

**James Allen**

Professor of Computer Science, University of Rochester
Associate Director of the Institute for Human and Machine
Cognition in Pensacola Florida

Tuesday, 22 August, 8:30–9:30, Aula Magna

Dialogue as Collaborative Problem Solving**Abstract**

I will describe the current status of a long-term effort at developing dialogue systems that go beyond simple task execution models to systems that involve collaborative problem solving. Such systems involve open-ended discussion and the tasks cannot be accomplished without extensive interaction (e.g., 10 turns or more). The key idea is that dialogue itself arises from an agent's ability for collaborative problem solving (CPS). In such dialogues, agents may introduce, modify and negotiate goals; propose and discuss the merits possible paths to solutions; explicitly discuss progress as the two agents work towards the goals; and evaluate how well a goal was accomplished. To complicate matters, user utterances in such settings are much more complex than seen in simple task execution dialogues and requires full semantic parsing. A key question we have been exploring in the past few years is how much of dialogue can be accounted for by domain-independent mechanisms. I will discuss these issues and draw examples from a dialogue system we have built that, except for the specialized domain reasoning required in each case, uses the same architecture to perform three different tasks: collaborative blocks world planning, when the system and user build structures and may have differing goals; biocuration, in which a biologist and the system interact in order to build executable causal models of biological pathways; and collaborative composition, where the user and system collaborate to compose simple pieces of music.

Biography

James Allen is the John H Dessauer Professor of Computer Science at the University of Rochester, and Associate Director of the Institute for Human and Machine Cognition in Pensacola Florida, He is a Founding Fellow of the American Association for Artificial Intelligence (AAAI) and a Fellow of the Cognitive Science Society. He was editor-in-chief of the journal Computational Linguistics from 1983-1993, and authored the well-known textbook "Natural Language Understanding". His research concerns defining computational models of intelligent collaborative and conversational agents, with a strong focus on the connection between knowledge, reasoning and language comprehension and dialog.