

Department of Computer Science and Engineering

Distinguished Speakers Series Presents

**John McCarthy, Professor, Computer Science
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APPROXIMATE OBJECTS ARE PRECISE IN SOME CONTEXTS

Two previous papers "Notes on Formalizing Context" (IJCAI 93) and "Approximate objects and approximate theories" (KR2000) respectively discussed the idea of context as a formal object and the idea of an approximate entity without an if-and-only-if definition. The present paper combines these ideas. An entity without an if-and-only-if definition in general may admit such a definition in a suitably specialized context.

Our example is the concept of a person owning an object, e.g. a house or a loaf of bread. In general owning is complicated, and many of these complications appear in case of a house. On the other hand, buying and hence owning a loaf of bread is ordinarily quite simple. The relation between owning in simple specialized contexts and owning in more general contexts is formalized in this paper. The simple cases are important in common sense reasoning.

Bio: John McCarthy, born in 1927, has been Professor of Computer Science at Stanford University since 1962, emeritus since 2001. He has been interested in artificial intelligence since 1948 and coined the term in 1955. His main artificial intelligence research area has been the formalization of common sense knowledge and reasoning. He invented the LISP programming language in 1958, developed the concept of time-sharing in the late fifties and early sixties, and has worked on proving that computer programs meet their specifications since the early sixties. He invented the *situation calculus* in 1964 and the *circumscription* method of non-monotonic reasoning in 1978.

His main research (1995) is formalizing common sense knowledge and reasoning. His most recent papers are on formalization of context and on the introspective abilities needed by robots.

He is a member of the National Academy of Engineering, the National Academy of Sciences and the American Academy of Arts and Sciences. In 1988 he received the Kyoto Prize in Advanced Technology from the Inamori Foundation in Japan. In 1990 he received the National Medal of Science from President Bush.

A full biography and bibliography are on his Web page <http://www-formal.stanford.edu/jmc/>.

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