

4Real

Real Language + Real Gestures + Real Behavior = **Real Training**



About Raytheon BBN Technologies

For over 50 years, the BBN name has been synonymous with technical innovation. Since implementing and operating the ARPANET, the forerunner of today's Internet, we have pioneered a number of firsts: the first packet switch, the first router, and the first person-to-person network email, which established the @ sign as an icon for the digital age.

Raytheon BBN Technologies is also a leader in the research, development, and deployment of immersive learning technology for military training in both kinetic and non-kinetic operations and for other serious purposes. Raytheon BBN has offered experience, expertise, and technologies in immersive learning since the pioneering days of networked, multiplayer immersive training with the BBN-developed SIMNET training simulator.

Train More With Less

Raytheon BBN's 4Real technology makes it possible to train more people with more complex scenarios while requiring less investment in human role-players and hardware. This technology delivers realistic and natural interactions in a virtual world, allowing trainees to use normal speech and gestures to interact with artificial characters who demonstrate believable behaviors. 4Real integrates state-of-the-art language understanding, speech generation, motion capture, gesture recognition, and human behavior modeling.

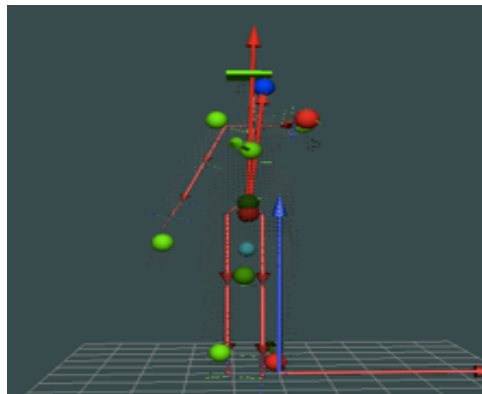
Train With Natural Gestures and Language

4Real maintains virtual world immersion by doing away with clunky dialog menu interfaces and textboxes. Instead, you simply gesture and speak, using real body language and vocal communications that are detected and reflected in the virtual world. These capabilities are supported through a mix of cutting-edge research and off-the-shelf components.

- Near real-time, unstructured language understanding, relying on Raytheon BBN's fielded TransTalk technology.
- Single camera, marker-free motion detection. No wearable gear required for the user.
- Gesture recognition and interpretation.
- Human behavior models that can be culturally customized.
- Virtual Worlds – works for VBS2™, Second Life™, and other common PC game environments

Navigating the Human Terrain

In today's missions, the human terrain is as important as the physical terrain. Virtual world training has made great strides in simulating physical terrain and kinetic actions but has relied heavily on human confederates to play the roles of teammates, adversaries, and by-standers in non-kinetic scenarios. 4Real makes it possible to populate virtual worlds with computer-controlled actors, providing critical believability at an affordable cost.



Demonstration Scenario

Raytheon BBN is currently demonstrating the 4Real technology in a vehicle checkpoint scenario in the VBS2 environment. A user stands in front of a large screen, which displays the user's avatar within a virtual world. The user's task is to staff the checkpoint, interrogating the occupants of vehicles, and taking appropriate actions. In this demonstration, you can verbally question drivers and passengers who are all computer controlled. A small camera detects the user's gestures, used to communicate traffic control orders or to emphasize verbal communications, and the user's avatar mirrors these movements within the virtual world.



Future Directions

4Real can also be integrated with near real-time translation capabilities to provide realistic language training scenarios, without the need for foreign language role-players. It can be extended to support team training for multiple players.

Working with You

Raytheon BBN Technologies has successfully developed PC-based training systems used by the Army, Navy, and Marines and has also performed training research for DARPA, ONR, and AFRL. We understand that every training application has special requirements, but that everyone needs a strong emphasis on pedagogy, measurability, and usability. If you have a training need and are interested in an immersive, lightweight solution, we look forward to speaking with you.

Talk to us!

To learn more about the 4Real and Raytheon BBN's capabilities to support lightweight immersive training, please call or write:

Raytheon BBN Technologies
10 Moulton Street
Cambridge, MA 02138
617-873-8000
4real@bbn.com
www.bbn.com

Raytheon
BBN Technologies