EPSRC CDT in Distributed Algorithms

PhD Project: Distributed Hypothesis Generation and Evaluation

University of Liverpool

PhD Student: Jordan Robinson
Project Partner: Dstl

Supervisors:
Katie Atkinson, University of Liverpool
Simon Maskell, Secondary Supervisor
Todd Robinson, Dstl

Project Description

Approaches should be developed to allow analysts with particular expertise to contribute their knowledge to different parts of an intelligence analysis in a collaborative manner by generating sub-arguments which are coherent with the analysis as a whole. Analysts or agents, using a well-defined theory of abstract argumentation, may then evaluate the hypotheses, which may suggest further collection of information or require refinement of hypotheses. Intelligence analysis should be considered as a cycle and therefore all stages of the process should be compatible with collaborative and distributed analysis. The approaches developed should be validated against other intelligence analysis techniques. Care will be needed to mitigate the potential for biases in the system.

The intelligence cycle consists of understanding the information available, generating hypotheses, based on the analysts' situational understanding and the intelligence available and evaluating these hypotheses using the available evidence and structural analytical techniques, eg Analysis of Competing Hypotheses. In each of these steps, analysts, and in future semi-autonomous agents, perform reasoning based on different intelligence available and their background knowledge. Allowing analysts to collaborate effectively on intelligence problems could improve the quality of analyses and reduce biases in an analysis.

Go to the EPSRC CDT In Distributed Algorithms website.