

AIR AND SPACE FORCE COGNITIVE ENGINE

WHAT IS ARTIFICIAL INTELLIGENCE (AI)?

AI refers to a machine's ability to gather observations, create knowledge and apply that knowledge to accomplish certain tasks. As we approach an era when most of our knowledge will be machine generated, AI will enable people to use this knowledge effectively. When AI examines an environment and creates knowledge from the observations gathered, it analyzes an abundance of useful information in far less time than the human mind. Examples of AI include speech-processing, robotics, the "auto-tag" feature on photos and self-driving cars.

WHY IS AI IMPORTANT TO THE DEPARTMENT OF THE AIR FORCE?

According to the 2019 National Security Strategy, operational AI will unlock infinite possibilities and enable tremendous efficiencies within the U.S. military. However, to reach this goal, a concrete plan must link AI opportunities to Department of Defense (DoD) requirements. Successful AI requires continuous development and integration. With this in mind, the current path forward requires a scalable solution.

WHAT IS THE AUTONOMY CAPABILITY TEAM (ACT3)?

ACT3 is a group of experts within the Air Force leading the development of the Air and Space Force Cognitive Engine (ASCE), an AI network/business model with a single IT platform that operationalizes AI within the Air Force. ACT3 has assembled the necessary people, algorithms, data, and computing resources to support the successful fielding of AI capabilities.

WHAT IS THE AIR AND SPACE FORCE COGNITIVE ENGINE (ASCE)?

ASCE is a one-stop, open source software application with various interconnected tools that enables users to develop complex AI solutions in real time. This cooperative network will support users as they research, prototype, deploy and continuously improve AI products.

HOW DOES ASCE WORK?

Designed to capture examples and analyze lessons learned in a Knowledge Platform (KiP), ASCE will ultimately guide the implementation of AI solutions. With ASCE, AI will soon be a tool in the hands of every Airman, and the ability to interact with AI in a do-it-yourself fashion will result in an exponentially innovative landscape.

This unique approach of creating systems uses existing AI to create new, world class AI. Requirements that may benefit from ASCE include business processes such as civilian hiring and contract monitoring, predictive maintenance, automated air combat operations, aircraft damage inspection, humanitarian assistance, disaster relief and additive manufacturing. Intelligence, surveillance and reconnaissance missions can also benefit from ASCE.



This brain graphic highlights the different areas in the human brain vital to learning and memory. Photo credit: B. Bowman, AFRL/PA