

KOLLOQUIUM

Informatik-Sonderkolloquium

Using Combinatory Categorical Grammars for Probabilistic Plan Recognition

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Abstract: Building intelligent systems that are capable of recognizing the actions of their human users in terms of high level plans and goals continues to gain importance as automated systems play a larger role in our everyday lives. As such, plan recognition has growing applications in robotics, user interfaces, computer network security, and assistive systems for the elderly and many other areas. However, previous work on plan recognition has often been inefficient preventing its application to these domains.

Much early work in plan recognition made early commitments to hypothesized goals and plans. This can result in maintaining a large number of hypotheses that will later be found to be impossible. Prior work has also often failed to leverage the fact that some actions are significantly more informative of their parent plans than others. In this talk I will argue for a new probabilistic algorithm for plan recognition that represents the plans to be recognized with a grammatical formalism taken from natural language processing called Combinatory Categorical Grammar (CCG). I will show that representing plans with CCG will allow us to address these limitations of prior work and result in significant computational gains.

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Montag, 22.11.2010, 17:30 Uhr

Informatik-Hauptgebäude (50.34), HS -102 (UG), Am Fasanengarten 5, 76131 Karlsruhe