

The product Meth8 applies to these DARPA areas of interest within the field of Computational Intelligence of Security and Defense Applications (CISDA).

1. Advanced architectures for defense operations (situational assessment);
2. Modeling / simulation of defense operations (risk-aware decision support; strategic planning); and
3. Security applications (automated handling of situations; object detection / classification).

The model checker is a universally applicable computational intelligence technique.

Title: A new model checker of alethic logic for battlefield awareness

Authors: Colin James III (Ersatz Systems Machine Cognition, Colorado Springs), corresponding info@cec-services.com; and Garry Goodwin (Semantic-Qube UK, London)

Description of the product Meth8 (U.S. Patent provisional application October 6, 2015):

1. Situational awareness of the warrior is the basis for decision support on the battlefield.
2. Current technology maps a real-time, narrative description of the surrounding environment into subjects, predicates, and objects.
3. These tokens are in turn translated as pre defined symbols into propositions of predicate logic.
4. The evaluation of derived theorems uses the operators in modal logic of necessity (L) and possibility (M).
5. The instant model checker fills the need to invalidate some such theorems.
6. The approach uses a variant of the four-valued logic named VL4 of Jan Łukasiewicz.
7. This corrects previous anomalies in the Ł4 system and proceeds to identify those axioms in S5 which are not viable for decision making.
8. The implementation is a very fast, real-time security application as an automated handler named Meth8.
9. It uses look up tables for tableaux proof and can be hosted on an inexpensive hardware part of 128KB memory.