

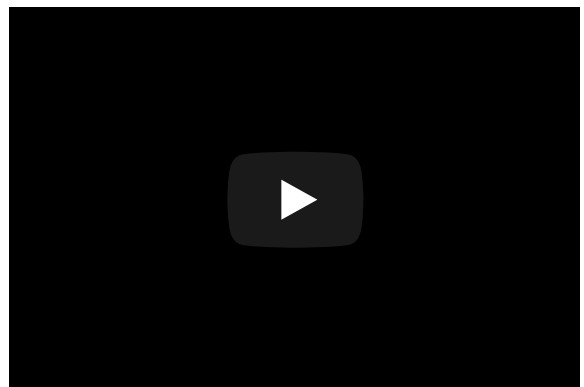
May 18, 2016 | By Tiffany Fox

UC San Diego Technology Debuts at California's Great America in New "Mass Effect"™ Attraction

A new, immersive 4D audio and visual experience at California's Great America amusement park in Silicon Valley is the first attraction worldwide to feature patent-pending spatialized audio beamsteering technology developed by researchers at the University of California, San Diego.

"Mass Effect: New Earth, A 4D Holographic Journey" opens to the public tomorrow and features Near/Far Acoustic Field (NFAF), an audio infrastructure developed by researchers based at the Qualcomm Institute, the UC San Diego division of the California Institute for Telecommunications and Information Technology. This infrastructure makes use of 3D audio beamforming technology that was licensed exclusively by Comhear, Inc., an inaugural partner in the Qualcomm Institute (QI) Innovation Space. The attraction also represents the first time the Comhear MyBeam Sound Bar will be used in a public venue.

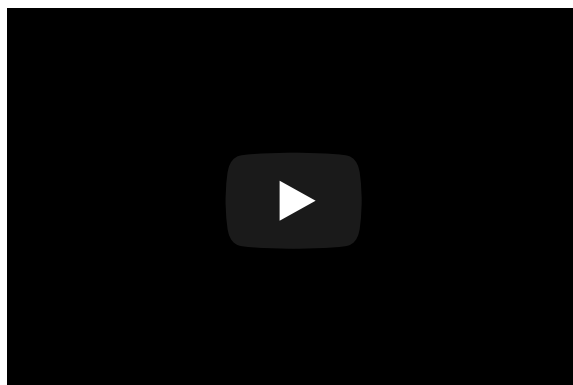
The attraction's 3D spatial audio system, combined with what is being billed as the world's largest and highest resolution 3D LED screen, will immerse guests of the park in the popular "Mass Effect" video game developed by BioWare™, a division of Electronic Arts. The experience features settings, characters, music and visuals familiar to players of the critically acclaimed game series and will take guests on an outer-space adventure, hurtling them through visually stunning landscapes to face off against larger-than-life adversaries and help "save the day."



Working under the auspices of their start-up company, Crescendo Media Engineering, QI Sonic Arts researchers Peter Otto and Jeff Sandubrae and a small team of audio engineers including Daniel Ross from UCSD's Music Department created the attraction's audio design from a library of sound from the Mass Effect game provided by BioWare, as well as custom-generated sounds. Additionally, QI Sonic Arts researchers Eric Hamdan, Raphael Melgar, and Drew Allen generated unique audio filters and a hardware form factor specific for the theater to create the near field 3D immersive sound. Unlike the restrictive limitations of headsets and personal entertainment systems, NFAF audio is seamlessly integrated with story, picture, motion effects and multi-sensory production on a cinematic blockbuster scale by way of the theater's 72-channel state-of-the-art theatre speaker system, integrated with an advanced 480-speaker binaural auditory imaging system.

"Comhear's MyBeam platform is ideally suited for Great America's 4D experience theme park attraction," says Comhear CEO Perry Teevens. "Participants would normally need to wear headphones to experience deep immersive spatial sound effects, which are an essential part of the 4D theater experience. This is a major breakthrough for public audio applications. We are proud to be associated with California's Great America, UC San Diego and Crescendo Media Engineering on this project."

The MyBeam speaker arrays are located directly in front of the guests' motion seats, with one array for every two guests. The system enables the arrays to project four audio beams to "create sound objects that move around the room and also project some very intimate sounds right next to your ears," Sandubrae says.



"This is the first environment of its kind to have this many individually controlled speakers," Sandubrae adds. "We've found that this spatialized, personalized audio experience elevates the suspension of disbelief that 3D video provides, providing a highly realistic and engaging experience. It's very technical on one the one hand, and very artistic on the other. It is a new paradigm for sound design."

"We call it 'wow factor' for your ears," says Christian Dieckmann, Corporate Vice President of Strategic Growth for Cedar Fair Entertainment, which owns Great America, Knott's Berry Farm and 12

other theme parks. “This is the kind of technological experience that can’t be replicated at home or even in a small entertainment venue. It’s next-generation, next-level 4D.”

The 4 ½ minute experience takes place in the park’s 80-seat, newly renovated Action Theater. Guests take their seats aboard the “Terra Nova Cruiser” and are debriefed by a live actor on their impending inter-galactic adventure. Through a fictional relic of ancient alien technology known as a “Mass Relay,” guests travel to the planet Terra Nova, where “not all is as it should be.” The experience is made all-the-more realistic by water and air jets, neck and leg ticklers, scent generators, and vibrating transducers built into state-of-the-art MediaMation seats, providing the 4D effect. Sandubrae notes that the family-friendly journey, while intense, “doesn’t involve any violence against people – only monstrous aliens.”

The Crescendo team faced numerous design challenges during the execution of the project. While auditory realism was the top priority for Crescendo, scenic elements in the theater had to also create the illusion that guests were inside of a star cruiser that roars to life and launches through space at faster-than-light-speed. The team used numerous techniques to integrate the massive sound system into the theater’s “acoustically transparent” scenery.

“3D Live is always looking for new technologies to pair with our technology,” said the company’s co-founder and CEO Nathan Huber.” When I first met the Crescendo team I knew we would work together on something, I just didn’t know what it would be. When the park approached me for this project, I immediately thought I should bring in Crescendo.

“Many productions treat sound design as the last piece of the puzzle. We wanted to take this visually immersive project and make sound design an integral part of this concept. I think the audio technology in this project will lead the way in live immersive entertainment.”

California’s Great America is located in Santa Clara, Calif., and celebrates its 40th anniversary this year. For more information or ticket prices, visit [cagreatamerica](#)

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