F-16 MRTD

Mixed Reality Training Device

The Blue Boxer™ Extended Reality (BBXR) family of trainers is an innovative solution set focusing on high-fidelity, small footprint, deployable flight training systems.

Already the industry leader in high-fidelity flight simulators, CAE engineered the BBXR devices from inception to capture the qualities and capabilities of high-end devices in a low-cost, small-footprint system.

Now multi-platform and multi-generational, CAE mixed reality flight trainers are fully immersive with 360 field of view (FOV), include tactile interaction, and fly real, operational software. These realizations are designed to help its customers train the way they will fight simultaneously achieving training objectives more effectively and efficiently. When paired with CAE's patented Adaptive Learning Engine (ALE), the BBXR provides an "always on" assessment capability of pilot performance across a wide range of military aviation training.

The training suite unifies the functionality of physical and virtual aircraft equipment allowing high-fidelity skill-set training from individual to unit tasks or mission rehearsal in a simulated environment.

Flexibility in diverse environments

Whether utilized for increased capacity, flexible role playing as friendly or aggressor, the small footprint avails itself to space-constrained users at forward operating bases, expeditionary airfields or aircraft carrier ready rooms. Low Size, Weight and Power (SWAP) requirements mean certain configurations are human transportable to fit through small openings and power supplies as low as a standard 120-volt outlet.

Mixed Reality

The CAE BBXR system incorporates or emulates aircraft Operational Flight Programs (OFP) as well as aero models. Additionally, these devices use mixed reality simulation achieved by blending virtual reality, high-precision hand tracking, and the accurate, tactile feel of the aircraft's instrument panels and consoles. Basic mission and virtual/constructive threat scenarios provide experience in aircraft employment across multiple mission sets and threat environments, including flight profiles, sensor operation, weapons and overall situational awareness. This ensures pilots operate in a tactically correct training environment as though they are performing actual missions.

Key features and benefits

- Deployable solution increasing accessibility and training opportunities

- Mixed Reality approach maintains tactile interaction within the cockpit for realism

- Operational Flight Program (OFP) integration or emulation ensures fidelity of representation

- Expandable for networked training anywhere, anytime

- Real-time, immediate assessment and feedback through ALE

- With ALE, biometric analysis provides more holistic representation of pilot performance

CAE

The BBXR system allows entities to fly individually or linked and complete training across a wide range of skills, from basic proficiency to tactical combat and joint training.

- Flexible, adaptable, expandable
- Reduced size, weight and power
- Selectable displays – Virtual reality or traditional
- Core individual skills to linked training
- Local and wide area network capable
- Modifiable to customer requirements

CAE Adaptive Learning Engine (ALE)

CAE's patented Adaptive Learning Engine (ALE) improves training efficiencies through systematic and objective rule-based measures of performance and effectiveness. ALE performance monitoring and assessment technology provides instructors and students with real-time feedback, allowing for immediate coaching through a mix of instructor and automated cueing. Thanks to the intuitive user interface and powerful visualizations, ALE serves as a force multiplier for instructors who can intervene when necessary and focus on teaching device data collection.

With the ALE biometric suite, instructors can also gauge students' stress, engagement and fine motor control levels allowing instructors to differentiate students even further based on biometric indicators. In the self-paced mode, ALE supports data-rich debriefs and interactive grade sheets empowering students to take training into their own hands. Additionally, ALE can be a motivational tool via its gamified user interface when enabled, presents student profiles, training achievements, learning curves and team averages.
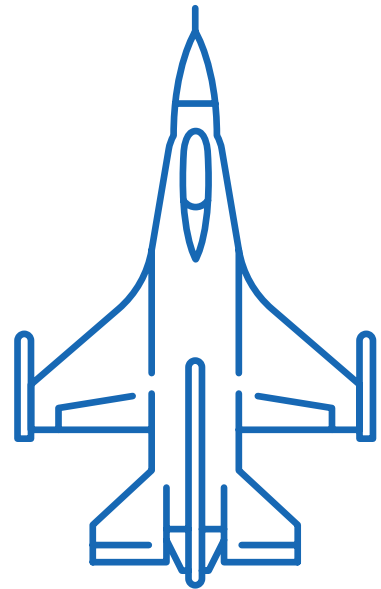
Advantages

- Real-time rule-based measurement increases grading and teaching standardization
- Engaging user experience for both trainees and instructors
- Supports students with targeted feedback
- Increases student throughput and reduces instructor loading

SYSTEM INPUT

MOP   SIM
MOE   ENV
OBJ   MIF

BIOMETRIC INPUT

STUDENT SUPPORT

PERFORMANCE 77%   Performance Dashboards
Virtual Coaching
EFFECTIVENESS 83%   Achievements
Adaptive Curriculum

INSTRUCTOR SUPPORT

Join   Debrief System
X-Under   ALE Station
Combat Spread   Automated Assessment

ALE
INPUT CONDITIONING   CLIENT FORMATTING

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