AVIATION WEEK NETWORK

Advanced AI Agent Flies MQ-20A With Sensor Payload

Steve Trimble   September 19, 2022

Credit: GA-ASI

An uncrewed aircraft system (UAS) flew for the first time aided by an advanced artificial intelligence (AI) technique developed by General Atomics Aeronautical Systems Inc. (GA-ASI), a company executive said on Sept. 19.

The jet-powered MQ-20A Avenger UAS was trained using a Reinforcement Learning (RL) architecture for the company-funded, 30-min. demonstration, Michael Atwood, GA-ASI senior director of Advanced Programs, told Aviation Week on Sept. 19 at the Air, Space and Cyber conference outside Washington.

The RL architecture uses software code to define the boundaries of the operating envelope available to the MQ-20A, then trains the AI agent to calculate the best way to maneuver to an objective, Atwood said.

Previous MQ-20 flights performed by an onboard AI agent used less-advanced training techniques, such as supervised and unsupervised learning systems.

The MQ-20 also flew with a government-owned autonomy engine known as CODE, which was developed by DARPA and transferred to the U.S. Navy.

Lockheed Martin also contributed a TacIRST infrared search and track payload for the demonstration. The mission system allowed GA-ASI to operate a surveillance payload using an AI agent RL-based machine learning system.

The Air Force Research Laboratory selected GA-ASI and Kratos last year to develop competing demonstrators for the Off-Board Sensing Station program. Almost simultaneously, GA-ASI and Kratos unveiled the Gambit and Demigorgon UAS, respectively.

The U.S. Air Force plans to launch a Collaborative Combat Aircraft development program in fiscal 2024, seeking to field an AI-piloted UAS to augment a crewed aircraft in the Next Generation Air Dominance family of systems.