The field of visual effects film studies essay

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Creative Industries Context- Case Study

Industrial Light and Magic-ILM

Evolution and Contributions to the field of Visual Effects

INDEX

PrologueIndustrial Light and Magic is a visual effects production house which was formed back in 1975 under the leadership of the legendary director and visionary George Lucas. The company was set up in Van Nuys in California with all the equipment which Lucas himself was able to purchase cheaply from other studios. The Primary Objective of setting up this company was for creating the visual effects shots for Lucas's movie, Star Wars Episode IV- A New Hope. When this company was created the world

didn’t even knew what the term visual effects meant. The company of artists with which Lucas started the firm was headed by John Dykstra who used to specialize in Photography. Another important visionary was Dennis Muren who is still the senior Visual effects supervisor at ILM. From then the company have been producing visual effects and special effects shots for movies and advertisements. Industrial light and Magic was one of its kinds when it started back in 1975. It was a great risk which George Lucas went on to take but fortunately it clicked for him and he was able to successfully produce the movie for which he initially assembled the team for. Industrial Light and magic now have two Campuses, one in California and another one in Singapore. It is still unique which it was like when it started up back in 1975. ILM had the opportunity to be the leader in the visual effects industry. ILM has offered its services to virtually every aspect of visual effects that are featured in movies. ILM has developed numerous software and formats for simplifying the life of digital visual effects artists worldwide. The famous Cineon file format was invented by ILM which was publically released for use in 2003. ILM’s artists have bagged numerous awards including many Academy awards for visual effects, BAFTA awards for visual effects along with scientific and engineering awards and Technical Achievement awards for the many services which they have rendered over a period of several years. This case study is organized in a chronological order featuring the important breakthrough that happened in ILM and the contributions that it made to the industry of visual effects. This case study also notes the important technologies that were developed by the artist of ILM which became breakthrough in the field of Visual effects. Special care has been

taken to note down important thought of directors and artist who have previously worked with ILM. 1975-1985

1975

Motion Control Photography

The most important event that happened during the initial stages of ILM was the invention of motion control photography. One of the primary needs of George Lucas was to create some of system to replicate camera movies. Photographic expert John Dykstra had been successful in creating a motion control camera system. Motion control apparatus designed by John Dykstra made it possible to integrate multiple subjects which were shot at different locations through an extremely and precisely controlled camera moves. Dykstraflex made it possible to replicate one camera move that has been done at one location to be performed while shooting another subject at a totally different location by using simple electronic motors which could be programmed to record camera moves which were made at one point in time and exactly replicate them innumerable number of times at a later time(Glintenkamp, 2011).

1977

Star Wars: Episode IV- A New Hope

The motion control techniques which were created at ILM under the able leadership of John Dykstra had given director George Lucas the tool to go and shoot visual effects shots for his movie which got released in 1977. This way of motion controlled camera moves allowed him shoot subjects at various locations and still he was able to reproduce the camera moves that

were made exactly at a different location without any dissimilarities what so ever. There was several space fighting scenes(Lucas, 1977) which would not have been possible to conceive without Dykstraflex motion control camera system.

Academy Award for Best Visual Effects

The Academy for motion pictures awarded John Dykstra, John stears, Richard Edlund, Grant McCune and Robert Blalack of ILM for the creation of Dykstraflex system as well as for the best visual effects for motion picture for the film Star Wars: Episode IV- A New Hope.

1978

GOMotion

ILM combined their motion control system with the traditional stop motion animation technique which resulted in the production of a new technique which ILM named as GOMotion which essentially eliminated most of the limitation which were prone to the traditional techniques of stop motion which included jerking movements in between frames. ILM’s working facility was moved from Van Nuys to San Rafael which was in Northern California.

1980

Star wars Episode 5- The Empire strikes back

Academy Award for Best Visual Effects

ILM team refined their motion control technique for George Lucas’s next movie in the star wars movie which was named as Star wars Episode 5- The Empire strikes back. Academy of Motion Picture Arts and Sciences awarded

Brian Johnson, Richard Edlund, Dennis Muren and Bruce Nicholson with Academy awards for special achievement for visual effects in this film.

1981

Dragonslayer

This was the very first movie which was done by ILM for an outside client other than George Lucas himself. This was one of the finest examples of implementation of GOMotion, the proprietary motion control combined stop motion photography method which was employed in the creation of seamless visual effects shots. Majority of the shots were conceived using puppetry and Stop motion.

Academy Award Nomination for Best Visual Effects

ILM’s Dennis Muren, Phil Tippett, Ken Ralston and Brian Johnson were nominated for the excellence in visual effects shots in this movie.

Raiders of the Lost Ark

This was Steven Spielberg’s first movie with ILM. It was also the starting point of one of the most fruitful relationships that ILM ever had as this gave birth to one of the most sought out franchises ever to exist in Hollywood. This was the first one in the Indiana Jones movie franchise. Steven Spielberg approached ILM since according to him(Iwerks, 2010) it was the only firm who were able to do it at that point in time. Some of the scenes where the actors needed to be portrayed as if they were being melted away needed to be created by using special effects which ILM managed to do with their miniatures which enabled Steven to show the audience what he intended in his mind with all the excitement(Spielberg, 1981).

Academy Award for Best Visual Effects

Academy of Motion Picture Arts and Sciences awarded Richard Edlund, Kit West, Bruce Nicholson and Joe Johnston for their excellence in creating magnificent visual for Raiders of the Lost Ark.

Technical Achievement Award

ILM’s Dennis Muren & Stuart Ziff were awarded a technical achievement award for the development of Motion Picture Figure mover system which could be used in animation.

Scientific and Engineering Award

A Scientific and Engineering award was given to Richard Edlund & ILM for their contribution in the field of optical photography for the development of Beam Splitter Optical Composite Printer and Empire Camera System.

1982

ET: The Extra Terrestrial

Most of the shot employed in this movie were employed by mean of GOMotion and Blue screen keying techniques. The movie was directed by Steven Spielberg and was the second movie which he collaborated with ILM.

Academy Award for Best Visual Effects

Academy of Motion Picture Arts and Sciences awarded ILM’s Carlo Rambaldi, Dennis Muren and Kenneth F. Smith for excellence in creating visual effects shots for this movie.

Poltergeist

Academy Award Nomination for Best Visual Effects

ILM’s Richard Edlund and Bruce Nicholson were nominated for best visual effects by the Academy of Motion Picture Arts and Sciences.

BAFTA Award for Best Visual Effects

British Academy for Film and Television awarded ILM’s Richard Edlund for creating best visual effects shot for this movie.

Star Trek II –the Wrath of Khan

This film was the first film ever to feature a completely computer generated sequence. The name of this effect was Genesis Effect. A planet being bombarded with a comet like structure followed by the aftermath is shown in the Genesis effect which was created entirely in a computer based environment. It also features the first digitally crated Matte painting which was created by ILM(Glintenkamp, 2011).

1983

Star wars: Episode 6 Return of the Jedi

George Lucas went on to create the next in his series of Star Wars franchise and it was obvious he wanted ILM to do the visual effects sequences that it wanted. This movie featured one of the largest Visual effects creations undertaking s by ILM till then.

Academy Award for Special Achievement in Visual Effects

ILM’s Richard Edlund, Dennis Muren, Ken Ralston and Phil Tippett were awarded Special achievement award for visual effects for the tremendous

amount of work that they had done within a short time frame by Academy of Motion Picture Arts and Sciences.

BAFTA Award for Best Visual Effects

Dennis Muren, Richard Edlund, Ken Ralston and Kit West of ILM again got awarded with BAFTA award for Best visual effects for their work in this film...

1984

Indiana Jones and the Temple of Doom

This was a project which was directed by Steven Spielberg. The film demanded some extraordinary shots and hence went to ILM which by then had become a common place where directors who didn’t knew what to do for conceiving effects used to come. ILM crated a mixture of all the techniques for this Spielberg film which included miniatures, lava flow and bugs. Some of the scenes took as long as four months for conceiving.

Academy Award for Best Visual Effects

Academy of Motion Picture Arts and Sciences awarded Dennis Muren, Michael McAlister, Lorne Peterson and George Gibbs of ILM with the Academy awards for the excellence in visual effects for this film.

BAFTA Award for Visual Effects

Dennis Muren, George Gibbs, Mike McAlister and Lorne Peterson of ILM won the BAFTA award for their worn in visual effects for this film.

The Ewok Adventure—TV

This series was the first ever TV series to be done by ILM which used visual effects predominantly to tell the story. It was a fantasy tale of Ewok trying to

help two children who lost their parents after their ship crash-landed on a planet(Korty, 1984). This Series was released in 1984. This series introduced main stream visual effects to broadcast industry.

Prime time Emmy awards

ILM’s Micheal pangrazio, Dennis Murren, Phil Tippert Jon Berg, Harley Jessup John Ellis and Christopher Evans won Prime Time Emmy award for this TV series and it was their first award in the broadcast industry.

1985

Young Sherlock Holmes

Stained Glass man(Levinson, 1985), The first CG character to appear in motion pictures was the creation of ILM. John Lasseter had done the projection work for the animated character by Dennis Muren on to his computer screen and match moved it by hand to be later composited against other real shots which were shot at a real world set(Iwerks, 2010).

Academy Award Nomination for Best Visual Effects

ILM’s Dennis Muren, Kit West, John Ellis and David Allen were nominated for the Academy award for Best visual effects by Academy of Motion Picture Arts and Sciences.

Cocoon

ILM used their proprietary combination of miniatures and matte painting for creating majority of visual effects shots for this movie.

Academy Award for Best Visual Effects

Ken Ralston, Ralph McQuarrie, Scott Farrar and David Berry of ILM bagged Academy award for Best Visual effects for their outstanding work in the film ‘ Cocoon’.

Ewok: The battle for Endor --TV

The second part of the TV series for which ILM produced visual effects. The series season bagged ILM their second Prime Time Emmy Awards for that year. Micheal J McAlister of ILM was credited with this award.

Back to the Future

BAFTA Award Nomination for Visual Effects

ILM’s Kevin Pike and Ken Ralston were nominated for BAFTA award for best visual effects in a film for that year for their work in the film ‘ Back to the Future’. 1986-1995

1986

Star Trek 4: The Voyage Home

The process of transforming was revolutionized in this movie by a team of designers at ILM. They used a technique of processing of images by computers with the help of laser Photography.

The Golden Child

A new technique for capturing and replicating camera shakes was created by the visionaries of ILM for this particular piece. The longest morphing sequence created by ILM is in this film.

1987

The Witches of Eastwick

BAFTA Award for Best Visual Effects

ILM’s Michael Lantieri, Mike Owens, Edward Jones and Bruce Walters were awarded BAFTA Award for excellence in visual effects for the film ‘ The Witches of Eastwick’.

Innerspace

Academy Awards for Best Visual Effects

Academy of Motion Picture Arts and Sciences awarded the Academy award for Best Visual Effects for ILM’s Dennis Muren, William George, Harley Jessup and Kenneth Smith for their outstanding effort in the creation of visual effects for the film ‘ InnerSpace’.

1988

Willow

This film which got released in 1988 which was directed by Ron Howard became the first film ever to feature a digital morphing scene. Thanks to ILM’s Proprietary Computer software program named ‘ Morf’ which was specifically developed for this film which enabled seamless transformation from one object to the other. The scene features morphing scenes which depicts a Tiger getting morphed in to a woman and also a sheep getting morphed in to an ostrich(Howard, 1988). According to Ron Howard " He (Dennis Muren) thought that we could do it in one shot (morphing scene) which was a really interesting notion to me, but I can’t guarantee it’s going

to work. But you know, it just might! . And it was the first morphing shot ever done"(Iwerks, 2010).

Academy Awards Nomination for Best Visual Effects

ILM’s Dennis Muren, Michael McAlister, Phil Tippett and Chris Evans were nominated for Academy Award for Best Visual Effects.

Who framed Roger Rabbit?

Around 1065 composited shots were done for this film by ILM. ILM’s optical printers were heavily used in majority of the film’s production. ILM’s Vista Vision camera which could capture video in high frame rate was used for capturing footage for this film.

Academy Award for Best Visual Effects

ILM’s Ken Ralston, Richard Williams, Edward Jones and George Gibbs were awarded Academy Award for Best visual effects for their work in this film.

BAFTA Award for Best Visual Effects

ILM’s George Gibbs, Richard Williams, Ken Ralston and Edward Jones were awarded BAFTA Award for Best visual effects in this film

ILM CCD Digital Film input scanner (Kodak scanner)

ILM developed this Film scanner which could scan and produce high quality digital frames for post-production.

Technical Achievement award

ILM’s Tadeuz Krzanowski was awarded for developing Wire rig Model Support system.

1989

Lucasfilm Commercial Productions

LCP (Lucasfilm Commercial Productions) was formed out of ILM specifically for catering to the need of visual effects for commercial Advertisements rather than films.

Back to the Future 2

Academy Award Nomination for Best Visual Effects

ILM’s Ken Ralston, Michael Lantieri, John Bell and Steve Gawley were nominated for Best Visual Effects for this film.

BAFTA Award for Best Visual Effects

ILM’s Ken Ralston, Michael Lantieri, John Bell and Steve Gawley awarded BAFTA Award for Best Visual Effects for this film.

The Abyss

This film which was released in 1989 directed by James Cameron was the first film to feature a soft surfaced CG Character. It was named as Pseudopod (Cameron, 1989). It was a combination of Optical compositing and CG modeling. The software named ‘ Photoshop’ which was originally developed by Thomas and John Knoll of ILM was made used in creating this character. This software was later acquired by Adobe Inc.

Academy Award for Best Visual Effects

ILM’s John Bruno, Dennis Muren, Hoyt Yeatman and Dennis Skotak were awarded with Academy Award for Best Visual Effects for the film ‘ The Abyss’.

Back to the Future Part 2

Split screen shots and VistaGLide system were used in this movie to create the space Sci-Fi movie's second one in this franchise. VistaGLide system was a motion controlled system with passes which effectively enabled the director James Cameron to view one pass while the other was being filmed. New rig removal software was also developed for this film.

Academy Award Nomination for Best Visual Effects

ILM's Ken Ralston, Michael Lantieri , John Bell , Steve Gawley were nominated for Best visual effects in this film.

1991

Hook

Academy Awards Nomination for Best Visual Effects

ILM's Eric Brevig, Harley Jessup, Mark Sullivan and Michael Lantieri got nominated for this award.

Backdraft

Academy Awards Nomination for Best Visual Effects

ILM's Mikael Salomon, Allen Hall, Clay Pinney and Scott Farrar got nominated for this movie.

Terminator 2 Judgment Day

T-1000The first full CG character to be seen on film was the contribution of ILM in this James Cameron director epic Si-FI flick(Cameron, 1991). This model was fully done with the help of Computer assisted modeling techniques. The T-1000 was completely integrated with the help of digital

compositing. The character was played in the film by Robert Patrick and ILM made used of a laser scanning technique to model him up in CGI environment(Iwerks, 2010). ILM also employed UV mapping to create some of this shots in this movie.

Academy Award for Best Visual Effects

ILM’s Dennis Muren, Stan Winston, Gene Warren, Jr. and Robert Skotak were awarded with this for their work on this film.

BAFTA Award for Best Visual Effects

ILM’s Dennis Muren, Stan Winston, Gene Warren Jr. and Robert Skotak were awarded this for their work in this film.

1992

The Young Indiana Jones chronicles-TV

Exotic sets were done by compositing completely digital matte paintings created by ILM with effects provided by another firm known as Western Images. It was the first TV series where completely digital Matte paintings were used.

Death Becomes Her

The first CG human texture was featured in this movie and it was done by a revolutionary group of artists from ILM.

Academy Award & BAFTA Award for Best Visual Effects

Ken Ralston, Doug Chiang, Doug Smythe and Tom Woodruff, Jr. of ILM were awarded with these awards for their work in this film.

Technical Achievement Award

For developing the ‘ Morf’ system ILM’s Tom Brigham & Doug Smythe were awarded with this award.

1993

Jurassic Park

Computer Graphics were used to create gigantic animals to be integrated with real live footages. A combination of full size replicas of dinosaurs along with CG animated dinosaur models were used to breathe life in to this Spielberg classic which is considered as the benchmark of Visual effects even today(Spielberg, 1993). This technology was named as Animatronics. The software named ‘ Softimage’ was used heavily in order to overcome limitations of camera movements. This movie is considered as the land mark event in computer graphics history of computer graphics.

Academy Award & BAFTA Award for Best Visual Effects

Dennis Muren, Stan Winston, Phil Tippett and Michael Lantieri were with these for their contribution for this film.

Technical Achievement Award

ILM’s Mark Leather, Les Dittert, Doug Smythe, and George Joblove were awarded with his for developing Digital Motion Retouching technology.

1994

Forrest Gump

Soft visual effects sequences which don’t let audience know that they are there in every nook and corner of the film that they are watching were the specialty of this film all of which was done by ILM.

Academy Award for Best Visual Effects

ILM’s Ken Ralston, George Murphy, Stephen Rosenbaum and Allen Hall were awarded with this for their contributions in this movie.

BAFTA Award for Best Visual Effects

ILM’s Ken Ralston, George Murphy, Stephen Rosenbaum, Allen Hall and Doug Chaing were recognized with this award.

The Mask

Jim Carrey’s comedic masterpiece mask was made a success by a combination of ILM’s technical expertise when the character’s live footage was integrated seamlessly with 3D objects to bring the character to life.

Academy Award & BAFTA Award Nominations for Best Visual Effects

ILM’s Scott Squires, Steve Williams, Tom Bertino and Jon Farhat were awarded with these awards for their contributions to this movie.

Scientific and Engineering Award

ILM’s Lincoln Hu, Michael Mackenzie & Glen Kennel were awarded with this award for developing Trilinear High Resolution CCD Digital Input Scanning System.

1995

Casper

The First synthetic speaking character to be featured in films was for this movie. A living, breathing ghost which had all the range of emotions as a normal human being does. The movie was directed by Brad Silberling(Silberling, 1995). According to Dennis Muren who was the digital character supervisor at that time at ILM" ILM Could spaceships to fly or even dinosaurs to move in certain ways, but to try to get an expression and a nuance in the face of a ghost was a completely new thing for us"(Glintenkamp, 2011)The first time ILM made an attempt to concentrate more on the emotional designing of the character without giving away any of the technical perfection that was needed for creating the realism. This was a starting step for tackling the problems that could be faced In future as far as character animation was concerned.

Jumanji

The most important achievement ILM had in this film is CG photo realistic Hair & Fur. The animas which were portrayed in this film demanded photo realistic appearance. ILM team had to perfect their way in creating fur and hair. Ken Ralson on ILM " A Film comes in that’s your challenge and you fight your way through that one and learn an awful lot before you do the next one. You hope."(Iwerks, 2010)

Technical Achievement Award

ILM was awarded with this award for the development of Digital Composting technology. 1996-2005

1996

Twister

Academy Award Nomination for Best Visual Effects

ILM’s Stefen Fangmeier, John Frazier, Habib Zargarpour and Henry La Bounta were nominated for this award for this film.

BAFTA Award for Best Visual Effects

Stefan Fangmeier, John Frazier, Henry Labounta and Habib Zargarpour on behalf of ILM were awarded this for their contribution in the field of visual effects.

Dragon Heart

A full size prop for the Dragon ‘ Draco’ was used in this film along with its digital model. Character animating software named ‘ Caricature’ developed my Cary Phillips was developed most significantly for his movie. The facial expressions and muscle movements of Draco were made possible by this software.

Academy Award Nomination for Best Visual Effects

ILM’s Scott Squires, Phil Tippett, James Straus and Kit West were nominated for this award for their contribution in the film.

Mars Attacks

This movie led to the improvement of their proprietary software ‘ caricature’ for animating and rendering several different characters in a same file when compared to the earlier version which could do one character at a time.

Scientific and Engineering Award

ILM’s Zoran Kacic-Alecic, John Schlag, Brian Knep & Tomas William were awarded with this for developing ‘ Viewpaint’ which allowed artists to paint directly on to computer models. ILM’s John Hourihan was recognized for developing Dynamation which allowed a CG to interact with real world scenes which helped in compositing.

Technical Achievement Award

Brian Knep, Criag Hayes, Rick Sayre & Thomas Williams of ILM were awarded with this for developing Direct Input Device. For developing CG Fur, Jeffrey Yost, Christian Roulet, David Benson, and Florian Kainz of ILM were recognized with this award.

1997

The Star wars Trilogy- Special Editions

George Lucas came forward with his plans to perfectly recreate the not so perfectly executed shots in the old star wars movies with the help of newer digital technologies. These enabled him to exactly recreate what he originally wanted to convey in the original star wars movies which get released back in 1970’s.

The Lost world: Jurassic park

Development of their proprietary software Caricature was the important thing that happened during the production of Visual effects for ‘ The lost World’. The system needed to be perfected since whole of move consisted of irregular movement of the camera which made them that much difficult to track the scenes and fix the CG elements in place. The management system

for recording the inflow and outflow of data was revamped at ILM which according to the words of software development member Cary Phillips (reference) was hopelessly simplistic at that point of time(Glintenkamp, 2011).

Academy Award Nomination for Best Visual Effects

ILM’s Dennis Muren, Stan Winston, Randal M. Dutra and Michael Lantieri were nominated for this award for their contribution in this movie.

Titanic

Most of the work were done by Digital Domain but were forced to call ILM for some difficult shots which they could not conceive. Those were the shots particularly among the sinking scenes of Titanic.

1998

Saving Private Ryan

Motion control shots were extensively implemented in this movie to make the Spielberg’s timeless classic a truly immersive experience. Much of the Artillery firing was possible because of ILM’s techniques which were later composited on to the real action footage(Spielberg, 1998).

BAFTA Award for Best Visual Effects

ILM’s Roger Guyett, Stefen Fangmeier and Neil Corbould were awarded this for their contribution for this film.

Mighty Joe Young

The Facial Animation software developed for Casper and Dragonheart were perfected for use in this movie. Added support for Hair, Fur and feathers, were added in the package to cater to the needs of this movie.

Academy Award Nomination for Best Visual Effects

Rick Baker, Hoyt Yeatman, Allen Hall and Jim Mitchell of ILM were nominated for this award for their contribution in this movie.

Technical Achievement Award

For the development of Motion Controlled Silent Camera Dollies ILM's Michael MacKenzie, Mike Bolles, Udo Pamel, and Joseph Fulmer were awarded with this. Cary Phillips, software support officer at ILM was recognized with this award for developing ' Caricature' system.

1999

The Mummy

This film was the first time ILM were able to use their motion capture technology to build up a lead character a film. For this a new system by which a shot conceived in real set was converted in to CG environment was built by ILM. This was the first ever film to be made with the help of Real time feedback enabled motion capturing system. There were some major breakthroughs that happened with respect to the way cloth simulation were done in films according to Cary Phillips of ILM(Glintenkamp, 2011). This was because there too many pieces of cloth on each models which were interacting with real world characters during fights and it took most of the

time for artists at ILM to get the cloth simulations right(Sommers, 1999). The movie saw the first realistic digital human character in motion pictures.

BAFTA Award Nomination for Best visual effects

ILMS's John Andrew Breton Jr., Daniel Jeanette, Ben Snow and Chris Corbould were nominated for this award for their contribution in this film.

Galaxy Quest

This was a Sci-Fi film for which ILM developed a software for collaborating the interaction between procedural and independent simulations which was named as ' Fred'(Glintenkamp, 2011).

Star wars: Episode 1 The Phantom Menace

John Knoll devised a methodology for this film where only those faces which were exposed to the camera were rendered and thereby leaving the other faces not drawn. This essentially cut down the rendering time and increased the load which computers could take by a significant margin. According to George Lucas " We're just on the leading edge, pushing the envelope of the art form"(Glintenkamp, 2011).

Academy Award & BAFTA award Nomination for Best Visual effects

ILM's John Knoll, Dennis Muren, Scott Squires and Rob Coleman were nominated for Best visual effects in this film for these awards.

2000

The Perfect Storm

This was the largest attempt to simulate fluid effects ever in the history of film. The film were directed by Wolfgang Petersen. The film demanded huge water waves striking against the ship In the middle of the ocean which was practically impossible thing to shoot in real. Completely new software was given birth by ILM for creating the water bodies and associated elements with it to create the exact simulation of water. The recreation of this kind of a storm and that too in the early 2000's required lots of processing power and even days to complete the simulation of even a small chunk of the animation(Petersen, 2000).

Academy Awards Nomination for Best Visual Effects

Stefen Fangmeier, Habib Zargarpour, John Frazier and Walt Conti of ILM were nominated for this award for their contribution in this film. BAFTA Award for Best Visual EffectsStefen Fangmeier, John Frazier, Walt Conti, Habib Zargarpour and Tim Alexander of ILM were awarded with this for their work for this film.

2001

Star wars: Episode 2 Attack of the clones

The most important achievement of ILM in this movie was the full digital character design and animation of the legendary star wars character ' Yoda'. He was designed totally in CG and cloth simulations were added and were received with wide scale acceptance from fans and critics. This film was the

first ever film to be shot using an HD camera specifically for the visual effects.

Academy Awards Nomination for Best Visual Effects

ILM’s Rob Coleman, Pablo Helman, John Knoll and Ben Snow were nominated for this award for their work in this film.

Minority report

The interactions of actors including the lead played by Tom Cruise with the hologram gadgets made it an additional challenge to track and implement these gadgets(Spielberg, 2002). ILM implemented an image based modeling for doing some of the scenes in the film which showed a large column of humans in tubes. ILM’s Match moving system which was named as MARS (Motion and Structure Recovery System) was refined in to ‘ Zepo’ for this movie which helped in in perfectly tracking the holographic gadgets in the visual effects shots.

BAFTA Award for Special Visual Effects

ILM’s Scott Farrar, Michael Lantieri, Nathan McGuinness and Henry LaBounta were awarded for their work in this film

Technical Achievement Award

For developing Motion and Structure Recovery System (MARS) , ILM’s Steve Sullivan and Eric Schafer were awarded. ILM’s Cary Phillips and Sebastian Marino were awarded for developing Creature Dynamics System.

2003

Pirates of the Caribbean: The curse of the black pearl

A combination of Mocap , Rotoscopy and timeline animation was used to film the skeleton fight scenes in this film. Much of the work was done for getting the correct simulations for clothing in this film as the layers of clothing contained for each of the characters were innumerable.

Academy Award and BAFTA Award Nomination for Best Visual Effects

ILM’s John Knoll, Hal T. Hickel, Terry D. Frazee and Charles Gibson were nominated for their work in this film.

Technical Achievement Award

ILM’s Christpher Hery, Ken McGaugh and Joe Leteri were recognized for the development of Subsurface Scattering Render Technology by which sub surface scattering could be implemented on to the skins of CG characters for creating added realism.

2004

Harry Potter and the Prisoner of Azkaban

The CG cloth simulations for this film were done entirely by the team of ILM to create the natural organic feel with that of the environment.

Academy Award and BAFTA Award Nomination for Visual Effects

ILM’s Roger Guyett, Tim Burke, Bill George and John Richardson were nominated for this film.

Lemony Snicket's A series of unfortunate events

CloneCamILM created a living breathing baby which was by the name of ' Sunny' in this film of Brad by using their proprietary software which performed image based modeling. A camera was used to capture images and then create the CG model by those images which gave them the realistic look and feel. This film also saw the birth of a new phenomenon called subsurface scattering whereby light passes and scatters in and through the skin.

Hybrid MoCap system

This was a new technique which was devised by ILM for catering to the specific needs of the film ' Van Helsing' which was released in 2004 where actors could be captured in a blue screen room and could be integrated with aerial CG containers and later it could be composited in to the final shots.

2005

Star wars Episode III- Revenge of the Sith

According to Director George Lucas all the pieces of animations and effects that were done for films like Avatar were done in this movie including realistic creatures, aerial shoots etc.(Glintenkamp, 2011).

War of the worlds

This film featured several shots which were taken as single shots panning several seconds and with weird camera movements. The effect shots were pretty intense with lots of stuff blowing up and crashing on to the ground while keeping the hero Tom Cruise in this movie(Spielberg, 2005). ILM made a new production pipeline by the name of Zeno which was used to produce

the effect shots in this movie. Academy Awards Nomination for Best Visual EffectsILM’s Dennis Muren , Pablo Helman , Randy Dutra and Daniel Sudick were nominated for their work in this film.

The Chronicles of Narnia: The Lion, the Witch and the Wardrobe

ILM’s work in this Movie series Pilot was to create the legs and hands for the animal parts which needed to be replaced in place of their human parts which were to be keyed out.

Academy Awards and BAFTA Awards Nomination for Visual Effects

ILM’s Dean Wright, Bill Westenhofer, Jim Berney and Scott Farrar were nominated for their work in this film.

Letterman Digital Arts Center

ILM’s working base was moved to this newer facility in Presidio, San Francisco, in this year. 2006-Till Date

2006

Kerner Optical

This company was formed from within side ILM. The parts which included miniature Model shop, camera research and development team and special effects teams which dealt the on-site real action stunts were collectively made in to one company and were split apart from ILM to form this company which carried on the same footsteps which ILM has been following since its inception.

Pirates of the Caribbean: Dead man's Chest

For this academy awarded film much of the intricate animation scenes were done by hand animation. Imocap motion capture systemThis system of motion capture was specifically designed for Pirates of the Caribbean: Dead man's Chest. This system was an improvisation to ILM's previous Mocap system. The former allowed for capturing performances on live set rather than in a Mocap studio.

Poseidon

According to Ron Fedkiw ILM had to resort to MPI (Message passing interface) which was programming methodology which allowed for parallel processing of graphics which in turn allowed for the rendering of such vast scenes s those which were required for Poseidon(Glintenkamp, 2011). The entire ship was modeled by ILM to such detail that it looked realistic in every sense of it(Petersen, 2006).

Academy Award Nomination for Best Visual Effects

ILM's Boyd Shermis, Kim Libreri, Chas Jarrett and John Frazier were nominated for this film.

Technical Achievement Award

For developing Open EXR format, ILM's Florian Kainz was recognized with this award. ILM's Steve Sullivan, Colllin Davidson, Max Chen, and Francesco Callari were recognized with this award for the development of Image based Modeling System which could create photorealistic models.

Scientific and Engineering Award

For the development of Fluid Simulation System ILM's Nick Rasmussen, Ron Fedkiw, and Frank Losasso Petterson were awarded with this.

2007

Pirates of the Caribbean: At World's End

Academy Award and BAFTA Award Nomination for Best Visual Effects

ILM's Hal T. Hickel, Charles Gibson, John Knoll and John Frazier were nominated for their work in this film.

Transformers

This movie changed the way CG industry looked at visual effects creation. ILM revolutionized the way in which we could create and blend seamlessly, fully CG elements. The most important work done by ILM in creating effects shots for ' Transformers' were in Lighting(Bay, 2007). Lighting was the factor which made all the robots which were integrated in to real action footage look realistic. Dynamic RiggingThis was a technology developed by ILM which enabled animators to individually control and transform each and every part of a robotic model which was created for this movie(Glintenkamp, 2011).

Academy Awards for Best Visual Effects

ILM's Scott Farrar, Scott Benza, Russell Earl and John Frazier were awarded for their work in this film.

2008

Iron Man

This nominated feature film directed by John Favreau which had a half CG and half human character as the main role which was enacted by Robert Downey Jr.(Favreau, 2008), featured one of the important components which were the work of ILM. They created the entire iron Man suit in CG. BRDFThis BFDF which stand for Bidirectional reflectance distribution function was mad used by the team at ILM to create the photo realistic lighting effects on the Iron Man suit as the other conventional methods such as High dynamic range imagery could not provide the amount of photo realism which the director intended to visualize. Academy award and BAFTA Award Nomination for Visual EffectsILM's John Nelson, Ben Snow, Daniel Sudick and Shane Mahan were nominated for their work in this film.

Indiana Jones and the kingdom of crystal skull

ILM developed new software to handle fracturing of geometry which the film demanded. This software was named as Fracture.

BAFTA Award Nomination for Special Visual Effects

Pablo Helman, Marshall Richard Krasser and Steve Rawlins of ILM got nominated for this movie.

2009

Star Trek

Academy Awards Nomination for Best Visual Effects

ILM's Roger Guyett, Russell Earl, Paul Kavanagh and Burt Dalton were nominated for their work in this film

Harry Potter and the Half-Blood Prince

ILM developed a new simulation system for catering to the need of the director David Yates. The director wanted to utmost control over the controlling parameters of the fire while it was being simulated.

BAFTA Awards Nomination for Special Visual Effects

ILM's John Richardson, Tim Burke , Tim Alexander and Nicolas Aithadi were nominated for their work in this film.

Avatar

The biggest production ever till date Avatar which got released in 2009 was directed by James Cameron. ILM contributed to the development of VFX shots for this move along with ten other studios including Weta and Digital domain. ILM was called in very late to this film since all the other studios could not take up all the pressure. ILM's main VFX supervisor John Knoll was at the top of the team who did VFX for this film on behalf of ILM for this film. ILM's majority of the work in this film was about creating the landscape of Pandora, some of the CG airplanes and suits. ILM had to increase their render farm capacity almost four times for what they had for creating the establishing shot of the planet Pandora in this film which contained approximately28000 frames and about 200000 trees in it according to Richard Bluff(Glintenkamp, 2011).

2010

Iron Man 2

Academy Awards Nomination for Best Visual Effects

ILM’s Janek Sirrs , Ben Snow , Ged Wright and Daniel Sudickwere nominated for their work in the film.

2011

Rango

Gore Verbinski’s animated feature was in fact the first animated feature film of ILM itself. ILM was forced to design a new pipeline which could cater the needs of an animated feature film since the former one was catered towards actual realistic films where CG needed to be integrated with real action footage. Sequence based lightingThe technique developed by ILM which allows artists to work on a particular shot as if it’s part of a big group with a universal lighting setup. This allowed less work since artists need not work upon lighting for every individual shot in the movie.

Technical Achievement Award

For developing Imocap technology ILM’s Steve Sullivan, Kevin Wooley, Bret Allen and Collin Davidson were awarded with this. Hayden Landis, Ken McGaugh and Hilmer Koch of ILM were recognized for developing Ambient Occlusion which helped in making realistic CG lighting. For the development of ObaQ Render Queue Management system which is an efficient render queue system for CG data, ILM’s Florian Kainz were recognized with this award.

Scientific and Engineering Award

Christophe Hery, Per Christensen and Micheal Bunnell of ILM were awarded for developing Point based rendering method which helped in faster processing of CG data. EpilogueOver a period of 35 years ILM has done visual effects shots directly and indirectly for more than 275 films that has been released so far and it has bagged fifteen Oscar Awards till date and 23 scientific and technology awards for the innumerable contributions that the company has done for the visual effects industry since its inception(Lucasfilm, 2010). ILM remains the ‘ numero uno’ among directors who wants realistic CG elements in their films. ILM has always been a place to where directors used to come if the encounter a nearly impossible CG shot and that has been the trend ever since. With two main working facilities in San Francisco and Singapore ILM remains the number one in visual effects industry and has touched every single aspect of film making from recording, editing and visual effects. ILM remains even now as the most innovative and powerful CG company in the world. Last but not the least I am quoting what Steven Spielberg has to say that explains all about what ILM is about." George Made his company available to every studio and to every film maker and in a sense it was the first time that it ever happened before where a company was formed for all of us to achieve our possible dreams"(Iwerks, 2010).