Interactive in the Digital Sea of California

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Prefrontal Cortex from Saxony-Anhalt has achieved success with interaction concepts and innovative applications for international customers

State-of-the-art interactive applications are the special focus of Prefrontal Cortex from Halle (Saale). The expertise of the young designers and programmers, especially in the areas of virtual reality/augmented reality and 3D real-time graphics, is in demand at the international level. The team at Prefrontal Cortex has brought LED walls to life for Intel, designed an interactive Earth Day campaign for Microsoft, and is working with Facebook to develop a virtual dive to a sunken shipwreck.

The lobby of the Intel Corporation in Santa Clara, California, is an entrance area unlike any other. The world-famous high-tech company in the heart of Silicon Valley welcomes visitors and its employees in something of a showroom: the LED wall at the entrance depicts a digital, Southern Californian underwater world which is replete with sea plants, shoals of small fish that shoot past and a prowling shark. With the sound waves of the Pacific and the lighting which is adapted to the course of the day, the illusion is perfected. The graphics are nice to look at, but that's far from enough for Intel, especially when it comes to demonstrating the performance of their processors. For this reason, the 16-square-metre wall with the underwater scene in the entrance to the corporate headquarters is interactive: when a visitor stops in front of the screen, the fish swarm in, while their hand movements quickly scare them away. This interaction of the real and digital worlds has been made possible by six integrated Intel® RealSense™ cameras that generate depth data for control purposes.

VR simulation with draft designs and intermediate results

Believe it or not, it was designers and programmers from the new business start-up Prefrontal Cortex, from Halle (Saale) in Saxony-Anhalt, who were responsible for the technical realisation of this underwater spectacle. "We developed the concept for the wall in discussion with the creative team at Intel and in terms of the design and technology realised it so that it works in real time in the form of an LED wall," explains the co-founder of Prefrontal Cortex, Felix Herbst. The development of the wall was certainly challenging: after all, someone who only stands in front of the wall for ten seconds has to have the same feeling of the wall responding to him as 20 people do who stand in front of it for much longer, and all at the same time. "As a working basis, we simulated the LED wall in our workshop on a smaller scale, as it were. We were also able to try the effects out there. The space, i.e. the lobby at Intel, didn't exist yet," adds Paul Kirsten, who is also a partner at Prefrontal Cortex. "To enable a detailed preview of the current status of the graphics, we developed a VR simulation with our draft designs and adaptations in the planned architecture. This allowed us to make decision-making processes at Intel smooth and clear - even over such a long distance," explains Kirsten.

The development created for the corporate headquarters of the Intel Corporation is one of Prefrontal Cortex's most successful projects so far. "Our projects always entail a special kind of interaction. That’s something we’re good at," explains Felix Herbst. Felix Herbst, Paul Kirsten and Christian Freitag, who are also friends, have been working together since 2011. Back then they were still studying Multimedia | Virtual Reality Design at the famous BURG Giebichenstein University of Art and Design in Halle. They specialised on 3D real-time graphics from an early stage, as well as virtual reality and augmented reality which at that time were still relatively new developments. Prefrontal Cortex was launched in 2015 and now has ten employees.

Reactions and emotions

Prefrontal Cortex is a well-chosen name. It describes the part of the brain in which sensory information converges, reactions are shaped and emotions are controlled. With its innovative software prototypes and interaction concepts for its customers, creating reactions and emotions is exactly what Prefrontal Cortex wants to achieve. And the company has proven to be successful. "Right now, many companies are working with interactive concepts. Most of them offer either the creative services or the programming, though. Our key advantage is that we can offer the design, the programming and the development from the concept through to the practical operation," explains Paul Kirsten. And because the projects from the new start-up come from one single source, Prefrontal Cortex is able to deliver its individual software prototypes and interaction concepts with fewer rounds of coordination, and therefore at a speed that only a few other international companies are able to offer.

And word has got around. Together with a company from London, as part of the international Earth Day campaign, the Saxony-Anhalt-based company has created an online tool for Microsoft which enables the innovative visualisation of tree populations in forests. Considerable amounts of data enable the viewer to navigate through the layers of the forest in an exciting way. At the end, it is also possible to make a donation to a natural conservation charity for each of the forests shown.

Being "playful" is a strength

For Prefrontal Cortex, being "playful" is a strength. This is also clear from the latest project of the company from Saxony-Anhalt: Facebook is currently working on a VR application which can be used to embark on a virtual dive to a real shipwreck at a depth of some 80 metres, where the original cargo, which is now of historical artistic value, can be seen from all perspectives.

And the LED wall at the headquarters of Intel is now being added to all the way from Halle (Saale). "Savanna" is the name of an additional interactive installation from Saxony-Anhalt. Visitors to the lobby can create a landscape, and in doing so, breathe new life into a dry area of savannah, on a piece by piece basis: when the visitor steps closer to the wall, they can dig deep gullies in the virtual dry ground with their hands, and in doing so, open up new paths for the water.

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