

3-D Imaging Past & Present

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STEREO WORLD

**EPIC
3-D
Lights**

**Girdwood's WW1 Views
Stereo Optical Co. Projector**

Love the Visuals

by A. Rosalie Chandler

On Valentine's Day, New York Stereoscopic Association President John J. Zelenka offered me the chance to see a mind-blowing 3-D lightshow at New York's Terminal 5. Swedish DJ Eric Prydz was the musical act but I was there to see the work of the self-described "creative technicians" from Realtime Environment Systems (RES). RES is a visual arts production company based in London, England, that creates unique, one-of-a-kind productions for live stage shows. They work with "clients worldwide to help realize and deliver exceptionally ambitious ideas." The visuals that accompanied the Eric Prydz show were certainly ambitious, and I had the chance to talk to RES Managing Director Mark Calvert about the show.

For more than six years, Calvert and RES have been working with

Prydz and his creative director, Liam Tomaszewski, on Prydz' live performances. Each iteration of these productions, branded "EPIC," has been more spectacular than the last. 2016's EPIC 4.0 used projectors, 50fps media, two LED screens, a "hologram screen," 100 moving-head lights and plenty of powerful RGB lasers. It takes two trucks and 14 crewmembers to transport and set up this jaw-dropping stage-show. Calvert says, "The design is always inspired first by new technology; that's often what I bring to the table to begin the design process."

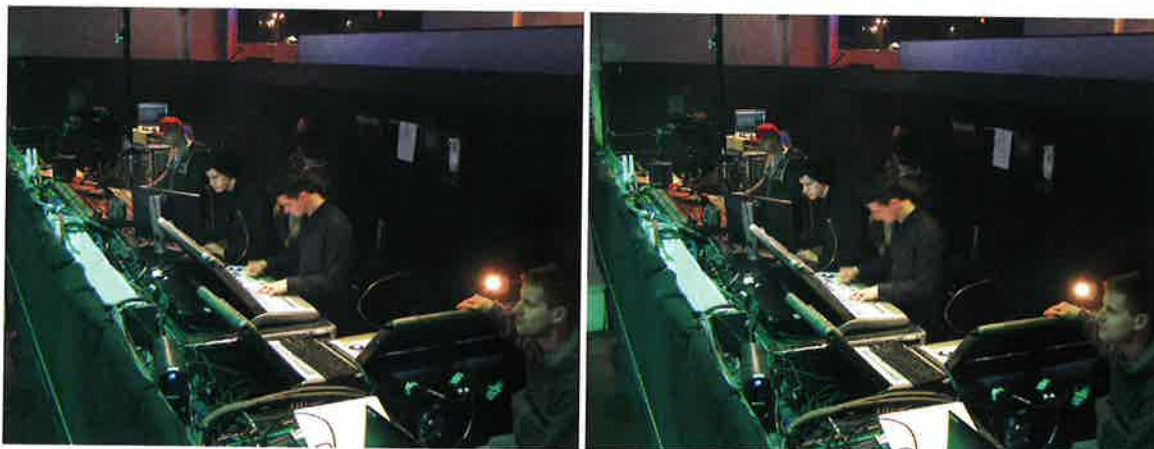
Calvert and RES worked with Musion, the makers of the 3-D "holographic projection" system* that was responsible for "digitally resurrecting the late rapper Tupac Shakur," on the first two versions of EPIC. Though it was at times a trying part-

nership for RES, it provided them with an important education in creating "holographic" effects. In a March 2014 interview with The Creators Project, Tomaszewski described creating holographic visuals "that look great aesthetically, compliment the music, engage the crowd, and work with the rest of the show" as "an art form in itself." The team worked with Lightwave International on the accompanying lasers for the show. Concert laserist Mark Nath agreed that the seamless integration of all elements of the show created a powerful visual experience. The purity of a laser beam and its ability to project in the space over and around the audience adds that last ingredient to send the show over the top.

All of the content for EPIC 4.0 was created by Tomaszewski and runs on RES's own software, the AI Media



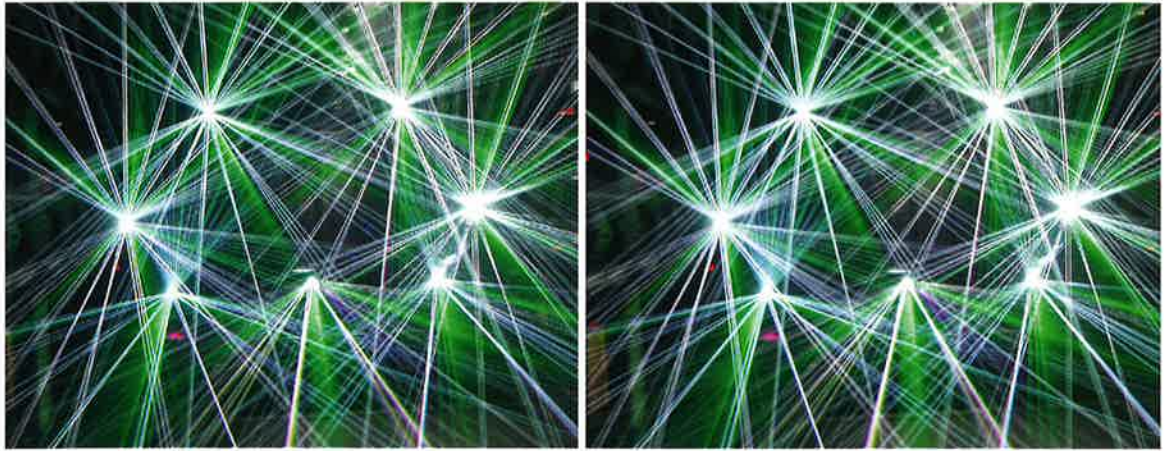
Mirror ball filling the arena, view from stage right, Terminal 5, NYC, February 14, 2016. (Stereo by John Zelenka)



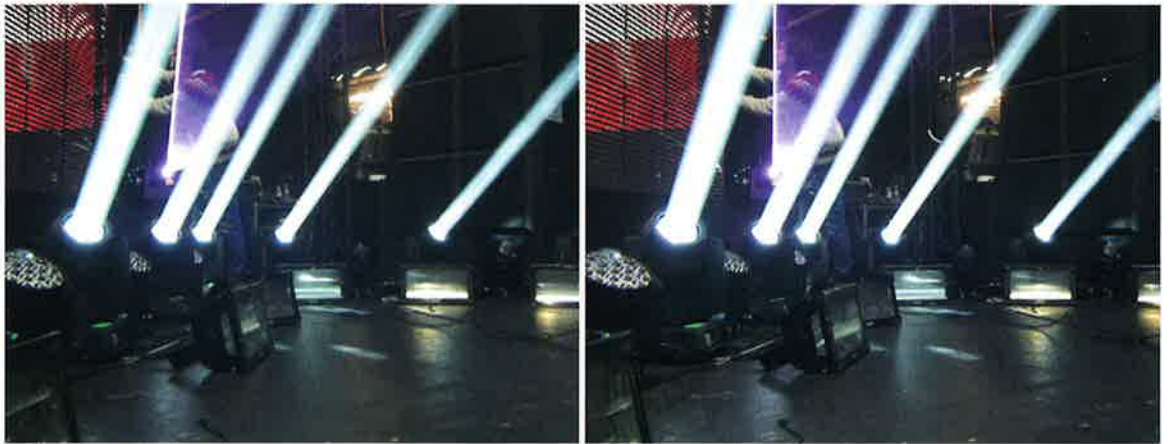
Mark Nath (lower right) and other tech artists creating magic, Terminal 5, NYC, February 14, 2016. (Stereo by John Zelenka)

*"Pepper's Ghost"

Laser display designed by Mark Nath of LightWave International. No retinas were harmed but minds were blown! Terminal 5, NYC, February 14, 2016. (Stereo by John Zelenka)



Mark Calvert leaning over laser to check on video wall, Terminal 5, NYC, February 14, 2016. (Stereo by John Zelenka)



Server. RES Technical Director Dave Green is the architect of this platform. "The control one has in CGI is perfect for the live events such as EPIC 4.0," Calvert explains. Regarding the musician's input, Calvert says, "Eric's involvement is key, at every step of the path. We are all part of

the same team. Liam totally nailed the design and aesthetic with everyday feedback from me and Dave regarding technical hardware."

A primary goal of the production was to put Prydz in the center of the show and create fluid visuals that can adjust with Prydz' DJing and the

crowd's response. In addition to the use of a "hologram" screen/scrim, the CUBE set-up designed by Calvert and his team enhances the illusion of depth. Prydz is set up inside four walls of LED screens with one corner at the front edge of the stage. The "hologram" scrim appears to hang between the corners of the cube on the left and right sides of the stage, but it was hard to say for sure. Below me, floor level with the stage, audience members waved glow sticks and took selfies with the stage in the background.

At the end of the Valentine's Day show, as I stood in the production booth, a couple leaned over the back wall to thank Calvert and his team. "We are on our honeymoon and we came to see something we'll never forget!" they cried.

Another member of the New York Stereoscopic Association attended the Prydz show. "As a 3-D technologist I have to give the ultimate kudos to the Prydz team," said Tom Zerega, CEO and Founder of Magnetic 3D, a NYC tech company engineering Glasses-Free 3-D (Free-D) visualization platforms for commercial and

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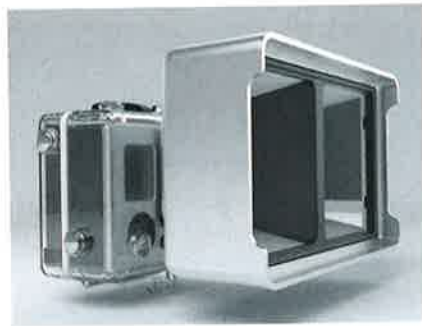
Eric Prydz "EPIC 4.0" showing the "hologram" scrim, Hollywood Palladium, February 19, 2016. More (2-D) shots of the show are at <http://photo.rukes.com/palladium18/palladium18.html>. (Photo by Drew Ressler)



GoPro 3-D Unit

A stereoscopic mirror box attachment designed specifically for GoPro Hero cameras has been introduced by the Fantem Company. The aluminum and plastic "Vitrима Lens" unit comes already attached to a standard GoPro camera housing, and when the camera is inserted it can be connected to any mount. This makes the whole rig waterproof for fast action 3-D videos almost anywhere. Focusing range is as close as two feet, but without any window adjustment, shots from closer than about four feet could be problematic.

Synch is of course no concern, and the common mirror box frame-splitter distortions like keystoneing are hard to notice in typical GoPro outdoor action videos in which horizontal background features flash past too quickly to examine. (Plus, many such videos include only sky, snow or water behind the subjects.) A big selling point is that videos can be watched instantly on any VR viewer from full headset to phone screen



The Vitrима mirror unit weighs 7.7 oz and is 3.7 inches wide, making the effective separation smaller than paired GoPro cameras.

with none of the image processing (or expense) involved with dual camera rigs.

Interestingly, the name printed on top of the unit itself is "VR LENS VITRIMA," although it's unrelated to any 360° or immersive imaging system. It is, in fact, strictly a 3-D device and for a change, a "VR" product is devoted entirely to stereoscopic imaging. See www.vitrима.com.

Septum vignetting is more evident in some Vitrима images than others. This frame from a sample skydiving video does prove that the unit can resist strong wind!



Love the Visuals

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consumer applications. "They have hands down produced the most epic no-glasses 3-D experience I've seen to date in a concert venue. Through a brilliant use of lasers, projection, and LED to create these incredible 3-D layers, the EPIC Tour totally transports you to a new reality, that feels way ahead of its time."

RES has worked with performers like Bon Jovi and Coldplay, companies like BMW and Bentley and on large-scale events including the London Summer Olympics and Sochi Winter Olympics. They are sometimes inspired by the innovative ways they see new technology being used at these larger ceremonies to bring creative visions to life.

When asked about the future, Calvert told me, "EPIC 4.0 will continue to break boundaries worldwide. And we have a new partnership with PRG in Belgium that is very exciting indeed!"

Look for Calvert and RES's work on the current Coldplay World Tour. 🎧🎧

3-D Equipment Rarities

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making it to sell with eye-testing cards, but it worked just as well with vintage and modern home-made cards. Sadly, they are no longer making that product. Stereo Optical's other main product line was vision testing images done in a polarized vectograph format. They were the only company, other than Polaroid, commercially making vectographs, and still do. If you have seen the famous "Stereo Fly" test (a macro 3-D image of a fly on one side, and the eye test patterns on the other, all in vectograph format) at an optometrist's office, it was made by Stereo Optical.

We had been in touch with the then president of the company, Joe Andera, about making a custom artistic vectograph in a limited edition to sell through Reel 3-D.

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Four Avatar Sequels Coming

James Cameron has confirmed that there will now be four rather than three *Avatar* Sequels, to be released in 2018, 2020, 2022 and 2023. In the director's words: "We have decided to embark on a truly massive cinematic project, making four epic films, each of which stands alone but together forms a complete saga..."

I've been working with the top four screenwriters and designers in the world to design the world of *Avatar* going forward. The environments, new cultures—whatever it takes to bring it to life. From what I'm seeing of the art on the wall, in pure imagination, is just beyond the first film. I'm speechless." 🎧🎧