

Video: New U.S, Artificial Intelligence Battlefield Solutions

US DevCom Working on Compression Algorithm that Would Revolutionize Battlefield AI

By [South Front](#)

Global Research, October 19, 2021

[South Front](#) 16 October 2021

Region: [USA](#)

Theme: [Intelligence](#)

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The United States Army Combat Capabilities Development Command (DEVCOM) in cooperation with the Army Research Laboratory and university partners from the Internet of Battlefield Things Collaborative Research Alliance (IoBT CRA) are hard at work on a new battlefield artificial intelligence (AI) solution.

The aim is to develop a system that can provide battlefield applications with pressing machine intelligence, even when the local environment is not able to facilitate AI processing.

The solution offloads data from the battlefield to remote processing engines by enabling a much higher degree of compression of the data than previously possible.

https://southfront.org/wp-content/uploads/video/16.10.2021_IMR_US.mp4

Transferring data between field devices like Army-relevant sensors, such as cameras, LiDARs, radars, IR sensors and a remote server usually takes a significant amount of time.

Compressing the data puts less burden on the battlefield system, allowing it to send the data to the processing machine elsewhere more efficiently.

Researchers recently tested the compression solution by offloading an image from one device at the lab’s Multi-Purpose Sensing Area at White Sands Missile Range and an IoBT CRA server in Massachusetts.

Testing of this solution showed that compression was four times more effective than an image’s compression capability, which is the current image compression standard.

This ultra-high compression was achieved by analyzing and then preserving only the data

features the AI will need to use later for accurate processing.

For example, in an application where the goal is to recognize different types of vehicles in an image, it is important to identify what cues are used by the AI to distinguish the different types of vehicles.

Those cues should be preserved by compression when data is sent from the field. Other irrelevant information can be compressed away to improve compression abilities.

If successful, this solution can revolutionize AI for Army applications and increase autonomy in mission execution by bringing AI virtually to the point of need in the field through faster offloading and remote processing.

At a time when autonomy and machine intelligence play increasingly bigger roles in future conflicts, efficient solutions for moving complex sensor data to the right processing engines will become critical.

As a result, this new technology of Compressive offloading, and other sensing and processing research, are essential to the Army in effectively preparing for the future battlefield.

This sort of quick processing could lead to more effective AI-controlled defensive and offensive system. As it was reported earlier, the United States is lagging behind the United Kingdom in terms of active AI-operated defense systems for armored vehicles, but this could rapidly improve the capability.

Other significant improvements that it can lead to relate to greater precision for offensive strikes and preparation for attacks and raids.

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