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A conversation with Don Brutzman**

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Recently the military, especially the different branches of the United States military, has been dominating the news. No matter how you feel about the increased military presence in certain areas of the world, the US Military organizations are among the only industries with the money and governmental support to invest in Web3D and virtual reality.

More of this Feature

- [Military Web3D/VR \(Part 2\)](#)
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Elsewhere on the Web

- [A Brief History of Aircraft Flight Simulation](#)
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At SIGGRAPH 2002 I sat down with [Don Brutzman](#) (of the Naval Postgraduate School and The MOVES Institute in Monterey, California) to discuss how Web3D and virtual reality is being used in the Military. Don is a long time Web3D guru who has been a guiding hand in the development of open-source Web3D. Over Texas steaks we discussed where the military is headed in relation to VR and Web3D. After that interesting conversation, I took a look around the Web to find out more about what is happening in this area.



Don Brutzman talked about Military Web3D/VR.

In this two-part article, I will explore how the military is using 3D technologies, highlighted with useful insights from my interview with Don Brutzman.

Visual Simulation

Although military organizations have long been traditional and uninterested in change, recently the military has been at the forefront in both funding and creating virtual reality and Web3D. No other industry in the world has been embracing Web3D and virtual reality as much as the United States military.

According to Don Brutzman, "They are starting to get it. The military is usually a slow, conservative adopter but when they are locked onto something they lock onto it big-time. It's really a very big market for the future."

Visual simulation is often grouped with VR training in the military and indeed any useful VR trainer requires good visual simulation. But visual simulation can also be added to a scenario based simulator to provides for the testing of tactical plans, decision making and resource allocation.



Simulations are effectively used by the military.

The military has also begun using virtual reality simulation in their wargames. During the recently concluded [Millennium Challenge 02](#), which was the largest military/war game experiment in history, military units across the US conducted the evaluations using a unique mix of computer-simulated and live forces.

"Experiments like Millennium Challenge are very important to future battlefield successes. It will help us create a force that is not only interoperable, responsive, agile and lethal, but also one that is able of capitalizing on the information revolution and the advancements in technology that are available today," said Secretary of Defense Donald Rumsfeld said during a press briefing at USJFCOM July 29, 2002.

Training

Soon after the military began to use aircraft, flight simulators were also put into active use. (For a great overview of the history of flight simulators, see "A Brief History of Aircraft Flight Simulation" in the linkbox.) And as the use of flight simulators was proven to be highly effective, the military has moved virtual training into other areas. It is interesting to note that the United States military partly credits its low casualties in Iraq and Afghanistan to virtual reality training.

Today the United States military, as well as the military organizations of many other countries, use virtual reality to train personnel in nearly every area. A short [list](#) of Army training and simulation contractors shows the variety of products in use.

The realism and overall effectiveness of ground forces' combat training has also been enhanced significantly by laser-based weapons effects simulators. The US Army led the way in the 1980s with the establishment of the National Training Centre (NTC) at Fort Irwin, California, for up to brigade-sized training exercises using the MILES Tactical Engagement Simulation (TES) system. This concept has since been copied by the British Army and the German, Swedish and French armies are looking closely at adopting similar systems.

This article can only scratch the surface of everything that is going on in this area. To get a more complete overview of military simulation, training and virtual reality, a great conference to attend, according to Don Brutzman, is the Interservice/Industry Training, Simulation and Education Conference ([I/ITSEC](#)) held every December in Orlando, Florida.

"It's just like a mini-SIGGRAPH, but for the military." Brutzman said.

Check back next week for part 2 of this article, where we will take a look at how the military is using Web3D and VR for Recruitment, Reconnaissance and on the battlefield itself.

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