TELEVISION

Will James Cameron's *Avatar* sequels be enough to renew interest in 3D filmmaking?

SHARE

What happened to 3D movies?

Remember Avatar and the mini-boom of 3D films? We ask the industry how things changed in the last decade, for better and worse.

17 Apr 2021

Markus Stone

What happened to 3D movies?

artshub-au

Eleven years ago, 3D was the buzzword on everyone's lips. The massively expensive gamble of James Cameron's *Avatar* had paid off, becoming the highest-grossing movie of all time.

As studios jumped on the bandwagon, producers, big and small, scrambled to add a 3D release to their list of deliverables. Exhibitors cast out their 2D projection systems in favour of the new technology and home entertainment retail staff found themselves with a new sales pitch. 3D would be the future of everything, and the end of piracy.

Eleven years on, with Cameron's new 3D *Avatar* sequels on the horizon, the landscape is far more nuanced.

One of the first revelations of the 3D boom was that to do it well required a production with lots of money. Whether shooting in 3D or simply converting in post-production, the old dilemma between 'a) speed, b) cost and c) quality' seemed to require 'd) all of the above', which quickly left smaller budgets out in the cold.

As the dust settled, the kinds of movies that seemed most likely to attract 3D releases were invariably animated features or big, live-action tentpoles.

For animation, the barrier to entry is relatively low, with longer render times being the biggest cost.

Ingrid Johnston, Head of Production at Animal Logic *has ushered through a number of animated 3D movies including The Lego Movie and The Legends of the Guardians: The Owls of Ga'Hoole.*

'It's a process of rendering the second eye,' said Johnston on the phone to Screenhub. 'But it does have other implications in animation. Some of the compositing or matte painting tricks that we might

do, like putting things on cards close to camera won't work in stereo because the audience will see it's flat."

'There were new challenges with new technology, but in animation and visual effects there's always something new. It was just something new to incorporate, but we find that quite a lot in what we do.'

For live-action cinema, the repercussions of making movies in 3D were far more wide-ranging, affecting everyone from the storyboard artist through to the colourist. Production designers now had to consider the kind of reflections that different materials would cause; camera crews now had camera packages so heavy they required an engine hoist to move them, and on-set monitoring in 3D was a constant headache. Visual effects supervisors had to meticulously track each element's depth so they would composite together in the final 3D shot.

Read: The inner game of Animal Logic

For IMAX, whose name has been synonymous with 3D since the 1980's, the change was nothing new. 'It was

always part and parcel of what we offer,' said **Richard Morrison, General Manager of IMAX Melbourne**. 'Originally we'd only show traditional IMAX documentaries. *Avatar* was our highest grossing ever Hollywood feature film here, partly because when people thought of 3D they thought of IMAX even if we hadn't placed that many Hollywood features by that stage.'

'What's happened now is the whole 3D resurgence was beset with the "quick wins",' said Morrison, 'With a lot of cinemas installing sub-standard 3D equipment into retrofitted theatres that weren't designed with 3D in mind. Most auditoriums are designed like a shoebox, and only a small percentage of people are in the sweet spot for 3D. Ultimately that was probably the experience that most of the public got. 3D is no longer a big player in that market.'

By contrast, IMAX theatres are designed to be wide, not deep, with a screen that extends into the peripheral vision for a fully immersive effect. That being said, IMAX still offers about 10% of screenings in 2D for those who want a big-screen experience without the 3D.

Waning demand, but the paradox of the Asian market

Audience habits have changed in ways nobody could have predicted eleven years ago. The explosion of streaming video-on-demand has curtailed Blu-Ray as a format, and 3D streaming has yet to find traction amongst any of the major providers. You'd be hard-pressed to find any 3D TVs in a retail store now, even if you could find content to play on them. And while streaming quelled piracy for a time, the mounting plethora of subscriptions required to access content has started to bring piracy back, all of which has flow-on effects on the industry.

'We're finding there's less demand for stereo now,' said Animal Logic's Johnston.

'Some of the strategic conversations about whether a film is worth making in stereo are about whether it's the type of film that people want to see in stereo, where they expect the box office to come from and whether the demand is there to justify the extra cost. Even animated features were, by default, presumed to be stereo a few years ago, because it wasn't as complex a process as a post-conversion, or as arduous and expensive as shooting natively in stereo. But now we're definitely finding the demand for 3D is dying off.'

According to a report by the Motion Picture Association, 60 per cent of all theatrical screens installed globally are 3D capable, with the highest uptake in the Asia Pacific region, where three out of every four screens are 3D. Yet somewhat counter-intuitively, 3D ticket sales as a percentage of box office takings are in decline globally. The solution to this apparent paradox lies with the Asian market.

'China is a hugely important market for us,' said Morrison. 'IMAX got in there at the right time and there was an appetite for a high-quality exhibition platform. We were signed on by a lot of exhibitors and performed really well with exponential growth.'

2020 was a strange year for many, but none more so than for exhibitors. Changes to release schedules and pandemic restrictions decimated box office receipts in many lucrative markets. The two previous years were lead by *Avengers* films: *Infinity War* and *Endgame*. Each grossed over two billion dollars. By contrast, 2020 marked the first time since 1995 that the top film failed to earn over $500M.

But the real upset is that 2020 marked the first time that the highest-grossing film was *not* a Hollywood production – indeed only four of the top ten movies were – the remainder being Chinese or Japanese in origin.

At $461M, the top spot went to a Chinese film called *The Eight Hundred*. Set during the 1937 Battle of Shanghai, it tells the story of a group of Chinese troops pinned down in a Shanghai warehouse by the Imperial Japanese Army during the Second Sino-Japanese War.

While drawing only one-sixth of the business of *Avengers: Endgame*, *The Eight Hundred* is still a hugely successful film, being China's 11th highest-grossing movie ever.

In part, this is due to the fact that Chinese movies are not dependent on the international box office in the way that Hollywood films are, but also Beijing's decisive pandemic response left theatres relatively free to operate.

With a strong 3D release in a booming market, IMAX found itself in a fortunate position during a lean year.

'For *The Eight Hundred*, we took around ten percent in that market, which was huge' said Morrison.

The shift from shooting 3D live to converting in post

One of the big changes in the past ten years has been the shift from shooting 3D 'live' using one camera for each eye, to shooting in 2D and 'dimensionalising' in post.

It's a process that had an inglorious start when *Clash of the Titans* tried to clamber on to the 3D bandwagon in the wake of *Avatar's* astounding success, then famously fell off again with a hurried 3D conversion with burgeoning technology and tragically bad results.

It may be surprising then, that the same 'dimensionalisation' technology, (or a derivative of it) has become de rigueur for delivering live-action films in stereo with all bar a few 3D releases taking this path over the last several years.

In typical fashion, the companies on the bleeding edge of this technology have built their own tools, designed to make the dimensionalisation process less painful for both the technician and the audience.

Brian Taber from Stereo D is a prolific stereographer who's worked on numerous 3D versions of tentpole films, from *Avengers* to *Thor* to *Guardians of the Galaxy*.

'Every individual stereo layer and every individual layer that needs volume needs a matte,' he says in this article from *Befores and Afters* about his work on *Star Wars Episode IX: The Rise of Skywalker*. 'When the shift of pixels occurs, there's the occlusion that's uncovered. Then the compositing paint artists go in and recreate that pixel information.'

It's an incredibly painstaking process that is now far more complicated than just handing over a graded film to be converted into 3D – often demanding close cooperation between the conversion facility and the visual effects house.

Animal Logic has collaborated in this way on a number of projects, including *Guardians of the Galaxy Volume 2* and *Avengers: Age of Ultron*.

'What we had to supply would vary depending on the complexity of the shot,' said Animal Logic's Johnston. 'They might just want the matte for it. For something more complex they might want assets and camera tracks.'

Even IMAX have been won over by the quality of the more recent conversions. 'People still think that if it's not shot in 3D then you can't have a good 3D film, said Morrison, 'but that's completely wrong. Two of the best conversions I've seen are James Cameron's *Titanic*, and *Jurassic Park*. They looked amazing. It was really popular because people know that the 3D is going to really add to that film.'

Given the fact that the overwhelming majority of theatrical releases in recent years have achieved their extra dimension through this conversion process, it would seem that the industry has spoken.

> 'People still think that if it's not shot in 3D then you can't have a good 3D film. But that's completely wrong.'

The exception of course is the gaggle of *Avatar* sequels waiting in the wings, the first scheduled for release in December 2022. James Cameron's Fusion camera system incorporates physical cameras and motion capture technology into a virtual film-making environment that allows Cameron to shoot and direct both live and CG elements in real-time, rather than as a separate process (often months apart). The question is whether Cameron's storytelling prowess will be enough to bring audiences back to 3D screens when the technology has clearly failed to make inroads into people's living rooms, and box office interest in 3D is waning.

For Johnston at Animal Logic, the future is about what the 3D adds to the experience: '*Avatar*, which made such great use of 3D in the way that the film was constructed, could still be of real benefit to the sequels. But I think in future it will be a more narrow, targeted use of when the stereo really adds something to the film. When it's done well it can be really immersive.'

For Richard Morrison at IMAX, the future is more about the quality of the experience. 'Every time we bring *Avatar* back to play on the big screen we do really well with it. Not only because it's a big-screen

spectacle, but the 3D in it is second to none. We certainly think that *Avatar* 2 and 3 will be big-ticket 3D titles for us. As long as there are people paying to see 3D, we'll be playing it.'