Can AI teach AI? DARPA explores how AI tutoring can help adult learners

New opportunity seeks AI technologies to help adults learn complex subjects required for national security

The way people work is shifting; acquiring new skill sets can help ensure the national security workforce keeps up with the evolving demands of modern-day society. The World Economic Forum predicts that by 2025, 50% of all workers worldwide will need reskilling in order to compete in the market.

The Department of State and Department of Defense (DOD) both state that artificial intelligence is at the centre of the world's global technological revolution. According to the 2020 DOD Education Strategy, "the future of AI in the DOD relies on the Department's ability to build and develop a workforce for the digital era."

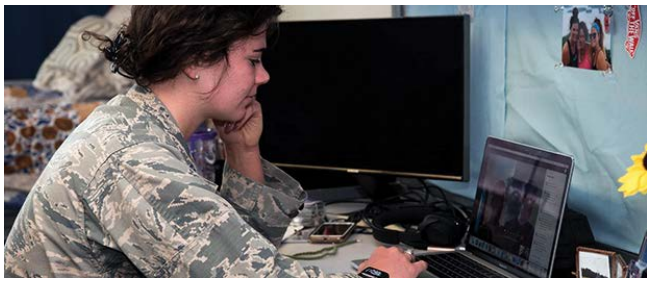
Meanwhile, COVID-19 has created additional challenges for workers, accelerating the adoption of new technologies and automation in many sectors and disproportionately impacting the unemployment rates of historically marginalized demographics, including people who identify as Black or Hispanic.

DARPA is seeking ideas for innovative AI approaches that can help adults learn complex topics necessary for the current and future national security workforce (e.g., AI engineering and cyber defense).

"As technology advances and economic conditions shift, so will the skills necessary for America's workforce and our military," said Joshua Elliott, AI Tools for Adult Learning program manager in DARPA's Information Innovation Office. "In addition to a post-pandemic economy, the need to improve access to education and upskilling for historically marginalized learners is more important than ever. AI tutoring could dramatically improve learning success, particularly in increasingly common remote and self-directed learning environments."

DARPA invites technologists, researchers, students, teachers and creators of digital learning platforms or cutting-edge AI techniques to propose AI tools or technologies that can address the critical challenges facing adult learners. Successful tools will seek to create customized learning experiences that improve training of new skills in adults who have completed post-secondary education.

DARPA leaders and industry experts in the adult learning field will review abstracts over the course of nine months.



A senior cadet attends a class remotely via video chat from her dorm room on March 19, 2020 in Vandenberg Hall at the U.S. Air Force Academy. DARPA program manager Joshua Elliott envisions AI tutoring as a way to enhance remote and self-directed learning. (Photo ©: U.S. Air Force photo/Trevor Cokley)

Submissions will advance as follows:

Phase One: Reviewers will evaluate high-level proposal abstracts and select a subset to proceed to phase two. The deadline to submit abstracts is December 18, 2022.

Phase Two: Reviewers will evaluate detailed proposals for technical merit in order to move to the last phase.

Phase Three: Finalists will pitch their concept before the panel of reviewers, who will select the winners.

Following the pitch event, DARPA will award a total of $750,000 to winning submissions to develop those concepts. Those who are selected will have the opportunity to present their progress and technologies to industry, technical experts, and philanthropic organizations in the year following the awards.

"There is a growing body of evidence that demonstrates the power of tutoring as a means to teach all learners quickly and effectively, and yet, programs that rely on human tutors are costly," explained Elliott. "Recent advances in AI have made way for computer-based tutoring systems that use AI to personalize instruction in real time based on learner responses. These systems have the potential to drastically reduce the cost of high-quality tutoring, and therefore increase access for all learners."

For complete information about AI Tools for Adult Learning – including how to submit an abstract, eligibility requirements, registration access and more – please visit **toolscompetition.org/DARPA**. ■