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ECHO's Time Displacement: Storytelling Inspiring Technology and Vice Versa

Victor Perez, Director & VFX Supervisor
Masked Frame Pictures

Learning Objectives

- Using Technology to tell a Story (Not the Other Way Around)
- The Problem of Pioneering
- Assembling the Time Displacement
- What I Have Learn During this Journey

Description

Synchronizing two robotic motion control camera rigs, the filmmakers of ECHO were able to create a new visual effect never attempted before: Time Displacement. A reflection in a mirror, with free camera movements, that shows the reflection 10 seconds before it happens in front of the mirror. Altering time to detach the sync point and the speed from the reflection in the mirror in relation to the main camera maintaining on every frame the coherence of the angle of reflection… all in one single take.

Speaker

Victor Perez is a film director, screenwriter and visual effects artist with more than 20 year of combined experience, and has worked on a number of Hollywood films, including 'The Dark Knight Rises', 'Rogue One: A Star Wars Story', 'Harry Potter and the Deathly Hallows', plus many more.
Considered a visual effects compositing guru, awarded with the Italian Academy Award for his work as VFX Supervisor on 'The Invisible Boy: Second Generation' in 2019, Victor started his career in the film industry as a photographer and digital compositing artist. He then work on collaborations as 2D technical director and consultant where he developed a combination of both artistic and technical understanding of film postproduction and visual effects from a photorealistic point of view. Today he designs and oversees the process creation of feature film visual effects as VFX Supervisor.
In 2015, Victor delved into the world of film directing, and has written and directed two short films, receiving more than 27 awards and nominations for his debut 'Another Love' (2015). His latest short film 'Echo' (2017) uses pioneering, never-seen-before motion control technology and was shot in just five long takes. The film has won 20 awards worldwide including best film, best director and best visual effects, for which has been also nominated for Outstanding Virtual Cinematography at the Visual Effects Society (VES) Awards 2019. Victor's passion for story telling combined with his award-winning directing and visual effects artistry has positioned him as an up-and-coming film director and a one-to-watch in the industry.

Using Technology To Tell a Story (Not the Other Way Around)

ECHO is an innovative film in terms of storytelling language. Science as the fundamentals of the research for technology at the service of art. The motion control team of technology research at Stiller Studios worked for months to develop an algorithm and a studio hardware setup to make possible an effect never seen before on the screen. By synchronising two motion control rigs –a Cyclops®, the most precise cinebot rig by Mark Roberts®; and a Bolt®, the fastest– the team leaded by Tomas Tjernberg found a formula to create a reflection effect recorded simultaneously by both cameras, filming without any actual mirror surface. Then the visual effects director at Stiller Studios, Tomas Wall, pushed this technology beyond by adding an extra element to the mirror effect: "time displacement" factor. Time Displacement technology makes the reflection on the virtual mirror to run on a different speed and/or synchronisation point in relation to what the actual –hero– camera is seeing. The reflection plane is always perfectly aligned thanks to the physics calculations and software created by Stiller Studios team. The result is a mirror reflection out of sync and speed, in relation to main camera and scene. A totally unnatural effect impossible to make with a moving camera without this complex research and setup. Before 'Echo' was planned and during a shooting at Stiller Studios I was supervising the visual effects, the team presented me the "time displacement" technology, I was fascinated. A couple of days after that meeting I sent a script I wrote 5 years before that conversation, a story I never though doable. Stiller Studios made it possible and, a few months after that conversation, 'Echo' was on the works. I wanted to take this technology at its maximum expression in terms of narrative to tell the story of 'Echo', and the team at Stiller Studios accepted the challenge. The result is a whole short film shot entirely in just 5 long takes, with an actress synchronised with the camera movements as a hidden musical choreography. But after all technicalities and technology I had always one key element in mind: tell a good story in a new way never seen before. Integrating VFX at the service of storytelling, not the other way around.

1. Behind the scenes of ECHO

The Problem of Pioneering

ECHO features a pioneering motion control technology developed at Stiller Studios (Stockholm, Sweden) –by Tomas Tjernberg and Tomas Wall– synchronising for the first time two motion

control rigs: the massive and pixel-accurate Cyclops® and the fastest and versatile Bolt®, both manufactured by the highly regarded Mark Roberts. The synchronisation algorithm allowed the filmmakers to tell this story in a very specific way: just 5 long takes. All takes from both motion control rigs were shot contemporarily to create the effect of a virtual mirror. Once the sync was pitch perfect Stiller Studios worked closely with Victor Perez to accomplish the highest challenge: a reflection in the mirror out of sync in relation with the hero camera and vari-speed to alter the time within the reflected image but maintaining always the angle of reflection in relation to the main camera. Months of research and development, rehearsals and planning were necessary to accomplish the “Time Displacement” effect.
Stiller Studios –owned by Patrik Forsberg– brought a state of the art motion control technology featuring a 3D virtual representation of their real sound stage to allow the filmmakers design a choreography with the actress to match the virtual world to the real one and viceversa, with visual feedback in real time. A teamwork effort of narrative visual effects to capture a complex vision in a simple cinematic way.
But a technology for storytelling is not completed until it is tested for its very purpose: tell a story. So the filmmakers developed a very articulated and complex environment to film a very simple story, in a way it was never attempted before, wich means that when problems arise both the technical side and the artistic side must work together to invent new solutions, to new problems. Technical creativity at work, creating your path while working, setting a know-how source on raw experience.

2. Victor Perez between the Bolt (left) and the Cyclops (right)

Assembling the Time Displacement

The starting point of the project was treating cameras in real world as they were virtual, and design the virtual cameras to behave as real ones. One of the world's most accurate and pixel perfect Motion Control Studio: Stiller Studios focus on intricate motion control work, where virtual and real camera positions and paths need to be perfectly matched and output in real time as usable data. Stiller Studios Co-Produce 'Echo'. Patrik Forsberg, CEO of the Studio embraced the project to showcase a technology never seen before. Developed by Tomas Tjernberg and Tomas Wall and supported by Mark Roberts Motion Control.

3. Time Displacement

A Collaborative Environment: Cloud Resources

Everything started as a small personal project with a few friends, that quickly escalated to more than 80 artists-friends working around the world, working together in the cloud. Moving huge amount of data and working coordinately to optimize the available resources.

Cameral Before Action

During the process of compositing the visual effects team faced various challenges but having the Virtual Cameras available solved several problems… and created several others: the difference between the virtual and the real world.

The Journey

It took Victor Perez 3 years to complete the entire short film which is 7 minutes and 22 seconds, in 5 long takes. During this process there were ups and downs, hopes, troubles, satisfactions, frustrations, walking on the dark… with the focus on trusting the original idea… and then, one day, the result was on the screen and ECHO is recognized with more than 20 Awards worldwide and a VES Award nomination -first time in history a short film is nominated in the category- next to big blockbuster films directed by artists of the caliber of Steven Spielberg or Robert Zemeckis. But the biggest satisfaction is seeing the audience not noticing the technology but just feeling a story. The result belongs to the audience, the journey belongs to the filmmakers.


A FILM BY VICTOR PEREZ
ECHO
A MASKED FRAME PICTURES PRODUCTION IN ASSOCIATION WITH STILLER STUDIOS "ECHO" MARIA RUIZ
SOUND DESIGNER MATTEO DI SIMONE
MOTION CONTROL SUPERVISOR TOMAS TJERNBERG
VISUAL EFFECTS SUPERVISOR VICTOR PEREZ
EDITOR ZIMO HUANG
DIRECTOR OF PHOTOGRAPHY MARCUS DINEEN
EXECUTIVE PRODUCER PATRIK FORSBERG
BASED UPON AN IDEA AND TECHNOLOGY DEVELOPED BY TOMAS TJERNBERG & TOMAS WALL
MUSIC BY PIERNICOLA DI MURO
PRODUCED BY TOMAS WALL VICTOR PEREZ
WRITTEN AND DIRECTED BY VICTOR PEREZ
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