

Designing the Sounds of an Indoor Theme Park with Steve Lane of GCVRS

An indoor theme park presents exciting opportunities and challenges for audio designers such as Steve Lane, the technical lead at GCVRS, an immersive audio design company. GCVRS, a division of GCRS, creates, mixes, implements and integrates 3D audio into attractions like those found at the new Lionsgate Entertainment World indoor theme park in China.



The theme park boasts a slew of virtual reality- (VR) and augmented reality- (AR) based attractions. GCVRS was brought on to the project in 2016 to design the sound for four of the park's cutting-edge attractions:

1. Gods of Egypt – Battle for Eternity
2. Mockingjay – Flight Rebel Escape
3. The Twilight Saga – Bella's Journey
4. The Twilight Saga – Midnight Ride

I had the chance to talk to Steve about his experience as a sound designer and what it was like to craft the audio for indoor theme park attractions.



Steve Lane, Creative and Technical Lead at GCVRS

C101: Tell me a little bit about yourself. How long have you worked in this industry?

What sparked your interest in immersive audio?

Steve: I started working at GC almost 17 years ago, as a runner, and worked my way up. We're lucky enough to have directors who encourage experimentation and pushing boundaries, so we've always been interested in pursuing new techniques and technologies. I was always interested in the science behind sound and how we perceive sound, which led me to binaural recordings, and then on from there.

What is the starting point for a complex project like this that involves multiple attractions? Do you have separate teams working on each attraction?

We initially started by working closely with the directors to ensure the creative vision was in place. We did have a team of designers that worked on different parts of the project, which then filtered down to the sound engineers — myself and our director of sound — who were going to be on-site for the live mixes.



Gods of Egypt – Battle for Eternity: a purpose-built rollercoaster for VR, incorporating bespoke headsets and headphones taking riders on a journey through the streets and skies of Egypt on a beetle driven chariot.

What are some of the challenges that go along with designing sound for a relatively tight indoor space where vehicles may be moving from scene to scene?

Audio bleed is always the biggest challenge when it comes to dark rides, which is why it's always essential to be able to mix live on-site, as no matter how much preparation you do, you will have to adjust to the environment!

Have you implemented any never-before-used audio technology on any of these four rides?

We were lucky to be working with some cutting-edge technology, including hyper directional sound bars, and custom speaker rigs, so we had to tailor our own mixing and playback systems to cater for this

Which of the four attractions that GCVRS worked on at Lionsgate Entertainment World are you most excited to ride?

I loved them all, but Midnight Ride was the one I really looked forward to trying. It's such a unique and advanced ride that I'd never tried anything like before. It was a blast!



The Twilight Saga – Midnight Ride is “a multi-player VR experience sitting participants on top of individual motorbikes, using highly directional speakers and real-time audio to give each rider their own unique, aural experience.”

How much if any audio design or testing did you conduct in your office in London? If so, was it difficult to recreate an environment similar to the theme park?

A majority of the design was done in the studios. We are lucky to have an amazing 56speaker studio that can be customized to multiple playback systems, so we could recreate some of the individual rides very closely, which was very beneficial.

I understand that all four of these attractions utilize different sound systems – can you explain some of the differences between those?

We designed and mixed for four distinctly different audio systems.

1. For Gods of Egypt, there were Sennheiser headphones, which we had a pair of already, so early on I started using these to mix (I luckily own a pair personally so was used to them!).
2. For Bella’s Journey, it was a combination of 2.1 & 3.1 speakers located at the screens, a large number of pendent speakers throughout the track, and also a set of speakers on board each car. I had to ensure that when designing the sound, we had a clear idea in advance of which playback system we were planning to use for each sound and adjust and mix accordingly.
3. For Mockingjay Flight, there was a custom speaker setup that was similar to a 7.1.2 playback rig. We knew what each type of speaker that was being used and matched the EQ curves to our own speakers in our immersive studio, to give us a pretty accurate

representation on the final playback system before we even arrived on site – which was nice!

4. For Midnight Ride, the audio playback was with a hyper directional binaural soundbar that is mounted on each rider bike, facing them. We received one of these bars early in the process and created our own version of the bike itself, to allow us to mic as closely as possible to the finished ride.



Mockingjay – Flight Rebel Escape is “a 4D motion simulator using a custom multi-speaker array, set in the dystopian world of The Hunger Games with riders attempting an escape from The Capitol.”

What are some of the challenges involved with using headphones on a roller coaster such as Gods of Egypt ‘Battle for Eternity’?

Well, the biggest challenge is having enough level that the audio is loud enough to be heard, but also dynamic enough to creatively tell the story, and have the main action points punch out, while not losing some of the quieter moments. This process was helped by the great choice of headphones and the relatively isolated environment (for a coaster in a theme park) that Gods of Egypt was in, due to Lionsgate Entertainment World’s indoor environment.

Can you talk about any of the theme park-related projects that are currently in development?

As with most projects, we are NDA-ed (non-disclosure agreement) until release, but there are some really exciting things in progress, with more on the horizon!



The Twilight Saga – Bella’s Journey is “a dark ride immersing riders in the story of Bella from the beginning to end of the Twilight Saga, using a mixture of on-board and off-board audio systems.”

Do you have any advice for students or young professionals who are interested in a career in sound design?

Sound Design has never been more accessible than it currently is, due to software and plugins being able to closely replace hardware options, which drives down entry-level costs. While that is a good thing, it also means competition is much more than ever before. So, you have to try to do something to make you stand out from the crowd. The best way to do that is just get lots of experience. Practice things. Experiment. Make weird sounds from scratch and be creative. It can be a challenging career choice, but also extremely rewarding if you have the drive and passion to succeed.