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Kinetic shaft trace; orbit

If two quantities are simultaneously recorded in measurement directions at right angles to one another, then their changes over time can be recorded in a common diagram. In that case, the horizontal axis becomes the amplitude of one and the vertical axis that of the other. This type of display is particularly well suited for the measurement of shaft vibrations, i.e. the display of the dynamic movement of the centreline of a rotating shaft.

See also Corbit; Morbit

Knowledge

Knowledge always refers to fields of activity in which it, as available know-how, gives concrete form to the capacity to act or as orientational knowledge, it gives form to preferences and attitudes. Know-how implies how something can be made available after one with the help of orientational knowledge already knows what one wants to do. Every knowledge is first, as subjective knowledge, a secret blend of intuition, experience, knowledgeability, education and judgement. It can, in the course of communicative dealings, be reproduced verbally, worked out in discourses according to transsubjectively valid criteria and ideally translated into objective knowledge. Verbally available knowledge is represented today more and more in the form of data and programs, stored electronically and used for computer-supported problem-solving and informing as well as to rationalise and automate work. In the process, "knowledge" is reduced to "information" and knowledge acquisition is reduced to the processes of information retrieval (retrieval system), information recording and information processing. Being informed on facts is designated declarative knowledge, being informed on cognitive processes is procedural knowledge and being informed on the planning and control of cognitive processes is meta knowledge.

Declarative knowledge is mostly represented in the form of semantic networks, procedural knowledge in the form of production.



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Knowledge acquisition

1. In expert systems, the creation and ongoing change of the knowledge base by experts in the field of application. A capable expert system:
 - Translates given knowledge from everyday speech into representational speech (Knowledge, Representational speech) and vice versa,
 - Tests given knowledge and knowledge base for consistency,
 - Independently requests further input and correction of knowledge.
 - Draws (infers) knowledge from available data.
2. The surveying and structuring of knowledge from professional literature, information systems and especially from experts in order to build up and extend basic knowledge. In the future, the application of machine learning will occur.

Knowledge acquisition components

That component of an expert system that forms the interface for knowledge acquisition through the knowledge engineer or expert. Mostly just an editor for the submission of knowledge according to a particular formalism for representing knowledge, often with tests for syntactic correctness (the syntax for programming languages).

Knowledge acquisition (interface) facility

The knowledge acquisition component describes that part of an expert system that displays the interface to the developer. In the poorly structured problem areas that are being worked on by the expert systems,



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the comfortable change and extension of knowledge components is of outstanding meaning. Depending on the state of development, knowledge acquisition can also derive directly from prescribed data.

Knowledge acquisition system

Standalone system to support knowledge acquisition. Three forms can be differentiated:

- General knowledge acquisition system that can be applied universally.
- Problem-specific acquisition systems that include a model of a specific class of problem.
as well as
- Industry-specific knowledge acquisition systems for application in specific domains.

Knowledge application; knowledge management

Processing of knowledge displayed in an expert system, e.g. through:

- Methods of classical data processing,
- Transformation, i.e. the translation from one representative language (Knowledge, representation of) into another,
- Deduction methodology.

Knowledge base

The basis for the intelligent behaviour of systems of artificial intelligence forms a base of knowledge, which is why one speaks of knowledge-based systems in this connection. All facts that the system needs have been placed in it. In addition to the deposited facts mostly in declarative form, one subsumes under



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the concept of the knowledge base also the processes that make it possible to draw conclusions from this knowledge (the so-called Inference Engine). The field of knowledge representation is concerned with the structure of the knowledge base and with the construction of knowledge bases of knowledge acquisition. The knowledge present in an expert system, in a suitable knowledge representational language across the area of application.

Knowledge based system

System, knowledge-based

Knowledge component

The knowledge acquisition components describe that part of an expert system that contains the information necessarily to solve a problem within a particular domain.

In contrast to databases that store definite facts, the knowledge component contains additional information about causal connections, inference rules, as well as imprecise, probabilistic information. All these additional types of information are necessary to describe the actual environment in which an expert operates. With that, the knowledge component also contains information that is needed for the dynamic deduction of new facts. In self-learning systems, this newly derived knowledge is added to the existing knowledge base for further applications.

Knowledge, declarative

See Knowledge, representation of