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3D means new rules for directors

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The rise of 3D technology for movies and television will force a change in how directors tell stories.

Say good-bye to gut-wrenching drops off cliffs and swoops through asteroid fields to call attention to 3D effects. Be prepared for directors to use slower pans, less cutting, and more deliberate camera moves to blend the technology into the story. These new 3D movies may look boring in 2D, but they'll end up feeling more engaging when seen in three dimensions.

"Unfortunately, the history of 3D is bad 3D," says Sandy Climan, CEO of [3ality](#), a company that makes, as he calls it, "end-to-end technologies from image capture to processing" for three-dimensional entertainment. The technology hasn't been up to snuff until recently, he says. He claims his company's tech is leagues better, naturally. But the art hasn't advanced, either, and no amount of technology can fix that. Directors need new rules.



The film, 'Up,' was released in 3D as well as 2D.

(Credit: Pixar Animation Studios)

I talked with Climan about the changes coming to cinematography and television in the move to 3D, as well as to Didier Debons and Isabelle de Montagu, CEO and business development manager of [3DTV Solutions](#), which makes 3D video recording products, and Tuyen Pham, CEO of [A-volute](#), a 3D audio encoding company. The short takeaway: if you're in the video or entertainment business, forget what you know about directing and editing. 3D changes everything.

Think 3D is a gimmick and that professional cinematographers and television directors don't take it seriously? Financials, Climan says, dispute this. 3D films in 3D theaters gross two to five times what the 2D versions of those films do. Commercials in 3D yield better recall rates. And it's not just the novelty factor, Climan says. If so, the trend would have faded. Grosses for 3D films are growing.

"The family movie business has largely moved to 3D," Climan continues, pointing to films like "Journey to the Center of the Earth," "Coraline," and "Up"--the last two having been taken far more seriously than standard 3D matinee fare. On the grownup front, Climan says that for sports and concerts, there's nothing like the 3D movie or TV experience. The upcoming James Cameron film, "Avatar" is a 3D production and is expected to be a watershed for mainstream 3D entertainment.

For now, the growth of 3D looks inevitable. The next step for the medium, after family films and fantastic blockbusters, is for 3D to move into independent and artisan films. Climan thinks the technology is becoming straightforward enough to make that likely.

How do you zoom?

If you accept that 3D on-screen entertainment is a growth market, how do you create the content for it? Companies like 3ality and 3DTV Solutions will deliver camera systems for you, but they don't direct your shows. Using the technology effectively requires a new art.



3DTV's camera rig has eight lenses and sensors.

(Credit: 3DTV Solutions)

De Montagu of 3DTV told me, "If you are looking at 3D it is because you want to be as close to reality as possible." That means, she said, you need to write more realistic shooting scripts. Using 3D primarily for special effects is counterproductive. "The brain doesn't get it," de Montagu says.

The purpose of 3D has to be to render *reality*. You can push a viewer's willing suspension of disbelief quite far in a 2D show, since we've been trained to "read" movies and accept unreal conventions, like zooming and cutting. But in 3D, if you push it too far, you break the illusion. The viewer has to feel like they're in real life.

And that means no reliance on many standard cinematic methods, including zooming and cutting back and forth between people talking to each other. The viewer can get confused, even physically sick if you immerse them in a world that's constantly shifting. "You don't zoom in real life," A-Volute's Pham said. And if you do rapid-fire cuts and move the sound stage around the audience with the visuals, he says, plainly, "you will get sick."

Climan says, "In 2D, you move the camera to create a sense of motion. In 3D, you leave the camera since the audience is in the middle of things. You need to have many fewer camera moves. In sports, you just leave the camera in a low position, and you feel like you're on the field. You have a much more clear view of the players in 3D due to the dimensionality."

3ality is launching a service, "3DIQ," to train people in 3D video and cinematography, but it's clearly an emerging art form. As 3DTV's de Montagu says, "We are going back to the fundamentals of audio and vision."

Climan says that educating a film crew to shoot for 3D is not terribly difficult. To turn out an episode of "Chuck," in 3D, he says, it took about one and a half days to get "the 2D crew" adjusted to the new medium. "They didn't miss a beat."

However, while a film shot for 3D might play fine on 2D equipment, it clearly won't feel as engaging if displayed in 2D as a show shot for the old-fashioned flat medium, with its jump cuts and zooms and sweeping pans. So directors will have to make a choice of primary format or shoot things twice. In big sports events, Climan says, "there will be a director for 2D and a director for 3D."

(Personally, I hope no video, movie, or game ever gets released without a 2D version alongside it, since I'm one of the small percentage of people--about 7 percent, I'm told--whose eyes and brain don't process true 3D correctly. Every 3D demo I have ever seen either looks like double vision to me, makes me queasy, or both.)

Emerging technologies

Anyone who's watched 3D content knows that the technology to play it is evolving, to put it kindly.

"The good stuff requires glasses," Climan says, which makes the at-home experience troubling. Who wants to walk to the fridge wearing glass that make the real world look odd (which they do)? But there are technologies coming out that get us part of the way there without it.

The 3DTV team showed me a demo using another company's monitor with a lenticular grating on it ("It puts the glasses on the screen," Didier Debons said) that gave what appeared to me a decent 3D experience without requiring that I wear glasses. However, to support this and all the other 3D technologies, the company's camera system has eight lenses on a horizontal mount, not the usual two lenses most people think of when they imagine a stereoscopic camera rig.

The 3D audio technology by A-Volute does not require any special equipment at the listener's location, and is quite remarkable. Using signal processing and a model of how the inner ear, outer ear, and a person's head changes the shape of the sound the ear hears and that the brain translates into positional information, it can play, over ordinary stereo speakers and without relying on bouncing sounds off walls, sounds that you will swear are coming from behind you or above you.

The demo I heard made my jaw drop. The technology can add positional cues to sounds in real-time, making it useful not just for movies and TV shows, but for games and for military and transportation applications as well. Bose has competitive technology.

3D is still seen as gimmick by most consumers, but it's becoming more mainstream. That means content producers

and artists will be thinking about 3D content more in the near future: Not just how to have it call attention to itself, but rather how to have 3D fade, as it were, into the background of the storytelling.

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