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Teaching computers common sense

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Ontology researchers are joining forces to discuss the meaning of certain words and phrases so computers can make decisions on their own.

So far, computers can respond to electronic commands, such as ‘stop’, ‘start’ and ‘grind’, but are not able to understand complex orders or common sense.

For example, a machine command, such as "paint the computer case before you box it," or "provide power to the computer before you switch it on," could mislead a computer to box an item before it is dry or plug and then unplug a computer before switching it on.

The researchers believe that it is the word ‘before’ that has a different meaning in the two cases.

Ontology is the study of thought processes and is a branch of metaphysics that deals with the nature of being.

It is hoped that ontology could end the age of ‘the stupid machine’.

Ontologists who have created some of the most advanced logic systems got together at a National Institute of Standards and Technology (NIST) workshop to communicate their pioneering concepts on complex ideas, such as time, space and process.

The promise to join forces was expressed in a ten item communiqué issued at the end of the two-day workshop.

The collaboration could potentially lead to software programs that would equip machines with mutually compatible frames of reference, enabling them to interpret and act on commands very much like human common sense.

Artificial intelligence capacities have so far been developed at a relatively rudimentary standard – so far machines have only been programmed to work for the industry in which they are used.

Known as ‘lower ontology’, such machines are of limited use and still rely on human operation at every step of the manufacturing process.

A machine empowered by programs that incorporate expanded frames of reference of ‘higher ontologies’ such as space and cost may be able to begin making design and shipping decisions virtually on their own.

"We believe we have planted an historic stake in the ground by enabling the leading upper ontologists throughout the world to come together and sign this agreement to cooperate," says Steven Ray, chief of NIST's Manufacturing Systems Integration Division and coordinator of the Upper Ontology Summit at NIST.

The ontologists will use the internet and future meetings to exchange information on their systems.

A second Upper Ontology Summit may be scheduled as part of next year's NIST Interoperability Week events.

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