MIMEX (Multivariant Information Management and Exploitation)

Data & Information Fusion Defence Technology Centre

www.difdtc.com

Information Extraction

Automated approach to content acquisition; use of information harvesters and advanced entity extraction techniques.

OWL Ontologies

Culture-oriented ontologies designed to support information integration and culture-aware decision-making.

Semantic Annotation

Automatic tagging of information resources for rapid document retrieval.

Information Visualization

Multiple techniques for information visualization, e.g. m-Space navigator, map projections, graphs/charts, knowledge dashboards, etc.

Resource Processing

Processing of multivariant information sources, e.g. video, audio, text, images.

Trust & Provenance

Integration of trust and provenance to support information quality assessments.

Human Factors Orientation

User interface manipulations to facilitate cognitive processing and enhance task performance.

Extensible Architecture

Easy integration of new technology components using an Enterprise Service Bus (ESB); extensible capability framework

Overview

Information superiority, across the full spectrum of military engagements, depends on an ability to adaptively exploit large-scale information environments composed from both global networks as well as more specialized sensor networks. The MIMEX initiative presents a vision of enhanced information exploitation in which the challenges of the modern military information space are resolved using a combination of technological innovation and human factors research.

Operational Context

MIMEX capabilities will be demonstrated with respect to a specific operational context, namely Stability and Support Operations (SASO). Like many operations in the Contemporary Operating Environment (COE), SASO depend on the exploitation of multivariant information resources that differ with respect to their location, format, semantics and quality. MIMEX provides capabilities to assist analysts in coping with this multivariant information space.

Technical Approach

MIMEX capabilities depend on the integration of many different technologies, including speech processors, text analysers, reasoning agents, visualization services, and ontologies (see sidebar).

Aims & Objectives

1. **Support the processing of multivariant information resources.**
2. **Improve the retrieval of task-relevant information.**
3. **Facilitate the integration of disparate datasets.**
4. **Support information quality assessments.**
5. **Augment cognitive processing.**

In contrast to many system design initiatives, the MIMEX interface will incorporate features designed to encourage task-relevant processing of important information by users. Research studies have found that by manipulating information access cost, the negative effect of interruptions can be mitigated. In addition, instructions to visualise can facilitate the users' understanding of how best to use the interface.

MIMEX adopts a service-oriented approach to system design in which multiple types of component are integrated via an Enterprise Service Bus (ESB). The ESB promotes modular component development and facilitates the functional extension of system capabilities.

More Information

MIMEX is a collaborative research project undertaken by the University of Southampton, Cardiff University and General Dynamics UK Ltd. The project forms part of the UK Data & Information Fusion Defence Technology Centre (DIF DTC) programme and is sponsored by the UK Ministry of Defence and General Dynamics UK Ltd.

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