

CAE TraxAcademy



Overview

Military organizations are increasingly focused on improving the efficiency and effectiveness of pilot training. New technologies to streamline training and create a more open, self-paced, adaptive and student-centered environment are transforming pilot training to help pilots gain skills faster and to train for events that cannot easily be replicated in the air. CAE's developments in digital technologies, including Artificial Intelligence (AI) and Machine Learning, advanced data analytics and Virtual Reality (VR) courseware, enable integrated and immersive training for faster, better, and more effective pilot throughput. The CAE Trax Academy is a student-centric, self-paced training continuum - a system integrating multiple training elements and tools for a mobile-assisted, closed-loop adaptive learning system. This comprehensive training system is designed to optimize the student pilot's journey beginning with undergraduate pilot training.

Learn - The initial phase of the CAE Trax Academy training continuum

The curriculum delivers academic understanding of a training task or procedure, organized via the CAE Trax Academy mobile app. State-of-the-art training media including a high-fidelity cross platform courseware and VR-enhanced modules for a visually immersive experience, enables students to **Learn** the training procedure.

The student can monitor their status against learning goals to review results. They can access courseware, manage their schedule, see comparative progression, book resources and more. Student status is available to the instructor for any required intervention.



Learn — Practice — Perform



Practice – Consolidating learning

In the next phase of the CAE Trax Academy, after familiarization with the cockpit environment and the sequence of events, students **Practice** in the CAE Sprint VR training device. A VR headset with high-resolution out-the-window visuals and 20/20 visual acuity to read the instrument panel is driven by the CAE Medallion image generator for a high-fidelity, realistic virtual environment. Flight controls – joystick, throttle, and rudder pedals, combined with physical cues boosted by haptics and seat vibration – integrate to create a high-fidelity, affordable yet sophisticated VR flight training device with a small footprint. Student progress is supported by a virtual coach providing immediate, actionable intervention and CAE Rise performance assessment to measure achievement.

Perform – Demonstrating proficiency

The final stage of the student's journey is to show they have synthesized what they have learned and practiced. Accompanied by an instructor, the student would **Perform** the procedure on a high-fidelity flight training device or simulator. Instructor evaluation is supported by CAE Rise to validate the success of the student's progress and readiness.

CAE Rise is also used to aggregate individual results, allowing instructors and administrators to monitor trends, identify gaps and leverage opportunities for continuous improvement

CAE Sprint VR Training Device for Self-Paced Learning Integral to the CAE Trax Academy

- High-fidelity, small footprint, immersive virtual environment
- VR headset for out-the-window visuals and instrument panel legibility
- Physical controls: force feedback joystick, throttle, rudders
- CAE Medallion image generator

CAE Rise

CAE Rise (Real-time insights and standardized evaluations) is a standard feature of the CAE Trax Academy and continuously supports all phases of the training continuum. It enables real-time coaching; objective assessment; and, performance coaching, including the data analytics and predictive analysis necessary for continuous improvement.

Program Examples

Adaptive Learning for the U.S. Air Force

CAE USA was awarded a contract from the Defense Innovation Unit (DIU) to support the U.S. Air Force Air Education and Training Command (AETC) and its Undergraduate Pilot Training (UPT 2.5) initiative. CAE USA is responsible for the installation and integration of a cloud-based Learning Management System (LMS), which is a key element of the CAE Trax Academy pilot training continuum. The LMS will enable the Air Force and its students to access training content such as schedules, courseware, and remote instruction more easily on demand. In addition, by implementing an LMS that is optimized through artificial intelligence (AI) and machine learning, the Air Force expects to create a pilot training process that is continually adapting and improving.

Transforming Fast Jet Pilot Training for the Royal Air Force

As one of the industry partners working with Ascent Flight Training, in collaboration with the UK MOD at RAF, CAE UK is supporting the virtual reality trials at RAF Valley as part of the on-going development of solutions for jet pilot training under the UK Military Flying Training System (UKMFTS). The CAE Sprint VR trainer is one of the VR technologies being trialed with the expectation that students will be able to gain skills faster and undertake training that cannot easily be replicated in the air, such as formation flying and combat skills. Results independently validated through academic peer review will drive the design of the future UKMFTS program.

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