Educating LUCIE -- learning about every day activities from a robot perspective

Anthony G (Tony) Cohn
Professor of Automated Reasoning
Director, Institute for Artificial Intelligence & Biological Systems
University of Leeds

Abstract

The EU funded STRANDS project, in which Leeds participates with their robot LUCIE, continues a line of research which has been developed over a number of years at Leeds which has focussed on learning the spatio-temporal structure of tasks and events from video or other sensor data, particularly in the case of scenarios with concurrent activities, and over extended periods of time. Our representations exploit qualitative spatio-temporal relations, combined with probabilistic representations to produce high level, symbolic, abstractions of the world the robot inhabits -- an essential prerequisite for robust social interactions. In this talk I will present some of the techniques we have developed to address this challenge.

Biography

Tony Cohn holds a Personal Chair at the University of Leeds, where he is Professor of Automated Reasoning. He is presently Director of the Institute for Artificial Intelligence and Biological Systems. His work on Knowledge Representation and Reasoning has a particular focus on qualitative spatial/spatio-temporal reasoning, the best known being the well cited Region Connection Calculus (RCC). His current research interests range from theoretical work on spatial calculi and spatial ontologies, to cognitive vision, modelling spatial information in the hippocampus, and detecting buried underground assets (e.g. utilities and archaeological residues) using a variety of geo-located sensors. He has been Chairman/President of SSAISB, ECCAI, KR inc, the IJCAI Board of Trustees and is presently Editor-in-Chief of the Spatial Cognition and Computation, and Artificial Intelligence journals. He was elected a founding Fellow of ECCAI, and is also a Fellow of AAAI, AISB, the BCS, and the IET. Work from the Cogvis project won the British Computer Society Machine Intelligence prize in 2004, and the VAULT system from his Mapping the Underworld project won a 2012 IET Innovation Award.