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## Artificially Intelligent Targeting

Samuel Westlake, *Cranfield University*

The aim of this project is the development of new techniques for infrared anti-ship missile seekers. This image illustrates how we are using deep learning to detect, recognise and classify multiple ships. Our algorithm can differentiate between military and civilian vessels, and is even robust against the presence of infrared countermeasures and background clutter.

In most cases, training deep learning algorithms requires thousands, if not millions, of carefully labelled examples. This presents a major challenge for the application of deep learning to infrared missile seekers, as the availability of such training data is extremely limited. To over come this, we simulated multiple thermal signatures for ten different ships and used these to synthetically generate a large and realistic data set. This data was then used to train our artificial neural network, and the subsequent model performed successfully on real-world infrared test data.