The Doctor's new
dynamic sound

Doctor Who has pushed the boundaries of scary TV with the launch of a special binaural episode on iPlayer. To find out more, Jenny Priestley spoke to Catherine Robinson, audio supervisor for BBC Wales

How did the idea of the special audio episode come about - did Steven Moffat approach you or did you approach him?
The idea came about to create a binaural episode of Doctor Who after we did a binaural mix of A Midsummer Night's Dream at BBC Wales using the 3D sound studio built using the tools created by R&D. (Executive producer) Brian Minchin listened to that mix and thought how great would it be to offer the Doctor Who audience a similar experience.

How much input did the show's creative team have?
The immersive mix was done after the main mix for TV was completed. Dubbing mixer Darran Clement created this immersive mix and was given a lot of freedom, with a little technical support from the R&D team. The binaural element was added at the end of the production, so no special recording techniques were used on set, all the sounds were captured in the usual way.

How did you go about creating the 3D audio?
Recordings are processed to accurately simulate the way that sounds in the real world interact with our head and ears on the way to our eardrums. As a simple example, a sound to the left of a person will reach the left ear before the right ear and will naturally be louder in the left ear. The differences vary at each frequency and with the direction of the sound. Using new production tools, we can virtually move sounds in space by mimicking these various effects. Unlike traditional stereo techniques, which appear to produce sound inside the head when listening on headphones, this binaural effect should sound more like the scene is happening outside of the head, around the listener.

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This processing was built into production tools where the sound engineer could freely position sounds in 3D space. These 'binaural' techniques can also be found in virtual reality (VR) technology.

Why did you decide to test this with Doctor Who? Why not with a less well-known show?
We have done quite a number of experiments previously, including a BBC Taster pilot of A Midsummer Night's Dream, which paved the way for this project, but this is the first time that we have streamed a binaural mix of a TV drama on iPlayer. Certain types of content lend themselves particularly well to the spatial audio effects offered with binaural sound and this particular episode of Doctor Who was too good not to.

We know spatial audio will work for viewers using headphones but what about those watching with speakers? Are there plans to test it on speakers?
We already produce a surround sound version of the programme for those watching on BBC One HD. Binaural techniques are specifically designed for creating spatial sound over headphones, where we know much better how sound will reach the listeners' ears than with loudspeakers because they're very close to the ears. Many more people are listening to BBC programmes on headphones than in the past. Binaural sound is accessible to a mass audience to enjoy with any ordinary pair of headphones.
How do you choose which bits of audio to make 3D and which not? Is it all 3D?
The creative process was very interesting and the choices made in the mix were quite often made by moving the sounds to the places they felt most comfortable. As it’s such a new area, there are no rules, so it’s a case of try things out. We chose not to make the music 3D as it felt better to listen to in normal stereo. There was a careful balance to be found in creating an immersive experience without overdoing it, so the audience would not be distracted from the narrative, as ultimately the story is the most important thing.

How will you judge if the experiment is a success?
We are keen to hear feedback from the audience and have a survey running on the BBC Future website.

What is the likelihood of more Doctor Who episodes being made available in this format?
Provided there is another story that will suit binaural, we very much hope that they will consider doing more in the future. We are working on lots of different types of content at BBC Wales with immersive audio, from radio to 360-degree online videos, and are building up a unique set of expertise along with a busy 3D sound studio. We would love to see an episode specially written and directed with the binaural audio in mind to really make the most of the scary things you can do with it. The audience has had a taste, so hopefully they will want more.

Are there plans to develop this for other flagship BBC shows?
We really hope to keep developing our use of the technology and apply it to other programmes.