

[I2] Early Auditory-Visual Integration for Transient Detection

In many applications, events are presented or displayed visually to an operator who is then responsible for detecting the presence and identity of threat targets using this visual information. This is not always effective for the detection of transient events. Such events are more likely to be detected by an auditory display and operators typically rely on listening to make a decision. This is mostly due to the human auditory system excelling in the detection of transient sounds in the presence of noise and the advantage of combined auditory and visual processing. Notwithstanding this superiority, there is still no effective way to automate this integration of auditory and visual information as part of the system display. Routine experience is that sonar post event analysis detects and classifies targets that were not reported operationally. The aim of this task is to identify candidate signal processing techniques for automated transient detection that exploits combined auditory and visual processing. The emphasis is on ways to integrate the auditory and visual information that characterise transient events. The task will compare early and late integration methods for auditory-visual processing.

Project Supervisor: Mr Adrian Brown

Adrian Brown BSc MSc is a Principal Scientist in Dstl. His initial research was in ocean measurement and modelling with a particular interest in oceanographic internal waves. This work involved several sea trials including a month in the Atlantic aboard a weather ship. He then spent some time working in Operational Analysis (aka Operational Research) with a focus on engagement simulation modelling of submarine detection. Subsequently he was responsible for the MoD's reference document on Sonar Modelling, leading a team working on sonar performance modelling. More recently he has acted as scientific advisor to a major submarine sonar procurement, which included planning of and participation in submarine sonar trials.

Project Summary

Project Type: Accepted Status: Core Research