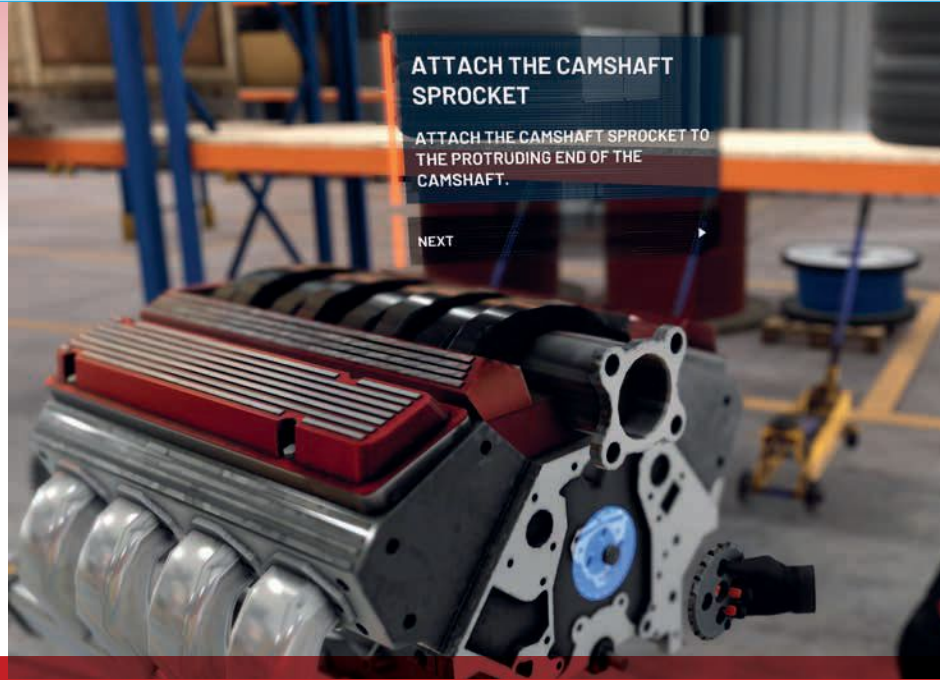


**A tech entrepreneur tells Louise Davis how his firm is bringing training out of the classroom and into the virtual world in a bid to deliver engaged engineers who remember what they have been taught**



# Total recall

When Ben Bennett, CEO of Luminous XR, describes the current state of play in engineering training, you can immediately see why he spotted an opportunity to overhaul it. “Traditional training tends to be conducted either in a classroom (via PowerPoint presentations) or via on-the-job-training that involves shadowing an experienced operator. Both of these methods have issues that companies across the world in almost every engineering sector are struggling with,” begins Bennett.

“Classroom-based training can be summarised by the phrase ‘death by PowerPoint’, which aptly reflects how this type of theoretical training can be extremely dry. Trainees frequently lose interest and do not retain knowledge.”

Compared with classroom-based training, on-the-job-training is highly effective. The problem here, however, is less about boredom and more about resources: “There is a real challenge in finding experienced operators with the time to deliver training and support, and this is especially limiting when trying to rapidly upskill large numbers of workers,” explains Bennett.

In terms of how to remedy these two problems, Bennett says: “A new trend is the development of low-cost, immersive technologies such as virtual and mixed

reality, which are bridging the gap by providing a modern, engaging way to train the workforce of the future faster, safer and more efficiently.”

Exemplifying this trend is the Newcastle upon Tyne, UK-headquartered Luminous XR, which takes an immersive approach and describes itself as offering ‘next-generation learning and development’. When Bennett founded the company in 2016, it specialised in 3D mapping and digitising complex environments in the energy and construction sector, with the team already aware of the value of visualising real-world locations.

“We then began investigating new ways to utilise these 3D models and how they can bring benefits to businesses,” recalls Bennett. “The result? Take the 3D models into a real-time games engine environment, where businesses can enter virtual versions of their facilities in real time. This, coupled with emerging virtual reality headsets, opened a whole new world of opportunities for us.”

## IN THE MIX

Immersive training covers both virtual and mixed reality, details Bennett: “With virtual reality (VR), users are closed off in a completely digital simulated environment. This is great for simulating hazardous locations and environments and procedures that can’t safely be

carried out in the real world or training on equipment you can’t readily access.

“This could be fire training, learning to operate very bespoke machines or equipment, or training for disaster situations that although very rare could have catastrophic cost or damage to reputation.

“Mixed reality (MR), on the other hand, allows the users to see the real world around them but augment holographic content on to it. This could be guided instructions on how to operate a real piece of equipment, carry out fault finding or repairs or remote assistance.

“For example, if a complex piece of machinery fails, instead of requiring an engineer to be potentially flown in to fix it, someone on site can be guided remotely through the process with holograms.”

The applications of immersive training are vast and obvious, but what advantages can engineering firms reap by deploying these novel solutions? “XR (VR & MR) training tools have considerable business benefits,” states Bennett. “In fact, when looking at introducing the tech, the first thing we do is identify high-value use cases with clear ROI. It is essential that these benefits can be quantified if the technology is to be scaled and bring true value.

Part of this process is quickly ruling out areas where it doesn’t work,” he explains, adding that, “There is still a cost involved in creating XR, so to benefit from it there must either be enough users to justify the outlay or a high risk that needs mitigating.”

Commenting on real-world



*Automotive technical training conducted via VR can get new team members trained up quickly and efficiently*



Left: **Ben Bennett, CEO, Luminous XR**

understand the intent and context of the request and provide relevant responses and advice."

**MIND THE AGE GAP**

Digital natives, such as the incoming generation of engineers, are more than familiar with avatars, gamification culture and all things computer- and app-based. But what about the previous generation – i.e. the ones tasked with training up these new recruits? Has Bennett encountered much in the way of scepticism or mistrust of XR-based solutions among those less familiar with them?

"There can often be pushback against new technology and new ways of working," he readily acknowledges. "For the 'gamer' generation VR use comes naturally, but for older staff it can be quite daunting – there is a fear of not being able to use it or looking silly with a headset on."

On the plant operations side, Bennett feels it's important for engineering firms to have 'VR champions' who are responsible for promoting the tech internally and are on-hand to provide technical support and guidance.

Bennett also highlights how developments – such as a pass-through camera on the headset that lets the user see the world around them even with the headset on – can make the process less intimidating for new users. "Finally, for those who really don't want to wear a headset, we also provide a desktop version of the training that can be run using mouse and keyboard," he confirms.

Ultimately, Bennett believes the headsets will prove to be the most popular method of delivering XR training (at least until implanting us with bionic vision chips becomes a thing!) and he hints of some news to come from Luminous XR that supports this stance.

He adds: "We are currently in discussions with Apple about supporting its recently launched Vision Pro headset. The headset brings unparalleled resolution and enhanced mixed-reality features that blend physical and digital reality, and it is expected to bring spatial computing to more mainstream users – including engineers across the world." 

deployments of Luminous XR's solutions, Bennett notes that VR allows trainees to carry out a process almost exactly as they would in the real world, building up familiarity and muscle memory.

"In one recent example, we worked with a large oil producer in the Middle East that had been looking to upskill its workforce quicker. Most of the processing equipment is in operation 24/7 and the only way new engineers could learn was by shadowing an experienced operator. By training in VR instead, the students were able to become familiar with the process before even going to site, reducing the on-the-job training time by 50%."

Bennett is keen to point out that reduced training time is not the only major advantage: "Recent surveys with other customers deploying our VR training have recorded up to 80% increased engagement in the training," he reveals.

Luminous XR's experience suggests that in the engineering sector, VR-based training solutions are most valuable for hard skills training, technical-based training, troubleshooting, safety and hazard recognition training, as well as remote collaboration and design reviews.

**INTELLIGENT INPUT**

Naturally for a tech entrepreneur, Bennett has been observing the rise of AI and how it can be applied within his domain with great interest.

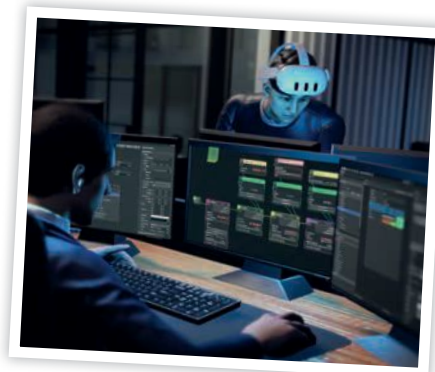
"Generative AI has burst on to the tech scene in the past couple of years with huge hype, offering a quick and easy way for anyone to create a wealth of

content," he comments.

"Sites such as Midjourney, Genie and Sloyd promise the creation of 2D and 3D content from simple text prompts. Meanwhile, Chat GPT has become dominant in everything from writing technical specifications, standard operating procedures (SOPs), support documentation and even code."

Bennett notes: "One of the most obvious applications is in the creation of intelligent chat bots or avatars to provide support and guidance to users in VR training. For example, a trainee could ask the AI-enabled bot how to conduct a procedure and then receive real-time support.

"For soft skills training, digital avatars can be imbued with intelligence to challenge or respond to the users' interactions. Through the use of natural language models, users could speak directly to the digital avatar that would



Above: **Luminous XR offers immersive training tools that engage users better than dry, classroom-based presentations**