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Machine Learning with no bounds

Artificial Infinity LLC
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Proposal Concept White Paper for Phase I Army xTechSearch RFI

From

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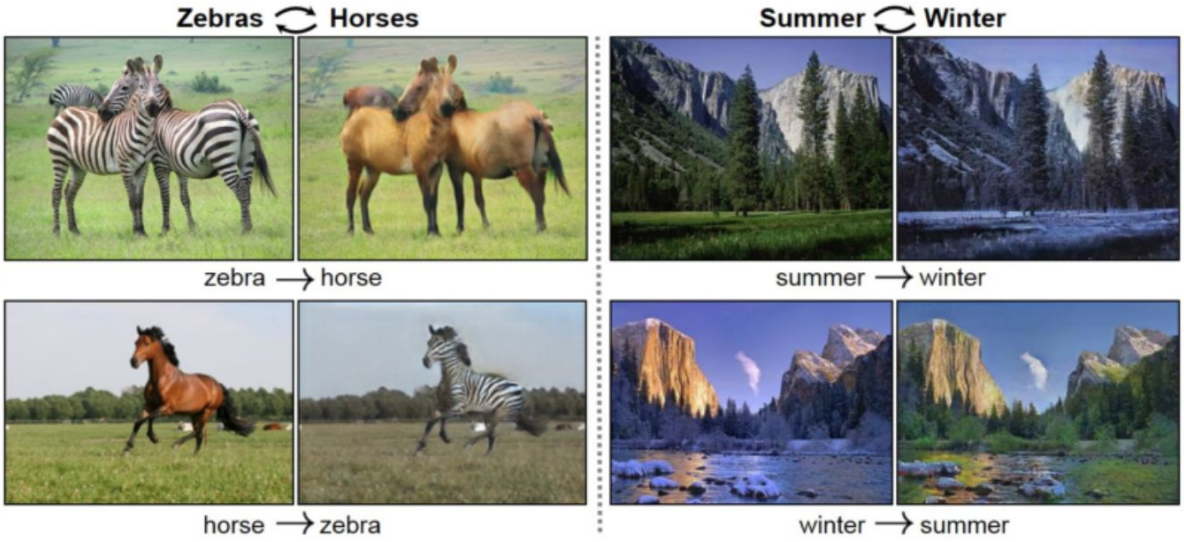
This proposal white paper is in response to the Phase I Army Expeditionary Technology Search (xTechSearch) request for information found on Challenge.gov.

Introduction

Artificial Infinity LLC is registered in the state of Florida and located in the Space Coast area, specifically Melbourne, home to several leading technology Companies and Universities. Artificial Infinity is a Service Disabled Veteran Owned Small Business (SDVOSB) focused on AI, data science, and machine learning solutions and consultation. This proposal will focus on the improvement of our technical capabilities with regards to the Army Modernization Priority of Next Generation Combat Vehicles (NGCV) and autonomous vehicle exploration.

Proposal

Artificial Infinity would like to propose a concept for consideration in using Artificial Intelligence (AI) advancement in computer vision to improve the technical capabilities of the NGCV within the autonomous vehicle portion of the modernization priority.
We want to utilize Generative Adversarial Networks (GANs) and the advance object recognition algorithms using deep learning Convolutional Neural Networks (CNNs) to help NGCV (manned or autonomous) detect and flag dangerous and life threatening conditions while preparing for missions or during live combat. These algorithms have shown promising results in both object detection and recognition and altering visual perception in images. A popular commercial example can be seen below.[1]



By leverage these existing capabilities and along with new developments, dangerous or life threatening objects can be flagged by the autonomous vehicle video feed and sent to the man controlled ground vehicle. In simple terms, this would essentially highlight the danger or threats in a specific color on the video feed, alert the team and help avoid or eliminate the dangers. IED's, roadside bombs, and unconventional explosives continue to wreak havoc on our military ground forces causing excessive and unnecessary casualties. Current technology is capable but needs further development. These advancements would be fundamentally disruptive to our existing capabilities and further enhance our ability to fight the war on terror and most importantly, reduce the overwhelming number of casualties. The application of this intelligence in autonomous vehicles is key but could also be inserted into many other form factors.
I.e. Security, monitoring, targeting, UUV's, radar, LiDAR, etc.

Having the most intelligent autonomous vehicles as part of the NGCV fleet will not only help protect our soldiers and the equipment they use but it will be a critical capability to remain the world's most dominating Military force.

Summary

The new developments in computer vision using GAN's and advanced object recognition along with deep learning will advance the technology and performance of our existing Ground Combat Vehicles, autonomous or otherwise but the time to implement these revolutionary ideas is now. Artificial Infinity would welcome the opportunity to present our technology pitch to a panel of Army and Department of Defense subject matter experts and judges at the Austin Texas location. As a SDVOSB we appreciate the opportunity to compete and the continued efforts for the advancement of our Military forces.

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