

Active Situation Reporting

DEFINITION AND ANALYSIS

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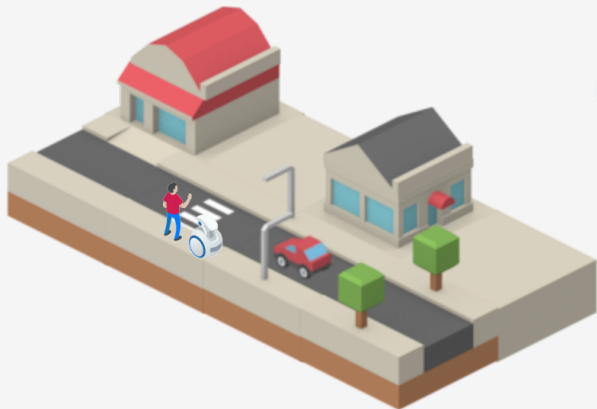
Context



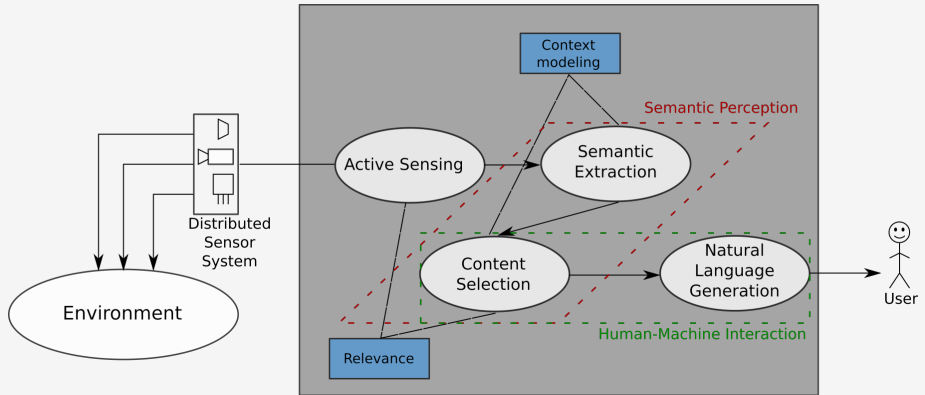
Definition

Active Situation Reporting

Active Situation Reporting (ASR) is the process for an agent to give **relevant information** about an **evolving environment** to another agent without the user explicitly asking for this information.



At the crossroads of three fields



Active sensing and relevance

Active Sensing

- Active sensing is about maximizing the amount of information gathered
- Changes in a dynamic environment must be detected
 - Computer vision (very intrusive) [Benezeth et al., 2010]
 - Pervasive systems (focused on anomaly detection and sudden drifts)

Open issue

→ **How to detect gradual drifts in the environment**

Active sensing and relevance

Relevance

- System-based relevance (relevance relative to an explicit request)
[Croft and Lafferty, 2013]
- Agent-based relevance (relevance relative to a user's knowledge)
[Floridi, 2008, Renoux, 2015]

Open issue

→ **Efficient and usable model of agent-based relevance**

Semantic Perception

From sensor data to meaning

- Need to extract meaning from sensor data
- Semantic Sensor Network(SSN) ontology used to represent contextual knowledge [Henson et al., 2011, Compton et al., 2012]
- Physical Symbol Grounding tackles the changes of a given object in time [Coradeschi et al., 2013, Milliez et al., 2014]

Open issue

→ **Shared physical symbol grounding: when humans and machine share the same names**

Integration

- Integrating different topics...
- ... with different underlying models
- ... and working hypotheses

Open issue

- **Bridging the gap between sensor data and reasoning**
- **Need for a common model usable with different techniques**

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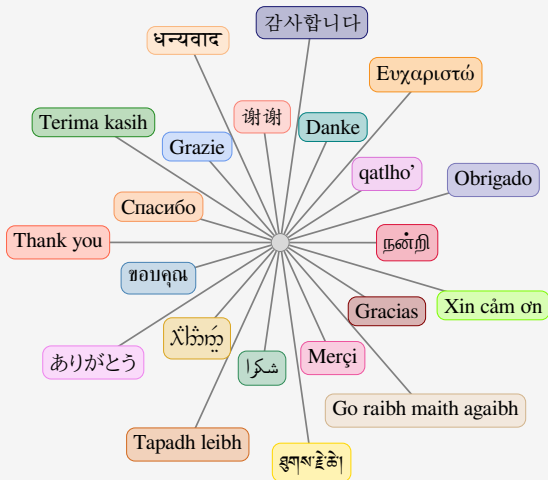
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Questions?

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Presentation



Article

