# ITT and MoD to create imagery exploitation tools

**Giles Ebbutt**

ITT Visual Information Systems (VIS) UK and the Ministry of Defence (MoD)-run Defence Science and Technology Laboratory (DSTL) are developing a series of automated tools for the operational exploitation of imagery.

Speaking at the WBR Defence Geospatial Intelligence 2010 Conference in London, David Burridge, senior consultant at ITT VIS, explained that the MoD has gaps in its imagery exploitation capability. He cited the fact that there is too much imagery available to exploit properly; the difficulty of time sensitive-exploitation; and a requirement for the fusion of different image types - such as Synthetic-Aperture Radar (SAR) and Hyperspectral Imaging (HSI) - as posing particular issues.

Accordingly, he asserted that tools are needed which can automatically detect changes in imagery and identify targets and which can be customised to meet developing and changing operational requirements as an important means of closing that gap.

Burridge explained that the difficulty of the task, as a result of the range of imagery types and environments and the variability of targets, means that currently there are no automated imagery exploitation tools in regular operational use, particularly as the computational demands are very complex.

However, there has been considerable investment recently in machine vision, which coupled with advances in computing and improved sensing capabilities has resulted in progress. As a result, the ITT/DSTL team is developing the Multi-Source Analyst's Toolkit for Improved

Spatio-Spectral Exploitation (MATISSE) to insert and mature MoD-specific algorithms and tools into an operational environment.

MATISSE makes use of ITT's existing Environment for Visualizing Images (ENVI) and OverWatch's RemoteView visualisation tools, providing the mechanism to incorporate algorithms and research from a wide variety of sources, offering a 'golf bag' of possible tools that can be used for automatic exploitation. The emphasis is on ease-of-use, speed, flexibility, output management and reporting.

Processing is closely linked to workflow, with a processing algorithm for each workflow step. Tools provide rapid cueing of possible targets and allow their automatic analysis while background processing continues.

Burridge demonstrated examples of the automatic target cueing of vehicles and identification of aircraft types through the comparison of images with previous imagery, as well as automatic tracking of a particular target using change detection.

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