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This special installment of Digital Frontiers focuses on DomeFest 2007, the annual full-dome art and science festival held July 20-23 in beautiful Albuquerque, New Mexico in the US's desert southwest. By all accounts, DomeFest 2007 was an astounding success, and has become the place to connect with the full-dome arts and production community. This year included expanded workshops, production talks and show screenings, and "birds of a feather" meetings to assess full-dome industry

needs and set new directions for standards efforts. Here are highlights of DomeFest 2007.

DomeFest Awards

The DomeFest awards provide special recognition of selected fulldome pieces in the DomeFest Juried Show. The Dome Awards Committee included Alex Hall, Maya Skies executive producer at the Chabot Space and Science Center; Ken Perlin, New York University Media Research Lab; Steve Savage, president of Sky-Skan; Claudia Valdez, associate director at the University of New Mexico Arts Tech Center; and Ryan Wyatt, director of Science Visualization at the California Academy of Sciences. Please see www.domefest.com for a full list of jurors. The screening and awards ceremony were held in Albuquerque's LodeStar Astronomy Center. A complete list of winners appears on page 53.

Presentation Sessions

This year's DomeFest included a number of engaging presentations. These sessions rounded out the event, making it as informative as it was fun and entertaining. They were interspersed with short talks and screenings from past DomeFest shows in the UNM ARTS Lab's gDome, a 4.6-m dome screening room integrated by Sky-Skan.

The sessions kicked off with "Creating a University Fulldome Course" by UNM ARTS Lab's Hue Walker. She is working on her third course in fulldome video at the University of New Mexico, and asked the fulldome production community what skills they would like graduating students to come away with. The discussion ranged a full gamut, from production management and planning skills to research into what is unique about the dome versus flat-screen theaters. I added that the new field of neuroaesthetics could likely an-



swer some of these questions using advanced brain scanning technologies.

Next, Mark and Carolyn Collins Petersen of Loch Ness Productions presented "Full-dome: Now and in the Future, or Ruminations on the Slippery Slope." As many already know, Mark curates the *Full-dome Theater Compendium ONLINE!* at www.lochnessproductions.com, which is the industry's most comprehensive database of fulldome theaters. Mark presented some preliminary statistics not yet available through the compendium that created quite a buzz. We learned that 54% of fulldome systems worldwide are fisheye projectors (primarily small and portable domes with a few exceptions, such as Spitz's ESky II).

We also learned that E&S and Sky-Skan currently lead the market with 65 reporting installations each, and that there are at least 79 fulldome programs currently being played worldwide. Mark's cursory survey of digital dome theater websites (yes, he went to every fulldome theater website he could find, bless his heart) revealed that the most popular fulldome show is currently the Clark Planetarium's *Secret of the Cardboard Rocket*, now reported playing in 18 theaters worldwide. Mark emphasized that these results were preliminary estimates, so please don't tell anyone. Carolyn wound up the presentation with a list of questions to spark dialog within the fulldome production and institution community.

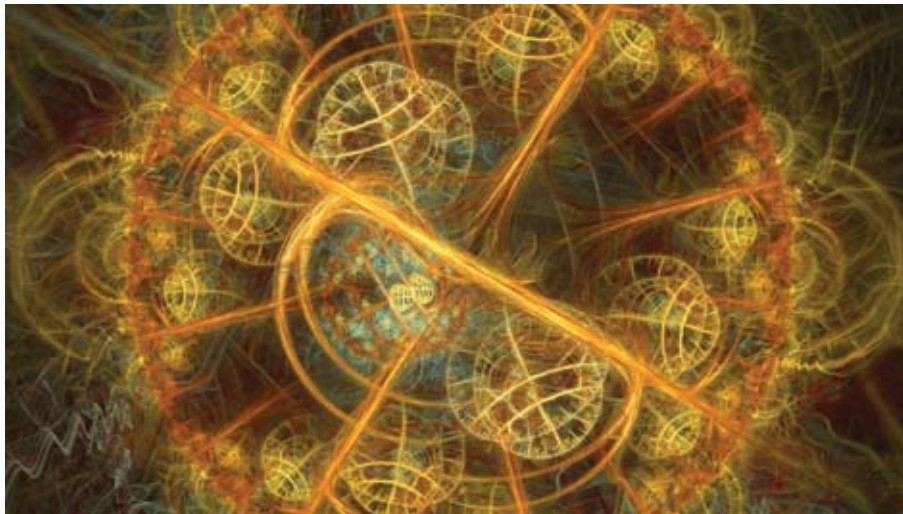


Sky-Skan's Pre-Conference DigitalSky 2 Class (Courtesy Ian McLennan)

Friday afternoon's sessions started with a stunning overview of immersive image capture by Bill Lange of Woods Hole Oceanographic Institution. Imagine wide field images taken from the Alvin submersible from 3000 meters under the ocean! Our awe only deepened with Ian McLennan's sneak preview of his upcoming collaboration with the European Organization for Nuclear Research (CERN) to create a full-dome dataset for the sub-atomic scale, and the Chabot Space and Science Center's presentation on Maya Skies, including an overview by Cynthia Ashley and a fascinating presentation of image-based capture and 3D reconstruction of ancient ruins and architecture by Kevin Cain of the Institute for Study and Integration of Graphical Heritage Techniques (INSIGHT).

Friday evening began with the US debut of Sky-Skan's demonstration of *definiti3D*, a fully hemispheric projection system based on the Sony SXR4K technology with stereoscopic capability provided by Infitec. The result was nothing less than stunning, resulting in one of DomeFest organizer David Beining's favorite moments of the show, when he "looked back at the full house to see the dome glinting off the Infitec glasses, hands reaching up to touch the stars, and a whole lot of tonsils in the gawking crowd." The evening wrapped up with a party by Harmony Channel featuring visual music projections.

Saturday morning's sessions started out with "The Making of *Zula Patrol: Under the Weather*" by Spitz's Creative Media and Zula USA. *Zula Patrol* is a great example of how to team a fulldome program with a global brand for mutual benefit and co-marketing value. We were then treated to "The Making of *Black Holes: The Other Side of Infinity*," presented by the Denver Museum of Nature and Science and the National Center for Supercomputing Applications. This show is packed with high-end simulations from numerous prominent scientists and is, perhaps, the first live-action cinematography seen in a planetarium-oriented fulldome program.



Scott Draves's Electric Sheep: the Collective "Dream" of 45,000 Computers (courtesy Scott Draves)



Regular (left) and Wide Field (right) Infitec Glasses for Sky-Skan's *definiti3D* (courtesy Mike Smail)

Sunday's sessions started with "The Making of *Dawn of the Space Age*" presented by Mirage3D's Robin Sip. The 42-minute show, rendered entirely in 4k native resolution, features the excitement of the early days of space exploration, from the launch of the first artificial satellite Sputnik to the magnificent lunar landings and privately operated space flights.

Next up was Scott Draves, computer artist pioneer and co-winner of the Harmony Channel Award. Scott explained how the genetic code used to render his winning piece, *The Firebird*, required 250,000 hours of CPU time to render at 2300 x 2300 pixels. Fortunately, the piece was rendered by a cybernetic network of 45,000 computers via the Electric Sheep screensaver and BitTorrent peer-to-peer protocol (much the same as SETI@Home). Scott described his Electric Sheep as a self-sufficient, artificially intelligent living entity that users can watch and influence, and personifies it as a message of peace and love from the machine world to humanity because of the great beauty of the resulting images. Wow. Perhaps that's why he also received an impromptu "Director's Choice" award from David Beining. Check it out yourself at www.ElectricSheep.org.

Additional experimental works were presented by Ryan Wyatt with *Numerology 0.1*, demonstrating a beautiful merger of data visualization and art; *The Magic Pumpkin* by Harald Singer of LivinGlobe in cooperation with Zeiss, demonstrating 6k x 6k digital image capture; *Keylime and Blueberry Sherbet*, an algorithmically-created visual music by New Mexico artist Dr. WooHoo; and *Black Holes: Journey into the Unknown*, an awesome production that flooded the DomeFest Awards Committee, presented by producer Monica Zeltin of Melbourne Planetarium in Australia.

Spontaneous Fantasia

Sunday evening culminated with a live 3D immersive art performance by computer artist J. Walt Adamczyk titled *Spontaneous Fantasia*. This performance topped off the fest for

many, including me, who have long dreamed of the dome as a live performance space for journeys both real and imagined. The performance consisted of several pieces, including several abstract computer graphic creations floating in space (reminiscent of laser lightshows) and live creation of virtual worlds on an otherworldly landscape, and ended with a dramatic flythrough of the spontaneously created world titled *Autocosm: Gardens of Thuban*. Find out more at www.SpontaneousFantasia.com.

Birds-of-a-Feather

There was an extremely good turnout for Monday's extended Birds-of-a-Feather meetings. First up were real-time system demonstrations. Martin Ratcliffe of Sky-Skan showed off DigitalSky 2.1, including the ability for users to load their own extrasolar planets.

This was followed by a UniView demonstration by Jan Warhaus of SCISS AB, focused instead on planet Earth. The tour culminated with a stunning demonstration of remote collaboration. With the help of Skype and the UniView Octopus server, Carter Emmart at the American Museum of Natural History in New York City and Staffan Klashed (CEO of SCISS



2007 Domie Award Winners

Best of Fest

Our Turn to Dance

Director/Producer: Hue Walker

Poetry/Music: Mitch Rayes

Affiliation: Independent Artists

Best Use of Dome

Adamas—The Journey of Light

Producer/Director: Peter Popp

Producer: Rita Werner

Affiliation: Softmachine, GmbH

Best Narrative

Black Hole: Journey into the Unknown

Producer: Monica Zetlin

Affiliation: Melbourne Planetarium@
ScienceWorks

Best Live Capture

Seeds of Spring

Director of Photography: Richard Power
Hoffman

Editor: Jon Shearburn

Affiliation: Coyopa Productions, Inc.

Best Student Production

SPLAT!

Producer/Director: Troy Whitmore

Producer: Patrick Vidal

Affiliation: UC-Denver/Denver Museum
of Nature & Science/uni3D.com

Sony 4k Award

Rocketman

Director/Producer: Robin Sip

Producer: Peter A. Flink

Affiliation: Mirage3D

Harmony Channel Award for

Best Mood-Elevating Visual Music

The Firebird

Visuals: Scott Draves & the Electric Sheep

Music: Kenji Williams

Affiliation: Spotworks

and

Chaoscapes

Visuals: Rocco Helmchen

Music: Andre Schroeder

Affiliation: Carl Zeiss, Inc.

AB) in Sweden made a virtual visit to DomeFest, commandeering Jan's laptop and taking Monday's attendees on a flight over New Mexico and the southwest US with the latest LandSat and other sat-skins. This must be a dream come true for Carter, who presented his vision of worldwide audiences sharing in "guest lectured, tele-collaborative immersive presentations, interactive instruction, and discussion" in his December 2005 *Planetarian* article titled "The Powers of Ten with a Steering Wheel on the Global Visualization Superhighway." Many of us agreed that this was an important moment in the history of the full-dome medium.

The remainder of the day was a series of group discussions moderated by Ryan Wyatt and discussion leaders Tim Florian Horn of Hamburg Planetarium in Germany, "Art: performance, tools, and examples"; me, representing Visual Bandwidth, for "Real-time: hardware, software, and content sharing"; Matt Mascheri of Adler Planetarium in Chicago, Illinois, "Animation/CG: tools, trends and tricks," and Ryan himself, on "Business: models, opportunities, and funding." A number of important issues were raised that will set directions for the IPS Full-Dome Video Committee headed by Ryan.

Conclusion

DomeFest was a groundbreaking event, proving to be a "must attend" fest for anyone active in the fulldome arts and sciences or seeking to learn about this specialized field. Unlike past years, DomeFest sponsorship has broadened, including support from Sony, Sky-Skan, Infitec, Zeiss, Harmony Channel, the newly formed global immersion (www.globalimmersion.com), and local supporters, including the University of New Mexico, UNM's ARTS Lab, SICORP, the Bernalillo County Public Art Program, the Albuquerque Film Office, and the New Mexico Film Office. Kudos to DomeFest sponsors, organizers, volunteers and participants for advancing the fulldome and digital planetarium professions.

I'll close this article with a quotation from planetarium veteran and first-time DomeFest attendee, Carolyn Collins Petersen, who pretty much says it all:

"This was our first DomeFest. I had many

impressions of the meeting as it went along, but my overwhelming one was 'Why can't more planetarium conferences be like this?' By that, I mean the fact that the focus of the meeting was to see shows and discuss them. Shows are our lifeblood in the dome biz, and the experience of seeing many shows and being able to discuss and critique them with our fellow producers was priceless.

"The gathering was very eclectic. It didn't matter if we were producers, vendors, or institutional representatives—we all had a voice and we all contributed to the extent we felt comfortable doing so.

"The content spanned the gamut—something for everybody's taste. I'm sure we all don't agree on our favorite presentations, but each one gave us good ideas of what's being done out there, and as important, what's possible and do-able. I came away with a sense of optimism about some of the shows we want to produce.

"The discussions on standards on Monday were quite enlightening, particularly as I watched and listened to the attendees who were not from the planetarium 'tradition' struggle to understand the very unique needs, mindsets, and practices that a lot of us 'grew up with' in the planetarium environment. We truly are a niche community. I did find myself wondering how our community will change as the dome finds itself more in demand by 'outsiders' and what we will do to accept or help make those changes.

"Personally, we appreciated David's hard work to pull it all together, his generosity toward everyone's contributions (we were pleased when he announced the 'world premiere' of Mark's new Geodesium album *A Gentle Rain of Starlight* in the dome), and his sense of humor as things took on a life of their own at the meeting. It led to a certain 'fun' atmosphere, as if anything was possible and all we had to do was wait and see.

"I came away with a sense of what I'd like to present at future DomeFests. I hope that we can keep the sort of zany, informal atmosphere for future fests, without bogging it down with ritualized formality, high fees for attendance, vendors-vs-us attitudes, etc. that sometimes occur at other conferences."

Carolyn Collins Petersen
Loch Ness Productions



Hue Walker sports her Domie award for Best of Fest (photo courtesy Visual Bandwidth)