Bambi* animators studied deer to make Bambi's movement as natural as possible.

Not everyone wished to return to the realistic feel, and preferred to remain animating in a more cartoon fashion. Even though this is simpler than

imitating realism, it still takes time and is expensive. The vast majority of animation was therefore done by professionals, but in the 1960s there was a decline in animation, and independent animation began. Independent animations are cartoons and feature films produced outside of the professional industry. It really took off in the 1990s with the advent of the Internet. Coupled with the increase of computing power in a personal desktop computer, it became possible for an single amateur animator to produce a short film quite easily. Software such as Autodesk and Macromedia Flash were used by independent animators to create low budget animations and the Internet allowed them to publish and distribute their media.

This digital design technology revolution allowed more people to be involved in animation, rather than just professionals working in a team on commissioned films. This gave great creative freedom to a wide range of individuals around the world. The popular TV series, *South Park* began on the Internet in the late 1990s after Matt Stone and Trey Parker's film, *The Spirit of Christmas* was spotted. There are even online tutorials now for children, so they can make animations.<sup>3</sup>

*The fact that there are more animated pictures being released these days -- many with similar plots and themes -- is a positive in some ways, since it helps make independent CG films viable in the eyes of investors and distributors. But it also can be a negative, since it's harder for individual films to stand out. It's kind of a double-edged sword.*<sup>4</sup>

With the digital design technology now available on the general market, it is quite possible professional animators will now look to newer technologies to stay ahead and not get lost in the crowd of increasingly sophisticated

---

<sup>3</sup> Kidzonline., '2D Animation' <<http://www.kidzonline.org/TechTraining/video.asp?UnitQry=2D%20Animation>> Unknown (Accessed 13.12.06).

<sup>4</sup> Raugust, K., 'Independence Day: The Growth of Indie Animated Features' <[http://mag.awn.com/index.php?ltype=pageone&article\\_no=3090&page=3](http://mag.awn.com/index.php?ltype=pageone&article_no=3090&page=3)> 2006 (Accessed 13.12.06).

independently animated films. Computer-generated imagery (CGI) has moved into the field of 3D design, and special effects. Here CGI is often used for visual effects because the quality is often higher, and the effects more controllable than other more traditional techniques, such as creating miniatures, or hiring extras for crowd scenes, as it cuts down on cost.

In conclusion, the evolution of 2D digital design technology has allowed modern designers more creative freedom. It has opened the doors to many more potential animators who were unable to create due to the time and the cost it takes. The decreased cost, time and resources it now takes to render images using a computer has allowed financial savings to be made in the production of films, which often helps if the box-office revenue is not predicted to be particularly high. As the technology progresses, it may become difficult to differentiate between effect and truth, allowing the greatest creative freedom, to fantasise, to become reality.

## Bibliography

Andrew, G., 'The Guardian/NFT interview Baz Luhrmann (II)' <[http:// film.guardian.co.uk/interview/interviewpages/ 0,6737,549699,00.html#creative](http://film.guardian.co.uk/interview/interviewpages/0,6737,549699,00.html#creative)> 2001 (Accessed 13.12.06).

Burtnyk, N., Wein, M., 1976: 'Interactive Skeleton Techniques for Enhancing Motion Dynamics in Key Frame Animation', *Communications of the ACM (Association for Computing Machinery)* 19: 10

Cawley, J., 'In a Flash: Animation Production in Flash Growing' <[http:// mag.awn.com/index.php? ltype=Special+Features&category2= Technology&article\\_no=3063](http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article_no=3063)> 2006 (Accessed 14.12.06).

Gilland, J., 'The Animated Scene: "Paperless Animation Production" – Myth or Reality?' <[http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article\\_no=2882](http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article_no=2882)> 2006 (Accessed 12.12.06).

Kidzonline., '2D Animation' <[http:// www.kidzonline.org/ TechTraining/ video.asp? UnitQry= 2D%20Animation](http://www.kidzonline.org/TechTraining/video.asp?UnitQry=2D%20Animation)> Unknown (Accessed 13.12.06).

Pattern, F., 'Flash Animation: More Than a Flash in the Pan' <[http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article\\_no=1930](http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article_no=1930)> 2003 (Accessed 12.12.06).

Raugust, K., 'Independence Day: The Growth of Indie Animated Features' <[http:// mag.awn.com/ index.php? ltype=pageone&article\\_no=3090&page=3](http://mag.awn.com/index.php?ltype=pageone&article_no=3090&page=3)> 2006 (Accessed 13.12.06).

Singer, G., 'The Future of Flash' <[http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article\\_no=2373](http://mag.awn.com/index.php?ltype=Special+Features&category2=Technology&article_no=2373)> 2005 (Accessed 14.12.06).