# fats AR Augmented Reality Weapons Training

## Revolutionizing the Realism, Performance Assessment and Economics of Training

Developed for today's highly mobile military, security and law enforcement entities, InVeris Training Solutions' fats® **AR** enables trainee/operators to train, rehearse for future live fire training and missions at the objective location or virtually with a new level of realism and performance assessment to aid in perfecting critical engagement techniques. fats® **AR** is highly scalable and portable making it ideal for training mission rehearsals in various locations to address short windows of opportunity. Unrivaled After-Action Review (AAR) capabilities with quick reset of scenarios enable more training sessions with a greater throughput of operators, thus changing both logistics and the economics of training.

### Immersive Realism for Superior Retention

Unlike virtual reality (VR) systems that provide a fully synthetic environment, fats® **AR** blends real physical environments, obstacles and live team members with Computer Generated Imagery (CGI) virtual characters, avatars, and assets for an unparalleled training experience. Trainee/operators see their own hands, feet, weapons, teammates and surroundings as well as CGI elements enabled by fats® augmented reality (AR) / mixed reality (MR) headset and system. fats® **AR** supports mission rehearsals in both the actual target location (such as diplomatic, vital assets, ships, schools, etc.) as well as training in the location's digital twin environment via a near real-time scan and creation capability. Additionally, real and digital environments can be customized to emphasize various training techniques or to support specific scenarios.

fats® **AR** is optimized for close quarter techniques (such as, urban, trench, shoot house), de-escalation of force scenarios, and other critical applications for military and law enforcement.

### Unparalleled Performance Assessment Capabilities

fats® **AR** supports real-time monitoring and immersive multi-viewpoint After-Action Review to definitively identify trainee/operator performance and actions. This includes eye, head and muzzle tracking of all team members. The fats® **AR** AAR provides instructors and trainee/operators the ability to see progressive improvement for individuals and teams while conducting close quarter (urban, trench, shipboard, etc.) operations training which can't be achieved in a VR system.

fats® **AR** records and assesses performance, including shot placement of each trainee/operator, in real-time. This establishes a baseline that allows instructors and trainee/operators to accurately assess performance down to the second. As soon as the training is over, the environment can be easily and promptly reset.

### Changing the Economics and Logistics of Training

fats® **AR** changes the economics and logistics of readiness training and mission rehearsal. With fats® **AR** environment scanning and replication capability, training sessions can be held in almost any indoor location. This enables instructors and trainee/operators to be geographically separated in remote locations yet interact as if they were together for coordinated actions. This feature significantly reduces the cost of transporting and housing large groups and equipment for an on-site rehearsal and enables training at the point of need.

With conditions reset capability, one group of trainee/operators can evaluate performance in AAR while the next group trains soon after. This dramatically reduces idle time for each group and increases throughput over traditional training methods.

## Key Product Features & Capabilities

fats® **AR**'s immersive environment and interaction capabilities include:

- Support up to four trainee/operators simultaneously in the actual or 3D augmented live/virtual environment, posing realistic stress in a safe training setting.
- All trainee/operators see the real world, including their own physical features, weapons and magazines, including their actual co-located training partners.
- Interactive avatars provide unexpected and adjustable scenarios each time by moving them in the scanned environment.
- Realistic and customizable avatars can be easily changed, based on age, sex, race, body type and clothing style.
- Large room scanning. Participants can scan and train in rooms up to 10,000 square feet.
- High fidelity BlueFire™ weapons, including recoil, magazine replacement, weapon cant sensing, lockback on empty magazine, reloading and instructor-controlled simulated failures.
- Unmatched by VR Realtime & After-Action Review allows instructors to replay their actions for enhanced training recognition.
  - Multiple eyepoint views
  - Shot placement
  - Operator's head direction
  - Birds eye view
  - Barrel/muzzle tracking
  - Instructor real time and AAR walk through immersion
  - Shot trajectory
  - Multiple operator views
  - Operator's eye gaze
  - Movable camera
  - Active timeline
- Character actions for de-escalation. Instructors can make selected characters perform numerous actions, such as, getting on the ground, putting their hands behind their backs, and more.
- Microphone communication. Includes microphone recordings in after action reviews, and radio simulation between the instructor and trainee/operators.
- fats® **AR** Kits are supplied ruggedized compact cases for secure storage and transport in the military and law enforcement environments.

| Comparison between augmented reality and virtual reality weapons training | VR | AR |
|---|---|---|
| Possible motion sickness in trainee/operators from headsets. | yes | no |
| Able to use corrective eyesight lenses. | yes | yes |
| See and interact with the actual live environment. | no | yes |
| Move and engage through large areas, multi-room spaces, and multi-level buildings. | no | yes |
| Can use actual stairs. | no | yes |
| Can see your own body, team members weapons and equipment. | no | yes |
| Higher fidelity trainee/operator team interaction creating more effective skills transfer. | no | yes |
| Ability to conduct movement training without the risk of injury to trainees due to lapses in situational awareness between the physical and virtual world. | no | yes |
| Allows for an infinite number of scenarios that can be created on the fly that are driven by any new physical training space. | no | yes |
| Inherent supplied system ability to 3D map a location and import into system for mission rehearsal and remote training. | no | yes |
| Near future planned capability to be used with live weapons and devices. | no | yes |
| **Weapons & Devices** | | |
| Bulky trackers on weapons or compromised ergonomics. | yes | no |
| Ability to use multiple weapons and devices per trainee/operator. | yes | yes |
| Conduct weapon drills including magazine changes, stoppages, etc. | no | yes |
| Use currently fielded BlueFire® weapons on projection systems (such as FATS 100, EST, ISMT, DCCT, WTSS, WTS) on fats® **AR**. | no | yes |
| **Training** | | |
| Use of hand field signals. | no | yes |
| Ability to tap/ touch other team members. | no | yes |
| Train in close formation with your team without bumping or tripping over them or their equipment. | no | yes |
| Able to interact with actual objects in the training area. | no | yes |
| Able to interact with your own and other team members equipment. E.g. Radios, medical equipment, breaching equipment, flash bangs etc. | no | yes |
| Utilizing your real environment as the training area. e.g. Rehearsals in a live shoot house prior to live | no | yes |
| Utilizing your real environment as the training area. e.g. Vital asset protection of aircraft in the actual hanger with a augmented aircraft allow for in location training without endangering the vital asset. | no | yes |
| Quickly mapping and importing 3D mapped environments that can be used in remote locations for mission rehearsal. | no | yes |

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