Cinesite delivers spectacular VFX for ‘John Carter’ with SCRATCH

The Facility: Cinesite Europe Ltd
Since its foundation in 1991, Cinesite has grown into one of the largest and most creative VFX companies in Europe. Headquartered in London, its award-winning visual effects team has the capacity to produce all manner of creative digital effects for feature films and TV shows of all scales - taking filmmakers’ ideas and turning them into spectacular cinematic reality.

With a reputation for prodigious output, Cinesite’s VFX contribution to Hollywood blockbusters released in 2011 included Pirates Of the Caribbean: On Stranger Tides (Disney/Bruckheimer), X-Men: First Class (Twentieth Century Fox) and Harry Potter And The Deathly Hallows: Part 2 (Warner Bros.). Cinesite is currently working on World War Z (Paramount Pictures) and Skyfall (Sony Pictures), the latest movie in the 007 James Bond franchise.
The Project: John Carter (Walt Disney Pictures)

SCRATCH has been the hub for VFX production and delivery at Cinesite for the last eight years. The latest project to have gone through the pipeline is Walt Disney Picture’s John Carter, for which Cinesite delivered a massive 831 VFX shots.

The movie is an interplanetary action film telling the adventures of John Carter, the heroic protagonist of the 11-volume series of novels, entitled ‘Barsoom’, written by Edgar Rice Burroughs. The film is the live-action debut of director/writer Andrew Stanton, whose previous work includes the Pixar-animated films Finding Nemo (2003) and WALL-E (2008).

Cinesite worked on the movie for over two years, delivering a range of stunning VFX, and also converting 87 minutes of the film into stereo 3D – making John Carter the company’s debut stereo conversion project.

Project Leader: Sue Rowe, VFX supervisor, Cinesite

Emmy-nominated Sue Rowe, who confesses to boundless passion for animation and VFX, has worked at Cinesite for 16 years. Starting out, she gained her BA at Farnham College in Surrey, UK, specializing in hand-drawn and model animation. Sensing the future turning towards digital techniques she went on to complete a Masters degree in computer animation. Rowe started at Cinesite in 1994, as a 3D animator, and has remained with the company ever since, moving into compositing, on-set and sequence supervision, and then to VFX supervision. Lara Croft Tomb Raider: The Cradle Of Life (2003), Charlie And The Chocolate Factory (2005), The Golden Compass (2007), and Prince Persia: The Sands Of Time (2010), and are just some of the highlights among her lengthy credits. She was nominated for an Emmy for outstanding special VFX on the Winston Churchill biopic Into the Storm (2009).

Rowe headed up Cinesite’s efforts on John Carter working closely with director Andrew Stanton, and spent several months on-set, in the UK and Utah, before returning to London to supervise the VFX delivery.

The Challenge: turning-around a high volume of complex VFX sequences. John Carter represents Cinesite’s most complex and creative work to date. Rowe and her team of more than 300 digital artists delivered over 1,000 shots for the movie, of which 831 were included in the final cut. Key sequences the company worked on include: dramatic air battles between Zodanga (the vast metal and concrete city-on-legs of Zodanga) and the city of Helium, the Thern Sanctuary and the Air battle that takes place over the Thark encampment. The work also encompassed populating each sequence with various arsenals of airships, troops, and countless CG props.

“Andrew Stanton is a great storyteller. I’m hugely passionate about John Carter, and our contribution to the film,” says Rowe. “This was our biggest project by far, and if you have a professional interest in VFX then you will know what a huge undertaking John Carter was. The only way to work on a movie of that scale and caliber was to have a really efficient VFX workflow, and SCRATCH was absolutely central to that.”

The Solution: multiple SCRATCH systems

Due to the scale of the project, the workload was divided between four VFX supervisors – Christian Irles, Jonathan Neill, Ben Shepherd and Simon Stanley-Clamp - with Sue serving as overall supervisor. Each of the four VFX Supervisors oversaw teams of 2D/3D supervisors, CG artists and compositors. Each supervisor was responsible for different sequences from the movie, and sequences were assigned to individual SCRATCH systems. The project harnessed 7 SCRATCH systems in total, 4 for managing VFX shots-in-progress, with 2 other SCRATCH’s used for tracking and Animation dailies. Cinesite also has a
SCRATCH system in its main digital screening theatre, which was used to sign off on the finals.

“SCRATCH is a really intuitive playback system. We know it so well that it’s become part of the furniture here,” she says. “It’s very well set-up for analysing high-end VFX work and it really is the weapon of choice for the serious filmmaker.”

At Cinesite, each SCRATCH system is located in its own mini-screening room, and slaved to Eizo monitors for precise color management along with JVC projectors to assess overall image quality. Each SCRATCH can play back footage for review on the monitor and projector simultaneously. The rooms are painted 80% gray to reduce light contamination. To ensure color consistency, all in-house viewing devices were carefully calibrated (along with viewing LUTS) to match monitors and projectors in San Francisco (where the director was based) and at Double Negative, which shared a number of VFX shots with Cinesite.

Cinesite’s engineering team has leveraged SCRATCH’s powerful XML interface to integrate it into their proprietary database and data management system. Every evening 2D and 3D artists published their shots. Once rendered, these shots loaded automatically into the correct stack in the CONstruct module of the appropriate SCRATCH system. These included separate stacks to view the results of tracking and lighting iterations.

“The great thing is that when we got into the SCRATCH suites in the morning the dailies were already in the CONstruct module ready to go. I would then sit down with the crew and review them,” she says.

Further to this, Rowe explains that VFX dailies were traditionally published as separate flat/neutral and primary graded shots. However, to avoid duplication and save disk space, Cinesite has
developed automatic functionality within SCRATCH that allows the supervisor to toggle between neutral and graded Looks on a single shot.

The ability to compare shot iterations is an especially important aspect on an effects-laden motion picture like *John Carter.*

“Complex shots might have up to 100 iterations, and you have to be perfectly clear as to exactly what the changes and improvements are. Not only can we keep on-going versions ‘live’ on SCRATCH, we can easily do split-screen comparisons, or rock-and-roll between versions,” she explains. “When you get to a high number of iterations, it’s good to see the results with new eyes. So I assigned a hot key to SCRATCH that would flip the images, enabling me to watch shots reversed during review.”

Shots nearing final were always signed off in the SCRATCH theater. These were laid beside the corresponding shot in a QuickTime file provided by the editors, which Sue had previously separated into different shot lengths in SCRATCH. As work progressed, the QuickTime scenes were gradually replaced with final DPXs.

“*A great feature of SCRATCH is its ability to playback different resolutions and color spaces space in real-time,*” says Rowe. “*We regularly have video-res shots from the Avid cut,IFFs, JPEGs and quick 1K comps on the same timeline. We can view them all in context along with completed 2K shots.* Furthermore, you can use the magnifier to zoom in on-the-fly to check the edges of composites. It really doesn’t matter to SCRATCH.”

Of course, color management is vital in VFX production. Rowe says she used SCRATCH’s grading tools frequently to maintain color consistency between corresponding shots. “Typically, I would grade on-the-fly, using the printer lights function in SCRATCH to adjust the Red, Green and Blue channels, or the F-Stop to adjust luminance, and to check the grain structure between the CG and live action footage. It’s a very filmic way to work, that I really like.”

To streamline color management amongst its VFX artists, Cinesite has developed a script, that translates the printer lights from SCRATCH into a Nuke node, eliminating the need for eye-matching. This functionality is similar to the free-of-charge SCRATCH2Nuke script that leverages SCRATCH’s XML interface, allowing fluid workflows between SCRATCH and Nuke.

On a project of the scale of *John Carter,* Rowe says SCRATCH’s Sticky-Notes were a real advantage to clear and effective communication. “We used Sticky Notes at the head of shots that needed additional work by a compositor or CG artist. We used color-coded notes to demarcate the status of a shot - red notes indicated that a shot needed extra work, whereas green meant a shot looked good.

Speaking about SCRATCH’s overall performance, Rowe says, “*We pushed SCRATCH to its limits on John Carter, and it proved, yet again, a very sturdy package. It’s fantastic, and I would recommend it to anyone. It’s so good, that I’d like to take one home with me.*”

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