

Stereoscopic Displays and Applications XXVI

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Editors

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SD&A Closing Remarks and Prizes

Nicolas S. Holliman, The University of York (United Kingdom)

Stereoscopic Displays and Applications XXVI

The World's Premier Conference for 3D Innovation

Introduction

The 2015 Stereoscopic Displays and Applications (SD&A) conference was the twenty-sixth in the series, moving into the second quarter-century where the conference has developed into the premier venue for the dissemination of research on stereoscopic displays and their applications.

SD&A attracts key players in the field: stereoscopic experts from industry and academia presented the two keynotes, participated on the discussion panel, and spoke in the technical presentations. The conference had an excellent technical program covering a wide range of stereoscopic topics.

This year the conference received 74 paper submissions. Of these, 36 were accepted for oral presentation (49%), with an additional 6 interactive papers accepted as posters.

This conference proceedings volume contains the technical papers in support of both the presentations and posters given at the conference. This introduction gives an overview of the conference—a reminder for those who attended and an insight into what happened for those who were unable to attend.

SD&A took place 9–11 February 2015 as part of the 2015 IS&T/SPIE Electronic Imaging: Science and Technology Symposium, at the Hilton San Francisco Union Square Hotel, in downtown San Francisco.

The **first day** had four technical sessions running in the symposium plenary auditorium. Topics covered high parallax displays, camera designs, applications and light field displays. The day also included the first of the two keynotes, the two-hour 3D theatre, and the twenty-sixth SD&A conference banquet.

The **first keynote presentation** was given by Ian Bickerstaff from Sony Computer Entertainment (United Kingdom) it was entitled *A Stereoscope for the Playstation Generation*. Ian discussed in depth his thoughts on VR displays: “After many years of waiting, virtual reality will soon be available for home use. Smart phones have

given us small, high quality displays and accurate movement tracking while the games industry has given us the necessary real-time graphics power to drive these displays. In addition, advances in technologies such as free-form optics, and binaural audio processing have arrived at just the right time."

More than just viewing images on a screen, the aim of ventures such as Sony Computer Entertainment's Project Morpheus is to produce a system that convinces the wearer that they have been transported to another place, and the display system is a vital component. Ever since the beginning of photography, equipment has been created to achieve this goal: an 1850s Brewster stereoscope contains many design features found in the latest HMDs. In both, near orthostereoscopic viewing conditions ensure that subjects appear life sized and with realistic depth placement. Unlike a monitor or cinema screen, images are always seen from an optimum viewing position with keystone distortion and vertical parallax kept to a minimum. A far greater range of depth can be viewed comfortably on a head-mounted display than is possible on a conventional screen."

The two-hour **3D Theatre Session** is a regular highlight event that showcases 3D content from around the world. This year, the following forty-one pieces (or segments thereof) were screened:

1. "The Whitewashing of 5 Pointz" - Ben Schwartz (USA) †
2. "Luigi's Pizzaride 3D" - Florian Werzinski (Germany) †
3. "Safety Geeks SVI trailer" - Lumen Actus Productions (USA) †
4. "Geometry of Numbers" - San Base (Canada); music by Ugo Altamore (Italy) †
5. "Mr Hublot" - Laurent Witz & Alexandre Espigares (Luxembourg) †
6. "Hyperlapse - Scenic in Japan #1" - Takashi Sekitani (Japan) †
7. "Gravitational Lensing" - Ralf Kaehler (KIPAC/SLAC), Carter Emmart (AMNH), Tom Abel (KIPAC/SLAC) (USA) †
8. "Intermission" (from 2003) - Don Hertzfeldt and Robert Howell (USA) †
9. "Airground" - Sylvia Nicolaidis (Cyprus) †
10. "Elysian Fields" - Ina Conradi Chavez (Singapore) †
11. "Maidan Today" - Stéphane Dalmat (France) †
12. "Temple of Zen 3D" - Tsz Shan Monastery (Hong Kong) †
13. "Dzignlight Studios Timelapse 2015" - Eric Deren (USA) †
14. "Cosplay Dreams 3D" - Passage Productions and Drama House Productions (USA) †
15. "Maleficent" - Walt Disney Pictures (USA)
16. "Austin, Texas 3D Time Lapse" - Landon Gaus (USA)
17. "Fanfare Intro Foxtrot" - Chris Casady (USA)
18. "Being there; Mauritshuis The Hague - Vermeer - Girl with a Pearl Earring" - René van Gageldonk (Netherlands)

19. "Frozen" - Walt Disney Animation Studios (USA)
20. "Austin Surhoff, UT Swimmer" - Patricio Elizondo (USA)
21. "Ratatouille" - Pixar Animation Studios (USA)
22. "Cochemare" - Chris Lavis and Maciek Szczerbowski (Canada) †
23. "The Depths" - Jordan Dowler-Coltman (Writer/Director) (Canada) †
24. "My Robot" - PARAN52FILM (CEO: Choi Yang Hyun) (South Korea) †
25. "Northern Lights over Mount Halde" - Morten Skallerud (Norway) †
26. "The 3D-Machine - the series - Episode 3" - Ka-Ching Cartoons (Netherlands) †
27. "Frames" - Emmanuel Albano (Canada) †
28. "Snakes 3D" - Wild Earth Media (South Africa) †
29. "Compromiso: ALA 15 (Commitment: 15th Wing)" - Alfredo Gonzalez / Sergio de Uña / José Luis Roig (Spain) †
30. "Grami's Circus Show" - Studio Gale Co, Ltd. / KBS Media (Korea) †
31. "Red White Black and Blue" - Nicholas D'Agostino (USA) †
32. "Trail Riders of America Double Cross and Dirt Jump Contest" - Nat Bartholomew (USA) †
33. "The Chaperone 3D" - Fraser Munden (Canada) †
34. "Yili" - Digital Magic Limited (China) †
35. "One Night in Hell" - Jason Jameson & James Hall (England) †
36. "The Bubble" (from 1966) - 3-D Film Archive, LLC (USA)
37. "Pequeñas Voces (Little Voices) trailer" - Jairo Carrillo (Colombia)
38. "Later, in the Restaurant..." - Karel Bata (England)
39. "Friskies 3D" - Brash 3D (Colombia)
40. "Dragonfly Squadron" (from 1954) - 3-D Film Archive, LLC (USA)
41. "Oceans" - Maria Juranic (USA)

All entries were screened in high-quality polarized 3D on the conference's large projection screen. The Best of Show awards were judged by Eric Kurland (3-D SPACE) and Lenny Lipton (Leonardo IP). Content contributors self-selected if they wished their entry to be included in the competition - indicated by (†) in the list above.

The judges chose the following 3D content winners as **Best of Show**:

Live Action – "The Whitewashing of 5 Pointz", B. Schwartz (USA)

Computer Generated – "Cochemare", C. Lavis & M. Szczerbowski (Canada)

The producers of the 2015 SD&A 3D Theater were John Stern (Intuitive Surgical Inc., retired), Chris Ward (Lightspeed Design, USA), and Andrew Woods (Curtin University, Australia). Additional support was provided by Dan Lawrence

(Lightspeed Design). The 3D content partners for the 3D Theater session were the LA 3-D Movie Festival (USA), 3D Content Hub (Germany and Australia), and 3-D Film Archive (USA).

The evening concluded with the twenty-sixth anniversary conference dinner at The Old Siam Thai Restaurant on Ellis and Mason, opposite the conference hotel.

The **second day** of the conference had three technical sessions on autostereoscopic displays, human factors and performance and visual comfort. The day also included the second SD&A keynote, the demonstration session, and the poster session. Full papers from both the technical sessions and the poster session are contained in this volume.

The **second keynote presentation** was presented by Jenny Read, Reader in Vision Science in the Institute of Neuroscience at Newcastle University. She gave an informative and illuminating presentation on the theme "What is stereoscopic vision good for?" covering topics in stereo vision in humans, animals, and insects, and a recently started project investigating stereo testing for children using a gaming system.

The final event of the day was the ever-popular **Demonstration Session**, which has run every year since 1990. Since 2006, this has been a symposium-wide event, open to demonstrators from all of the Electronic Imaging conferences. It was pleasing to see a wide range of demonstrations and to see a large audience actively engaging with the various displays and vendors. The buzz in the demonstration session was excellent.

A prize was awarded for the best 3D demonstration at the session. The judging panel consisted of the on-site conference chairs and the winner was Steve Mason, Yavapi College (USA), for his demonstration of electronic and hardcopy stereoscopic artworks produced using the ChromaDepth technique.

The **third day** of the SD&A conference had the popular discussion forum and three technical sessions on image processing, multi-view and integral imaging displays, and image production and perception. The day concluded with the Electronic Imaging symposium reception.

The **discussion forum** considered *VR and 3D: Is good 3D necessary for good VR*. The panel comprised moderator **Lenny Lipton** (Leonardo IP), **Ian Bickerstaff** (Sony Computer Entertainment), **Margret Dolinsky** (Indiana University), and **Gordon Weitzstein** (Stanford University).

Video recording was made of most technical sessions in the main SD&A conference hall including the two keynote presentations. Editing is underway and the content will be available online via the SD&A conference website.

In addition to the prizes for the theatre and demonstrations, a final **prize** was offered at the conference for the best use of the stereoscopic projection tools during the presentations. The winner, chosen by the SD&A conference chairs, was:

[9391-50] "A Stereoscope for the Palystation Generation", **Ian Bickerstaff, Sony Computer Entertainment (United Kingdom)**

The prizes this year were copies of *Stereoscopic Displays and Applications 1990–2009: A Complete 20-Year Retrospective and The Engineering Reality of Virtual Reality 1994–2009 (Special Collection) (DVD-ROM)* (ISBN 9780819476593), published by SPIE in 2010. The prizes were kindly donated by SPIE Press.

Congratulations to all our prize-winners in the 3D Theatre, demonstration session, and technical presentation categories.

Many individuals and companies contributed in various ways to the success of this year's SD&A conference:

- We appreciate the support of this year's stereoscopic projection sponsors: **DepthQ** (USA), **Christie Digital** (USA) and **Tekamaki** (USA). The ability to present high-quality large-screen stereoscopic images and video at the conference is vital to the success of the conference. Many thanks to the individuals who worked tirelessly on-site: **Chris Ward** from Lightspeed Design; **Dan Lawrence** from Lightspeed Design, and **Adrian Romero** and staff from Spectrum Audio Visual. The AV setup was overseen by **Stephan R. Keith**; **Diana Gonzalez** from IS&T; and **Andrew Woods**.
- We very much appreciate the dedicated support of **Stephan R. Keith** (SRK Graphics Research), who had a multi-tasked role at this conference, including supporting the needs of all of our presenters.
- We are grateful to all of the providers of 3D content for allowing their content to be shown to the conference audience at the 3D Theatre Session.
- Thanks to the demonstration session presenters for bringing equipment to show – especially to the presenters who brought equipment from overseas.
- The conference committee plays an important role throughout the year, ensuring the correct technical direction of the meeting. Sincere thanks go to our founding chair, **John Merritt**, and our committee, **Neil Dodgson**, **Davide Gadia**, **Hideki Kakeya**, **John Stern**, **Vivian Walworth**, **Chris Ward**, **Michael Weissman**, and **Samuel Zhou**.
- We particularly wish to acknowledge and thank **Vivian Walworth** and **Samuel Zhou**, who are retiring from the committee following the 2015 conference. They have both provided many years of valued service to the conference.
- Thanks also to the staff at IS&T and SPIE, the two organizing societies, who were instrumental in organizing all manner of aspects of the meeting.

- Most importantly, we thank the conference authors and attendees, who ultimately made this meeting such a successful event. Thanks especially to those who travel a long way to join us each year.

Conference activities do not stop at the end of the annual meeting. The SD&A conference website and LinkedIn group provide a focus for conference activities during the time between conferences. We will soon be actively seeking abstracts for the 2016 conference, with a deadline in mid-2015 – see the website for details and deadlines. You can join the SD&A LinkedIn group to receive conference announcements. The website has an extensive collection of photographs highlighting the activities of past conferences. In addition the website hosts the stereoscopic virtual library, which contains several historically important books that have been digitized, in full, into PDF format, and are available for free download. The SD&A conference runs an active LinkedIn group which is available at:

www.linkedin.com/groups?gid=1945944

You can visit the conference website to gain an understanding of the past, present, and future of stereoscopic imaging. Please think now about submitting a paper or attending next year's conference. The Stereoscopic Displays and Applications conference website is at:

www.stereoscopic.org

Next year, the 27th annual SD&A conference will be held in February 2016, at the Hilton San Francisco Union Square Hotel in downtown San Francisco.

The 2016 SD&A conference will continue a tradition of presenting and demonstrating the latest technologies relevant to stereoscopic displays and applications. Please consider attending, presenting, or demonstrating at the 2016 event. We hope to see you there!

Nicolas S. Holliman
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