

# Gordon Reid of CEDAR Audio talks spectral editing and 30 years in the biz

PSNEurope's Phil Ward recently caught up with industry veteran Gordon Reid, who this year is celebrating three decades as the prime mover behind Cambridge-based digital audio pioneer CEDAR Audio

PHIL WARD - MAR 29, 2019



*Gordon Reid, CEDAR Audio Ltd*

Not that long ago, the promise of being able to remove the squeak of a piano stool from the recording of a piano recital – without apparently disturbing a molecule of said recital – would have sounded like some form of alchemy and, in rural Cambridgeshire, might well have got you burned at the stake. Yet this, and other sonic miracles from

CEDAR Audio's Cambridge-based armoury of audio processes have been improving upon reality for 30 years now. Managing director of CEDAR, Gordon Reid, gives us the low down...

**CEDAR Audio touches the whole industry. What are your biggest markets and how are CEDAR products used in them?**

Location sound, live broadcast and post are the largest markets while, at the other extreme, audio forensics and surveillance are very important. We often know when a movie has been cleaned up or a TV show has been broadcast using CEDAR products but, for obvious reasons, we're less likely to know when we've made a difference in security.

**You and Eventide – Richard Factor was seconded by the Watergate enquiry...**

I too was asked to investigate a digitised version of the Nixon tapes using an early CEDAR system when I visited Washington sometime in the '90s. I couldn't identify any missing audio either!

**Retouch, and its squeak-erasing magic was the breakthrough that defined spectral editing, even used to clean up the Beatles catalogue and separate the instruments and vocals for the Rock Band video game. Do you think it's the market leader?**

You have to be careful to define what spectral editing can and can't do. It isn't a broadband noise reduction process and can't be used in real time, but it's very important in post. When we presented Retouch in February 2002, it was the first time the world had witnessed spectral editing. Once we'd shown it, everyone recognised it as an obvious solution: represent the audio as a spectrogram, manipulate it in the spectral domain and then convert it back into an audio signal. Of course, we'd applied for a patent beforehand, so all spectral editing is – or should be – provided under a CEDAR licence.

**As technology improves further, will we be able to reinvent the past in other ways? For example, could we split mono recordings into meaningful multi-tracks?**

The purists' answer would be that it's not possible. The practical answer is that we're getting closer and closer. It parallels the history – and hopefully the future – of broadband noise reduction: mathematically, you can't take the cream out of the coffee without ruining the coffee. But we're getting closer, which is why de-hissers have improved almost beyond recognition over the past 30 years. The technology has approached separating any noise from any wanted signal, even though perfect

separation is deemed to be impossible. The degree of imperfection keeps getting smaller. I'm sure the same will be true for de-mixing and re-mixing.

### **Have immersive audio techniques made their presence felt at CEDAR?**

We haven't noticed anything but, if someone in VR revealed they'd been using CEDAR, I wouldn't be surprised. They're going into imperfect environments to capture audio just as other location recordists do, and we provide the tools to get rid of the problems they encounter: air-conditioning noise, motorways a few hundred yards away, doors slamming, aircrafts flying overhead... you name it. VR will be no different.

### **I guess it makes a great 'anachronism' detector for jet engines in a Tudor period drama...**

We've had that one! But we don't know about all the ways that CEDAR is used because few people register their purchases and tell us what they're doing – until they want support, that is.

### **Are we going to be remastering forever, like painting the Forth Bridge?**

To a lesser and lesser extent, I suspect. The boom was in the early to mid-1990s because that's when digital audio technology got into its stride, and it's no coincidence that this was also when CEDAR appeared. The same advances in hardware that drove digital recording and playback also drove digital signal processing forward so, almost overnight, all of the film and record companies became able to convert their catalogues of 78s, vinyl, cassette and VHS to CD and DVD. But the libraries were worked through quite quickly because some studios were processing thousands of recordings per year, and the archives were exhausted surprisingly quickly. We realised we'd peaked in this market as early as about '97 to '98, coinciding with the huge impact of piracy. That's what stimulated us to diversify; by 1997 we couldn't rely on the remastering industry to support CEDAR any longer.

### **How did CEDAR go commercial?**

CEDAR had started life as a research project at the Signal Processing Laboratory in the Engineering Department at Cambridge University. It was funded by the director of The National Sound Archive – a chap named Christopher Roads – who hoped that it would be able to remove pops, crackles, and hisses in the process of transferring the archive's decaying recordings to a wonderful new digital medium that would keep it as 'perfect sound forever'.

An early prototype was shown on BBC TV's Tomorrow's World, and interest poured in from across the globe. The British Library knew that it had developed something

important, so Christopher started looking for somebody to turn the research project into a commercial company – somebody with a combination of scientific expertise, business experience and contacts in the music industry. I'd studied astrophysics at Leicester and then continued as a post-grad at Cambridge where I became interested in the computers we were using – there were no home computers in those days. That led to a position in a computer company and, by sheer coincidence, I met Christopher just after I left that job.

When I was interviewed at the British Library, I was asked about my expectations for the company and replied, 'It'll definitely last two weeks; probably two months; but I'm not making any promises about two years.' I think they liked my honesty. After taking the reins, I persuaded them that we had to develop shippable CEDAR products, and the rest is history. That conversation took place 30 years ago this month.

**As well as science and commercial, did you have contacts in the music industry too?**

I started playing piano at the age of five and performed at a small number of music festivals, but I found the teaching very constraining. Then, when I was 12, a kid at school showed me some blues licks and I was blown onto a totally different course. By the time I was 15, I had my first synthesiser and by 18, I had my first 'proper' keyboard rig – electric piano, string machine, organ and synth – and was gigging regularly. Years later, at a West Coast AES Convention, I was testing a new synthesiser on a nearby booth and saw one of our staff asking a visitor on the CEDAR stand whether he was interested in noise reduction. He was Ray Dolby. It's funny how these things work out.

**Finally, I know you grew up during the heyday of progressive rock so... Keith Emerson or Rick Wakeman?**

Keith (sorry Rick!) – and Tony Banks. I was privileged to work with Keith during the last years of his life, mixing some rehearsals and keyboard-tech'ing live. I was one of the keyboard techs at what proved to be his last concert, performed at The Barbican in 2015, which makes me both exceptionally privileged and incredibly sad.

