**Abstract:**

Endowing an automated agent with the ability to “plan” -- i.e., convert its high-level goals into an executable course of action -- has been a long-standing quest in Artificial Intelligence. For much of the history of automated planning, the dominant research theme has been efficient synthesis of plans under increasingly expressive system dynamics (classical, temporal, stochastic etc.). An implicit assumption underlying this research has been the need for complete specification.

In contrast, real-world planners are often faced with incompleteness in domain models and/or goal/preference specifications. Such incompleteness can arise from fallible domain writers, uncertain users or open world scenarios faced by robotic agents. It poses new challenges to plan synthesis, plan execution and model learning.

In this talk I will motivate the need for handling incomplete specifications in planning, and describe the challenges foregrounded by such “model-lite” planning. I will start with the need for novel solution concepts for planning. I will present diverse plans and robust plans as the appropriate solution concepts for partially specified goals/preferences, and partially specified domain models respectively. I will then outline our progress towards efficient planners to support these solution concepts. I will also present open world quantified goals as a way of handling goal and model incompleteness together, and discuss how they are used in a planner that controls a robotic agent in a disaster rescue scenario.

**Biography:**

Subbarao Kambhampati is a professor of computer science and engineering at Arizona State University, where he directs the Yochan research group. His research and teaching interests are broadly split between automated planning and intelligent information integration. Kambhampati is the recipient of an NSF Research Initiation Award (1992), an NSF Young Investigator Award (1994), a College of Engineering Teaching Excellence Award (2002), and is an elected Fellow of AAAI (2004). He served on the executive councils and co-chaired the flagship conferences for both ICAPS and AAAI. His website is rakaposhi.eas.asu.edu.

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