



DIRECT AI IN XVR ON SCENE

A small group of firefighters is assessing a scene of disaster and chaos. Several buildings are on fire, but an explosion has just occurred further down the street. Pedestrians are running amok with panic down the crowded roads attempting to escape the threats, having gathered for a parade. The hot dry air and considerable breeze is worrying the firefighters, as they desperately try to work out their priority and how to stop the flames from spreading to avoid any casualties.

Thankfully the firefighters are assessing a simulated situation on a screen, and nobody is at risk of injury. The level of detail and realism is comparable to a high quality video game though, and as the crew react to the scenario, the simulation adapts and presents new challenges for the users. A woman running into a burning building to rescue her child, or perhaps a change in wind direction, causing smoke to cloud the crew's view of the scene.



The firefighters are training using a highly realistic virtual simulation tool, XVR On Scene. The software is designed to train safety and security professionals, and a wide variety of 3D scenarios has been developed to help students better assess situations and to understand the consequences of each decision taken in a scenario. Students also learn to prioritize tasks in emergency settings, where obstacles and distractions, such as smoke, adverse weather or scared bystanders may make assessment of a scene much harder.

Why does XVR need Direct AI?

XVR specializes in providing virtual simulation for training customers in public safety. The software is set to run a number of plausible scenarios that first responders could face. These have been predetermined and do not change. Changes are created by instructors or trainees controlling actors in a simulation.

MASA specializes in the use of artificial intelligence in simulation to reduce the number of operators needed and to simplify the work of the instructors.

Direct AI is middleware that integrates into software to act like a brain. It takes on the role that the instructors were doing to control agents.

The middleware can control both high and low level behaviors, from someone turning their head to punching another agent.

As Direct AI controls what the agents do within the simulation, they are now “autonomous” agents, as they will act without interference from instructors, leaving the instructors free to assess trainees and help them to learn,

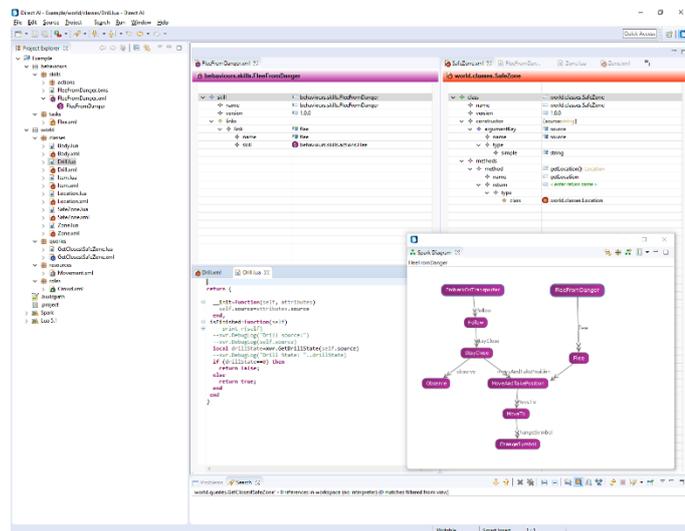
Integration of Direct AI into On Scene was not just incorporating one product into another but the coming together of two visionary experts from their respective fields. Integration of the products was simple, with both companies working seamlessly together, completing integration in less than a week for the chosen project.



A key feature of XVR On Scene is the system's functionality to respond to decisions made by students in a scenario. The team at XVR On Scene wanted to create a system that could react to choices and actions, making each training situation unique and realistic. It is important to have a living virtual environment with a

population, individuals and team mates behaving realistically without having to control each of them manually or to prepare complex pre-scripted agents. This is why MASA's Direct AI, was selected as the AI engine for the On Scene solution.

Direct AI is an Integrated Development Environment that provides a high-level structured AI (Artificial Intelligence) modeling language to specify the decisional process of agents in a simulation. The unique middleware mixes high level behaviors, such as carrying out an activity, and low level 'atomic' behaviors such as looking or moving, to describe the doctrine prescribed by the users. High level behaviors are easy to create through a tree structure, while atomic behaviors are native and adaptive behaviors based on a free flow hierarchy model.



Integrated into On Scene, Direct AI provides behaviors to autonomous agents, with students forced to deal with characters in the scenario, not controlled by the students, but who will react in a range of manners to the situations. Direct AI optimizes the technology, adapting and reacting to situations to increase the realism of the environment.

XVR had been searching for a way to integrate AI into their On Scene solution, as the team knew it would improve the realism and variety of scenarios in their software. Specializing in creating AI solutions for emergency training, MASA stood out as an ideal partner.

MASA first created Direct AI fifteen years ago and has since been developing the product for use with partner companies as well as in its own simulation software. MASA SWORD is a market-leading command post training wargame, which successfully helps to train armies around the world, and has profited from the inclusion of Direct AI. This first-hand experience of using Direct AI in its own products, as well as collaborations over the years with a number of partners and a variety of software, has led to very successful development

of the middleware as a standalone product. MASA has built on its own knowledge, and through its collaborations, has also benefited from the skills and knowledge of other users. Now, Direct AI has been upgraded into a more advanced and commercialized version, and its integration into On Scene is the first collaboration since these advancements.

MASA's expertise has reduced the cost of integration into On Scene and operation of the training solution. MASA provides the technology and experience in how to implement and apply AI the right way. The company has helped XVR to avoid typical traps in the application of decisional AI in On Scene.

XVR is already live and in use with many first responders, from firefighters to police and civil defense units around the world. MASA's Direct AI has been successfully integrated into one of XVR's customers' systems where the benefits can be monitored and optimized in a specific project, before launching it across XVR's customer base. MASA will continue to work with XVR to implement Direct AI specifically for customers' doctrines in new projects, in an ongoing mission to ensure that training is as realistic as possible.



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