



# Fighter/Trainer Training Solutions

Your worldwide  
training partner  
of choice





**Who trains more  
pilots than any  
other company?**

**We do.**

Fighter and trainer aircraft serve a variety of roles, including multi-role, air-to-air combat, air-to-surface and specialized training tasks. Today's fighter aircraft are highly complex, dynamic configurations with integrated avionics, mission computer systems, sophisticated sensor and weapon systems, and other advanced features. The specialized technical features and the wide-ranging operational uses of these aircraft place unique demands on pilot training.

# Training Systems Integration

CAE designs and develops some of the most sophisticated training systems in the world for 4th and 5th generation combat aircraft, and is a leading provider of training solutions for fighter lead-in trainer aircraft. With the industry's most comprehensive portfolio of training services and simulation products, CAE is uniquely qualified to handle fighter and trainer simulation-based training and mission rehearsal needs for today's defence forces. CAE's proven training systems integration (TSI) capabilities along with its expertise and experience in both fighter and trainer aircraft programs guarantees a highly reliable and effective training enterprise that will greatly enhance the mission readiness of your pilots.

Our TSI approach is based on our industry leading training needs analysis to ensure greater efficiency and lower costs while meeting training and readiness requirements.

**Operating complex fighter and trainer aircraft demands leading-edge, multi-domain training**

CAE's training systems integration approach addresses the full-spectrum of the training continuum, from academic and simulation-based training to full live-virtual-constructive environments for training and mission rehearsal.

**With our worldwide network of industry partners, CAE delivers turnkey training solutions that include:**

- Turnkey training centre solutions;
- Instructor provisioning to help free military personnel so they can focus on operational requirements;
- Program management;
- In-service support and sustainment logistics;
- Obsolescence management to reduce system downtime and ensure system optimization;
- Capability and human factors engineering;
- Analysis, design, and experimentation;
- Systems engineering and integration;
- Classroom, simulator and live flying training delivery;
- Test and evaluation support;
- Aircrew flying services.



**Who provides  
and enhances live  
flying training for  
next-generation  
fighter pilots?**

**We do.**

CAE's experienced and dedicated workforce delivers training services and in-service support as part of the NATO Flying Training in Canada (NFTC) program.

# Turnkey Training Solutions

## Helping Train the RCAF and Allied Forces.

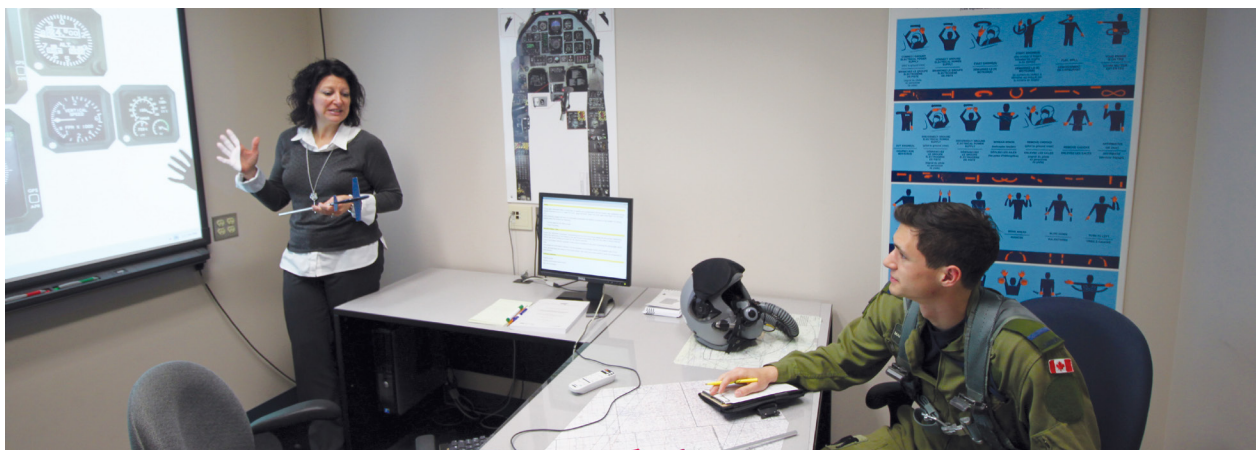
CAE is the prime contractor responsible for the NATO Flying Training in Canada (NFTC) program that produces qualified military pilots for the Royal Canadian Air Force (RCAF) and allied forces. This was one of the first programs that helped CAE expand its experience and core capabilities from simulation-based training to include live flying training of future military pilots. We now offer live flying training at multiple locations around the world.

The NFTC program has been in operation since 2000 and includes more than 200 CAE employees supporting the program, which is designed and operated in collaboration with the Government of Canada. NFTC combines basic, advanced, and lead-in fighter training as part of the comprehensive pilot training program. CAE operates the NFTC base facilities, delivers the ground-school classroom and simulator training, and supports the live flying training that comprises this world-class, turnkey training system.

### CAE's expertise and competencies include:

- Live flight training
- Flight operations support
- Ground-based academic training
- Site management
- Simulator training
- Courseware development
- Program management

In addition to classroom, computer-based, and simulator training, the NFTC program delivers live flying training on a fleet of Beechcraft T-6 (CT-156 Harvard) trainer aircraft and BAE Systems Hawk (CT-155 Hawk) lead-in fighter trainer aircraft. CAE is also responsible for full maintenance and operation of the aircraft under the governance of Canada's Department of National Defence airworthiness program. Along with the Royal Canadian Air Force, other NATO partners and allies have sent student and instructor pilots through the NFTC program.



**Who leads the way in  
training products and  
training services for  
fighter and trainer  
aircrew?**

**We do.**

No other company is more experienced and focused at delivering training solutions to help train militaries around the world.

# Our Services

CAE has been providing training support services to our customers around the world for over 70 years. We have the largest training footprint in the industry with approximately 9,000 employees at more than 160 sites around the world. Our team of experts has the knowledge and skills required to deliver training and in-service support services to the fighter and trainer community to help ensure they are well prepared to operate these highly sophisticated platforms.

**Trusted partner to help reduce the demand on military personnel so they can focus on their mission.**

## Proven Experience

CAE has been providing in-service support solutions such as systems engineering, integrated logistics support and avionic software upgrades to the Royal Canadian Air Force as part of the CF-18 fighter program for over 30 years. CAE has achieved the Capability Maturity Model Integration (CMMI) Level 5 certification for its team supporting the CF-18 fleet. This is the highest quality standard possible for software engineering and CAE is one of the few organizations in Canada to be Level 5 certified. CAE is a true partner providing our customers with mission and weapon system capabilities that are optimized and always operationally ready.

### Our comprehensive portfolio of training and support services include:

- Training centre and facility management;
- Instructor provisioning;
- In-service support;
- Sustainment logistics;
- Obsolescence management and technology insertion.

### We also offer consulting services such as:

- Human factors;
- Program/project management;
- Capability engineering;
- Analysis, design and experimentation;
- Systems engineering and integration, including third party systems integration.



# Innovation and Technology Leadership

We design and develop some of the most advanced simulation-based training systems in the industry for fighters, and comprehensive ground-based training systems for lead-in fighter trainer aircraft.

## Key Benefits

- Realistic, immersive training experience
- Considerable cost savings, increased efficiency and reduced risks
- Provides pilots the capability to practice in a safe and secure environment
- Realistic scenarios using simulated sensors and mission systems
- Reduces wear and tear on operational aircraft by maximizing the use of simulation-based training
- Provides vast synthetic battle space for training with no airspace limitations

## CAE's Leading Technologies

Our training solutions allow our customers to train in a safe, low-risk, and cost-effective virtual environment, rehearsing missions that would otherwise be difficult or dangerous to perform in live aircraft.

### Night Vision Goggles (NVG)

CAE offers NVG training solutions for fighter aircraft aircrews to learn how to safely and effectively operate at night. Combining CAE's simulation-based NVG with our flight simulators will provide a realistic, fully-immersive environment for pilots and crews to prepare for mission success.

### Collective Training Made Possible

Distributed mission operations and training is made possible by using networking capabilities across devices and platforms for combined air training as well as joint and coalition training for increased mission readiness.

### Immersive G-Cueing System

CAE's dynamic G-cueing system is comprised of a G-seat, G-suit, and lap-belt elements that provide a realistic representation of the motion cues experienced by fighter aircrews during flight for a more realistic and immersive training experience.

### Air-to-Air Refuelling

Air-to-air refuelling is a demanding, high-risk flying task, critical to military operations. Performing air refuelling training in a life-like simulated environment ensures the aircrews are trained safely and efficiently at a fraction of the cost of live aircraft.

### Weapon Systems Simulation

CAE simulates all weapon systems to provide a true mission training capability for both air-to-air and air-to-ground combat.

### High-Fidelity Visual Systems

The CAE Medallion family of image generators is used on a range of fast-jet training programs, including leading-edge target projection system and Head-Up Displays (HUD) that provides pilots with a fast response, high resolution visual cue environment to support advanced tactical training.

### Advanced Simulation-Based Sensors

CAE offers leading-edge training solutions for electronic warfare (EW), forward-looking infrared (FLIR), and radar systems to ensure aircrews have the capabilities required to face today's complex systems and mission requirements.

### Realistic Flight Controls

CAE's high-fidelity simulation of the electric control loading system provides pilots with realistic aircraft flight control forces and handling characteristics for increased training realism.

### Instructor Operator Station (IOS)

CAE has developed a multi-functional off-board and tactical control instructor operator station (IOS) that is powerful and easy to use. It allows the instructor to control the session, run training scenarios, monitor, test and record for the purpose of post-training debrief.

### Real World Representation

The use of synthetic environments creates a realistic, immersive training experience while increasing efficiency, cost-savings, safety and security, and mission preparedness.





## CAEMedallion MR

e-SERIES VISUAL SYSTEM

**CAE Medallion MR e-Series visual system offers a cost-competitive, integrated, turnkey training environment backed by more than 70 years of training and simulation expertise and experience.**

This is a fully integrated visual solution that includes a 360-degree dome display, laser projector, and CAE's proven CAE Medallion image generator. It has been designed to deliver the industry's most realistic and immersive virtual environment for training fighter and fast-jet pilots. Some of the features of the CAE Medallion MR e-Series include:

- High-fidelity natural visual immersion reduces eye-strain and fatigue
- Accurate model identification at simulated ranges commensurate with eye-limiting resolution
- Smearing/Motion-Blur reduction from unequalled dynamic 120Hz resolution
- Head movement compensation virtually eliminates parallax error
- 3D depth perception via active eyewear
- Night Vision Goggle-optimized
- Industry-leading brightness
- Four scalable solutions to address resolution and field-of-view needs (360°/225°)
- Fully correlated synthetic environment
  - Industry standard interfaces:
  - Open Geospatial Consortium Common Database (OGC CDB)
  - Common Image Generator Interface (CIGI)

### Extending training and mission rehearsal capabilities:

- Air-to-air refueling
- Close formation
- Target identification
- Low altitude
- Air-to-air combat
- Air-to-ground targeting

# Fighter/Trainer Aircraft Program Highlights

We have the experience and expertise to serve as your training systems integrator in the development of world-class fighter/trainer aircraft training and mission rehearsal solutions.

# Our Success Stories

CAE has designed some of the most advanced training systems for fighter and trainer aircraft, and supports the delivery of academic, simulator and live-flying training on a range of programs around the world. Our customers benefit from CAE's unique training and simulation experience that helps ensure their training needs are met.

## CAE USA Mission Solutions

CAE USA Mission Solutions is the prime contractor delivering F-15/F-16/F-22 contract aircrew training and courseware development to the U.S. Air Force. Under this program, CAE USA instructors are responsible for providing academic and simulator training at seven U.S. Air Force bases in addition to developing and modifying courseware used as part of the training syllabus.

## Royal Australian Air Force Hawk Mk127

CAE supports the Royal Australian Air Force Hawk Mk127 training program at RAAF Base Williamtown and RAAF Base Pearce. Initially, CAE was subcontracted by BAE Systems to design and manufacture three new Hawk Mk127 full-mission simulators in parallel with the aircraft upgrade program called the Lead-In Fighter Capability Assurance Program (LIFCAP). Upon delivery of the Hawk Mk127 full-mission simulators, CAE Australia was contracted by the Commonwealth of Australia to provide a range of training support services under the Australian Defence Force Simulators Through Life Support (ASTLS) program. CAE Australia is now supporting 76 Squadron at Williamtown and 79 Squadron at Pearce with classroom and simulator instruction, maintenance and engineering support services, lesson plan and scenario development, and computer-generated forces entity development.

## Eurofighter Aircrew Synthetic Training Aids (ASTA)

CAE's Medallion image generators are used on the Eurofighter Aircrew Synthetic Training Aids (ASTA) program, providing pilots with a fast response, high resolution visual cue environment to support advanced fighter tactical training. CAE has also provided front projection dome and rear projected mosaic displays for the Eurofighter simulators to create a complete visual solution and immersive training environment. In addition, CAE is responsible for developing the synthetic and interactive threat environments for all of the Eurofighter training devices, including the full-mission simulators, cockpit trainer/interactive pilot stations, and other ancillary devices.

## Leonardo Aircraft M-346

CAE is Leonardo's preferred full-mission simulator and training device supplier for the M-346 advanced lead-in fighter trainer aircraft. As part of the ground-based training system (GBTS) for the M-346, CAE has the responsibility for designing and developing a range of M-346 training systems, as well as delivering training support and maintenance services. CAE has developed and delivered a range of M-346 training systems for the Italian Air Force, Republic of Singapore Air Force, Israeli Air Force and Polish Air Force.

## German Air Force Tornado

The Tornado is a long-serving combat aircraft used for strike missions, battlefield interdiction, close air support and reconnaissance. With the variety of roles for which the aircraft is used comes the requirement for a comprehensive training solution capable of preparing the pilot and weapon systems officer for the range of missions performed. CAE has developed all the Tornado full-mission simulators and training devices for the German Air Force, and continues to provide upgrades as well as on-site maintenance and support services in Germany and at the German Air Force Flying Training Centre at Holloman Air Force Base in the United States.

## Other Program Examples

- **Hawk 128** — U.K. Military Flying Training System (MFTS)
- **Hawk 132** — Indian Air Force
- **A-10** — U.S. Air Force
- **AV-8B** — U.S. Marine Corps
- **F/A-18** — U.S. Navy
- **T-50** — Korea Aerospace Industries
- **F-16** — Havelan/Turkish Air Force

# About CAE Defence & Security

CAE's Defence & Security business unit focuses on helping prepare our customers to develop and maintain the highest levels of mission readiness. We are a world-class training systems integrator offering a comprehensive portfolio of training centres, training services and simulation products across the air, land, naval and public safety market segments. We serve our global defence and security customers through regional operations in Canada; the United States/Latin America; Europe/Africa; and Asia-Pacific/Middle East, all of which leverage the full breadth of CAE's capabilities, technologies and solutions.

For more information visit our website  
[cae.com](http://cae.com)

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