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Saab unveils its AI agents for future fighter systems

Saab is revealing its own in-house, flight proven Artificial Intelligence (AI) agents and has flown them on Gripen E. By doing so, Saab has demonstrated its ability to develop, train, and fly its own AI for air combat, taking it all the way from concept to an operational fighter aircraft.

AI is one of a series of key technologies within future fighter development and Saab, within its Advanced Programs business unit, has developed a family of AI agents as part of the technology pillars that contribute to its position as a world-class fighter company. The family of agents utilize various AI techniques to master tactical decision-making in complex operational environments. To accomplish this, the agents need to learn, adapt, and collaborate with pilots and operators across a range of mission tasks.

The agents can support the pilot in the cockpit or operate alongside pilots in its own unmanned air platform. The agents, training environments, and supporting development tools have all been developed within Saab. This provides full control over how the agents operate, how they are verified, and how they continue to evolve.

“We have not only built our own AI agents, but we have also flown them. This demonstrates our capability to develop AI agents that can be integrated into operational fighter aircraft. The future of air combat will not be defined by individual platforms acting alone, but by networks of crewed and uncrewed systems working together as a coordinated force. Through our ownership of the entire technology stack, we are building the capabilities needed for that future,” says Peter Nilsson, head of Advanced Programs at Saab’s business area Aeronautics.

A key part of this effort is Saab’s AI Fighter Pilot Academy. The initiative develops the agents while simultaneously building the infrastructure required to create, train, and evaluate AI agents across a wide range of scenarios and platforms. Together with Gripen E, whose disruptive architecture enables the rapid integration and testing of new technologies, even in civilian airspace, Saab controls the entire development chain in-house, from simulation to flight testing.

Supporting Saab’s ability to scale this work is Sferical AI, a Swedish sovereign AI initiative providing secure, large-scale computing capacity for advanced AI development. Saab is a founding partner in the initiative.

Within the AI Fighter Pilot Academy, agents are trained in simulated environments across multiple air combat capabilities. By accumulating millions of simulated flight hours across a wide range of operational scenarios, they can explore tactics and decision paths far beyond what any individual pilot could experience in a lifetime. Through continuous evaluation of actions against defined objectives, the agents learn to adapt and improve their performance. Beyond Visual Range (BVR) air combat is one such capability, and it has now been validated under real flight conditions. The

supporting infrastructure has been designed for reuse, enabling new capabilities, scenarios, and platforms to be added without rebuilding the development framework.

AI for fighter aircraft must be trusted. For that reason, safety and control are integrated into the development process from the outset rather than added afterwards.

Saab is now continuing to expand the capabilities of its agents and to fly them in a broader range of scenarios. The infrastructure developed within the AI Fighter Pilot Academy provides an important foundation for unmanned platforms. Future air combat is expected to rely on crewed and uncrewed systems operating together, and sovereign verified AI will be a critical capability in that environment. With experience spanning multiple generations of fighter aircraft, Saab is well positioned to lead that development.

During the flight trials, the agent autonomously controlled the aircraft in BVR combat scenarios. Gripen E's software-defined architecture enables new AI software to be integrated and flown in an operational fighter aircraft without the need for dedicated experimental platforms. This shortens development cycles and allows new technologies to be translated into operational capability more rapidly.

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