Carnegie Mellon University
Software Engineering Institute

SEI Bulletin — February 6, 2019

Deep Learning and Satellite Imagery: DIUx Xview Challenge

In 2017 and 2018, the United States witnessed a milestone year of climate and weather-related disasters from droughts and wildfires to cyclones and hurricanes. Increasingly, satellites are playing an important role in helping emergency responders assess the damage of a weather event and find victims in its aftermath. Most recently satellites have tracked the devastation wrought by the California wildfires from space. The United States military, which is often the first on the scene of a natural disaster, is increasingly interested in the use of deep learning to automate the identification of victims and structures in satellite imagery to assist with humanitarian assistance disaster relief (HADR) efforts.

To that end, the Defense Innovation Unit (DIU) recently launched the xView 2018 Detection Challenge, which was conducted by the Pentagon in partnership with the National Geospatial-Intelligence Agency, to seek out innovative uses of computer vision techniques to more accurately detect images in satellite imagery. As described in this blog post, Ritwik Gupta, a machine learning scientist with the SEI's Emerging Technology Center, worked with a team of researchers in the xView challenge that earned us a fifth-place finish. This activity is the SEI's latest effort in using machine

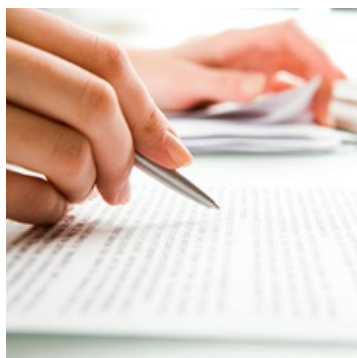learning and artificial intelligence to assist the federal government with
HADR efforts.

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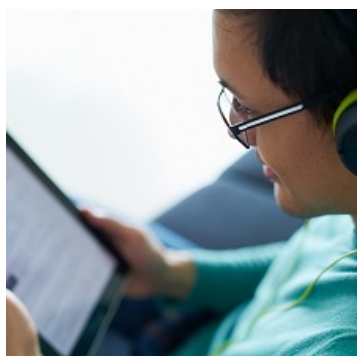| Join Our Mailing List	Visit Our Website

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