

Scientific Systems Company, Inc.



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SINCE ITS FOUNDING IN

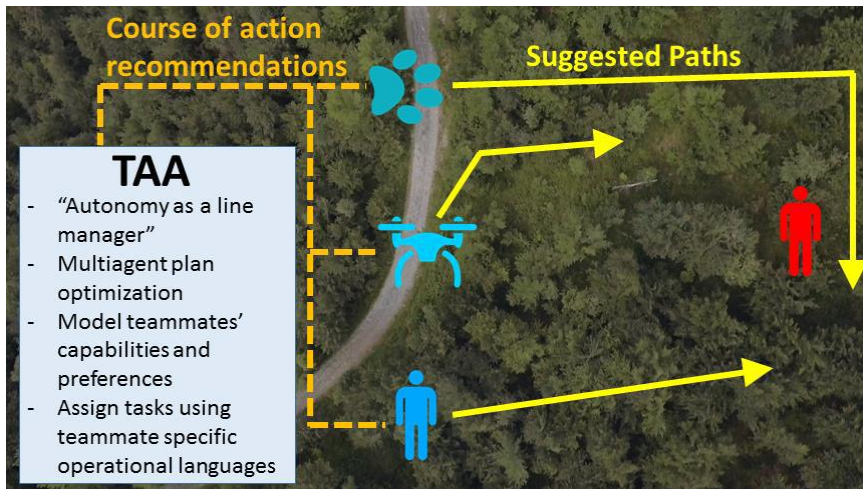
1976

>200 SBIR Awards

78 Employees

SDB Socioeconomic Category

2 Patent from SBIR/STTR



Solicitation:

Innovative Collaboration for Unmanned Aerial and Dissimilar Systems

DARPA SBIR Sponsor

N17A-T025 Topic Number

Improved Performance Primary Innovation

Adaptability, Cost Savings Secondary Innovation

Teammate Aware Autonomy (TAA)

Collaboration between humans, animals, and dissimilar unmanned platforms - such as air, surface or underwater - enhances the value and capability within a system and the application would allow the execution of unique missions that may otherwise be difficult to carry out.

Scientific Systems Company, Inc. (SSCI) has developed the TAA system, which modulates suggestions to teammates (i.e. humans, animals, robots, and/or software) by considering each teammate's preferences and capabilities during mission execution to achieve an optimal outcome. The key components include multi-agent learning-based optimization, teammate preference and capability models, and a high level user interface to process inputs defining characteristics of a scenario. TAA leverages SSCI's FOCUS autonomous UAVs intelligently collect visual information that supplements/confirms data provided by the canine.

IMPACT TO THE MISSION

The TAA allows a user unfamiliar with a team to optimize a multi-agent task allocation plan to achieve a mission effect, e.g. a soldier unfamiliar with military canines and quadcopters to effectively guide that team in an urban search and rescue mission. It will also allow handlers the ability to manage a larger team of drones and canines to speed rescues.

Phase II Accomplishments

SSCI successfully demonstrated TAA capabilities working with the Missouri Task Force One, one of FEMA's elite urban search-and-rescue team in a simulated mission. An autonomous UAV surveilled the area and provided real-time instructions to the canine to efficiently conduct the search. A video demonstration for additional details is available at <https://www.ssci.com/uav-teamed-with-search-and-rescue-canines/>. SSCI expects to continue to enhance TAA capabilities leveraging the DARPA SBIR funding.