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Technologies for 3D: Looking at the Future

Interview with *Steve Schklair*, Founder and CEO of 3ality Digital

Jordi Alonso

3D technologies have been booming recently and they are already an alternative present at homes, movie theaters, etc. These developments are commented in an in-depth interview for the journals *Novática* and *UPGRADE* by an outstanding 3D expert and entrepreneur, *Steve Schklair*, founder and CEO of 3ality Digital, a company based in Burbank, California - USA, specialized in advanced technologies for digital stereoscopies.

Keywords: 3ality Digital, 3D Broadcasting, 3D Technologies, Digital Stereoscopies, Image Processors, Movie Business, Stereoscopic Vision.

Steve Schklair, founder and CEO of 3ality Digital, was interviewed by *Jordi Alonso* during the IBC 2010 Conference in Amsterdam for the journals *Novática* and *UPGRADE*, the 3D movies website 3DMagazine.com and the radio programme "No són hores" (It's not the right time) on Onda Cero Radio Catalunya, Spain.

Jordi Alonso: How did you get started in this industry?

Steve Schklair: I was photography director for many years after completing my cinematography studies at the University of Cinema and I then started at Digital Domain (D2). After some time I became one of the executives of the company. After my period at D2 I set up Cobalt Entertainment, which in time became 3ality Digital as it is today.

JA: Somebody told me that you developed a unique camera for 3D, is that true?

SS: It was a concept, but I never took it to the final product stage, because it wasn't professional enough. It's a matter that has been around in the industry for many years, and recently it has been approached by Panasonic and SONY with their 3D camera and 3D camera prototype respectively.

JA: You bought a German company that developed a 3D correction hardware and then you worked on improving the product until it evolved into the SIP (Stereoscopic Image Processors) which are the heart of 3ality's technology, right?

SS: Yes, that's right. Although 3ality is based in California, most of the engineering behind our technology continues to be in Germany.

JA: 3ality has concentrated on the sale of hardware (SIPs and 3D rigs) and offering live, premium content 3D recording services.

SS: That's right, and the truth is that we have recorded practically all sports: American football, Cricket, Boxing, Golf, Wrestling, NASCAR (car racing), ...

JA: ... and at this IBC, table tennis!

SS: Yes!

JA: Besides filming sports, you have been at the head of some very successful music events such as U2 3D, Red Hot Chili Peppers.

SS: Black Eyed Peas!

The Interviewee

Steve Schklair has been working at the forefront of new technologies for the best part of his professional career. He has left his mark on films, special effects and interactive media. As a founding partner and CEO of 3ality Digital (formerly Cobalt Entertainment), Steve is currently concentrating on the development and production of new digital technologies for 3D cinema and for broadcasts of live TV3D. He is considered and praised by a list of international clients as one of the greatest experts in digital 3D and in live 3D, and he is one of the main promoters behind the recent rebirth of 3D Hollywood films. Before Cobalt Entertainment, Steve was an executive at the company Digital Domain, a company founded by James Cameron, and responsible for the visual effects in films such as Apollo 13, The Fifth Element, Titanic and Terminator 2: 3D. He was creative director of R/Greenberg & Associates and worked as executive producer at the pioneering company in the application of computer generated animation and interactive media: Robert Abel & Associates. Steve belongs to the American Society of Cinematographers (ASC) and actively collaborates in the Advanced Technology Committee of this company. He habitually takes part in conferences and seminars on 3D technology and is a former student of the Master's degree program at the film school of the USC (University of Southern California). <<http://www.3alitydigital.com/>>



The Interviewer

Jordi Alonso is a member of the Research department of the Spanish media and entertainment company Mediapro, <<http://mediapro.es>>. He is currently involved with stereoscopies and with the European project Media 20/20 3D, where Mediapro is a partner. He is a collaborator of the Onda Cero Radio Cataluña broadcast "No són hores" (It's not the right time). <jalonso@mediapro.es>

JA: Oops yes, Black Eyed Peas, sorry, my mistake!

SS: Also Kenny Chesney, which wasn't a film but a concert subsequently postproduced ...

JA: ... and that would be a brief review of the past, because at this IBC 2010 you have presented a new 3D mirror rig, the TS-5, designed for shoulder operations.

SS: Yes, the shoulder camera and also for operations using steadycam and with wireless operation.

JA: *At this IBC, besides the TS-5 rig you have also announced an agreement with the Spanish company SGO, developers of 3D Mistika postproduction software.*

SS: Yes, software you know well!

JA: *... and I suppose you know that Mistika comes from a previous development, JALEO, a postproduction software which already carried HD content in the time of SGI.*

SS: Yes, I know the history very well, JALEO was an excellent product, but the company that created it, Comunicación Integral, started to have financial problems and SGO bought the product.

JA: *... and last year Mistika took a leap forward in 3D, with a long list of improvements that it incorporated, coinciding with the IBC.*

SS: Yes and now it will also incorporate the metadata that we use as well as a series of improvements that we have suggested.

JA: *You also had Pablo de Quantel, Scratch de Assimilate...*

SS: Yes, we use Pablo, and we are also using Scratch.

JA: *And you may even have a Nuke license, right?*

SS: Didn't you know that we developed Nuke originally in D2? I know Nuke very well because we developed it ourselves.

JA: *Well you have an arsenal in your central offices in Burbank, with all these tools for 3D postproduction.*

SS: Well yes, you could say that, but they are just tools for our work, and what we like is to have contact with the developers in order to improve them.

JA: *At present, and regarding hardware, 3ality markets the rigs and the SIP stereoscopic image processors. As regards content, you continue filming in 3D matches in the NFL American football league, concerts and you also offer consultancy and training services for TV companies entering the world of 3D. Are these the two current areas at 3ality Digital?*

SS: Our productions are designed to provide our present and future clients with production capacity. Our productions focus on the sale of equipment. I told you that a few years ago when we met, that to make 3D into an industry we need more than just 3ality digital and PACE creating content. We have to get TV companies to produce their own content, as at the moment, more than anything they are filming tests. We want the world to be able to create 3D content, and for this to become an industry. Currently this is not the case.

JA: *And with a view to the future, what position do you see for 3ality? The creation of content?*

SS: The creation of content is not the mission of 3ality. 3ality's mission is to create technology and license software, that is the mission of 3ality. If a commission arrives to produce some content it could be a personal project, but that isn't the business objective of 3ality.

JA: *So 3ality is sticking to consultancy services, training and selling hardware.*

SS: Exactly: the content will not come from 3ality, but it may come from me?

JA: *For people who do not know Steve, he is quite an aggressive type when he sees 3D content badly done, and I think that's good.*

SS: Do you think I'm aggressive?

JA: *Against bad 3D yes you are!*

SS: I am passionate about good 3D, but not aggressive!

JA: *Okay, well, we'll leave it as passionate against bad 3D and strongly in favour of good 3D.*

JA: *And in your talks and conferences, you always talk and show how perfect 3D should be in terms of pixels (pixel perfect 3D), and you always wear very eye-catching footwear, that contrasts with your black suits.*

SS: Do you like my trainers? (**JA:** *He shows me some trainers that are a lot less eye-catching than the ones he wears for his talks*). Whenever I'm giving a talk I always wear a pair of red trainers, and this has now become a tradition. I have three different pairs of red trainers and the truth is that I like carrying on traditions.

JA: *How do you see the evolution of the market? We've seen a lot of fuss, we've seen a lot of bad 3D content, there have been many emerging television companies that need content and who will accept almost anything, and as far as I can see, the only TV channel that has given any kind of guidelines as to what the 3D content must be like has been SKY in the United Kingdom. I don't know if ESPN or any others are doing the same.*

SS: No, Sky has developed a series of guidelines in what constitutes acceptable 3D content, and these guidelines have proliferated throughout the industry, but at the moment only Sky has imposed them.

JA: *And do you think they're necessary? Or rather, do you think they should be obligatory?*

SS: Yes, I think so. There aren't any standards yet, and that would be an area in which one could say whether it was good or bad, but of course at this point where we are now we need some type of criteria on what is acceptable for broadcast, and they have published what their criteria is. This criteria leads to the creation of technically good 3D, another matter is whether this content will be creatively good or not. These guidelines are limited to technical aspects. In 2D there are standards which say whether a signal is in the limit of the broadcastable or not, besides the regulations of the corresponding organizations. In 3D there isn't anyone to say whether 2 pixels or 10% of parallax are acceptable or not and if it is you have to edit it once again and change it so that it complies with the rules, because these rules currently do not exist.

JA: *And I think that it is here that problems could arise for audiences who watch TV3D for a long time, and they go from one programme with some adjustments, to an advert with a lot of negative parallax, and then to another advert that has extreme positive parallax, ...*

SS: That will happen

JA: *And don't you think that this could drive away the audience and damage the incipient 3D? I was quite affected*

by some surveys carried out in the UK and in the USA, in which people think that, in a very high percentage, that 3D can damage your eyesight. I would say that that would be bad 3D, but...

SS: It isn't that it could damage your eyes, the thing is that you are forced to use your eye muscles in a way that they are not used to working.

JA: But that must be a problem of bad 3D, because if the 3D content is perfect in pixel terms, that should not occur...

SS: I suppose so. If you remember, the panel in which I took part yesterday, there was an ophthalmologist who mentioned that 3D could be the best way to detect possible eyesight defects at an early stage, as, if you can't see correctly in 3D, ophthalmologists have the way of finding out why not, and perhaps they will be able to correct this defect in time.

JA: As regards the future, we know that the present of 3D is 2K, 24Hz and triple flash but people want more hertz, even 60.

SS: Yes, because 24Hz is a bother.

JA: I had the privilege to be able to see your 3D American football content at 60Hz, and I can guarantee that I prefer it at 60Hz than at 4K.

SS: If I was obliged to choose between 4K and more hertz, I would choose more hertz, I prefer greater temporary resolution than greater spatial resolution.

JA: You think that the DCI (Digital Cinema Initiatives), well, the truth is that it's an organization that no longer exists ...

SS: The DCI was dismantled.

JA: ... well the organization in charge of regulations ...

SS: It will definitely have to be the SMPTE (Society of Motion Picture and Television Engineers).

JA: Do you know if there is any initiative that is heading in that direction?

SS: Yes of course, there are several groups that are studying it, in various organizations.

JA: I was also disappointed at the presentation given by Manolo Romero, CEO of OBS (Olympic Broadcast Services), because he didn't mention any 3D in his reference to the London Olympic Games in 2012.

SS: The matter is now being discussed.

JA: Manolo Romero spoke about news, super slow cameras, internet, and he even answered some question from the audience in relation to the athletes' telemetry data, almost similar to what we can see in Formula 1, but nothing about 3D. I have heard that maybe they are carrying out tests on Super HiVision (8K), but still nothing about 3D.

SS: There's no official commitment to do it, there are several groups close to the organization of the games talking about it, but no decisions have been taken yet.

JA: Do you think that this positioning of the OBS could partly be due to the main TV networks who have the rights to the 2012 games (the BBC in the United Kingdom and the NBC in the USA) are not networks that have made any pronouncement in favour of 3D, while their competitors Sky

and ESPN respectively, are very active as regards 3D?

SS: They aren't active and aggressive regarding the adoption of 3D yet ...

JA: But are you insinuating that perhaps in two years they could be?

SS: I think that they could be looking at what options they have.

JA: And looking further into the future, I think that everybody will want to do away with the glasses. Have you seen anything in that direction that looks promising as commercial technology within 5 years or more?

SS: I have seen a technology that isn't parallax barrier technology, which I don't like for several reasons, such as the loss of resolution and a very limited point of view. But I did see a technology in Czechoslovakia, or perhaps it was another country...

JA: Perhaps it was in Hungary, in Budapest, where there's a company called Holovizio.

SS: Yes, it was Holovizio in Budapest. A very promising technology, but it was a bigger room than the one we're in now, and it wasn't very practical.

JA: And for capturing? Synthesis image is used a lot ...

SS: I can interpolate as many views as I like, and reach n views. I'm not worried about capture, because it's a matter that I know how to solve, but with all this display of mirrors for displaying content, I don't see how it can be converted into a flat screen.

JA: Have you seen Burton Inc's experimental product on a new technologies stand at the IBC or perhaps a few years ago at the Siggraph?

SS: No, what technology do they use, holography?

JA: No, it seems they use laser and plasma, but it looks very preliminary although very eye-catching, it reminds me of the images of Princess Leia in Star Wars.

SS: But then it will be monochromatic and low resolution

JA: Effectively. But there are a lot of initiatives emerging lately.

SS: We are still so far from the holography in the home, that I will be dead by the time it happens.

JA: Even at cinemas? Or on IMAX screens?

SS: When you sit down in the stalls to see a 3D film, what does it matter whether the technology for seeing the content is holography, it's projected or its seen on a flat screen, I don't see the advantage of holography, because you are still sitting in the stalls. I just know that there will be less resolution, fewer colours, ...

JA: Well, thanks a lot for your time, Steve.

SS: My pleasure!