

# Sea-ing is believing

Underwater-world software developed for launch of new Samsung Gear VR mobile device

**D**r Llyr Ap Cenydd from Bangor University's School of Computer Science, in North Wales, has worked on a project with Samsung and Oculus to develop an app called "Ocean Rift" which is a Virtual Reality (VR) experience.

Expected to launch alongside Samsung's new Gear VR mobile device, Ocean Rift immerses the user in a vivid underwater world and gives the user the experience of swimming with various aquatic creatures including dolphins, turtles, sea snakes, rays, sharks, whales, and even extinct

prehistoric reptiles. The app lets users select from a series of habitats using a touch panel on the side of the device and they are then teleported to a range of destinations from a coral reef or a shipwreck to a lagoon, the deep sea and even Atlantis. Once there, they can interact with creatures which are animated by an innovative state-of-the-art artificial intelligence system which has been developed specifically for the project.



Traditionally the motions of virtual characters are calculated using pre-created data, sourced from a library of motions created beforehand by animators or by using motion capture technology. However, the animals in Ocean Rift are animated live using a technique called procedural animation, where a creature's virtual muscles are controlled by algorithms with the aim of synthesising more life-like animation and behaviour automatically. Algorithms control every part of the creature's motion, including how it moves through the water, adjusts its flippers and how its eyes blink and track the player. When combined with VR technology, Llyr believes that advanced animation systems like this one can help to immerse the player in the virtual world by making them feel as though they are interacting with living things.



The lecturer was invited to develop for the device having previously released several game and tech demos on a similar device called the Oculus Rift. Dr Llyr ap Cenydd, who has spent a year developing the app said, "This project was undertaken in my spare time but it's related to my research in animation and virtual reality."

This new development in gaming technology is not on general release yet, but will arrive on the open market in the US this month.

The app will run on the Gear VR which is a virtual reality headset powered by the Note 4 smartphone. Wearing the headset means that the user becomes completely immersed in the virtual world. The device, which looks like a pair of ski-goggles, magnifies the smartphone screen so that it fills the user's visual field and by showing a different image to each eye and tracking where the user is looking, it gives the effect of being transported to a new reality.

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"Ocean Rift started as an experiment to see how far I could take emerging virtual reality technology to make someone feel like they are underwater. The Gear VR version takes things much further – you can swim with a pod of dolphins, stand in a cage surrounded by Great White Sharks and even swim with creatures that are long extinct. It's been an amazing experience working with this cutting edge technology and I can't wait for people to try it."

**Dr Llyr Ap Cenydd**  
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**Profile**

**Product**  
Ocean Rift

**Applications**  
Virtual Reality

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