

Maryland Metacognition Seminar



Reflection in Action:

Towards a CAD environment for designing game-playing agents

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Abstract:

In this talk, I will describe my laboratory's work on meta-reasoning for self-adaptation in intelligent agents. In the first half, I will briefly trace the trajectory of our work on meta-reasoning from viewing intelligent agents as complex systems, to using functionally organized agent models for retrospective failure-driven self-adaptation in planning agents, to using task-directed agent models for proactive goal-driven self-adaptation in planning agents, to using meta-reasoning to localize and guide situated learning in game-playing agents, to using situated meta-reasoning for correcting domain knowledge in game-playing agents. In the second half of the talk, I will describe our latest work on meta-reasoning for self-adaptation in game-playing agents. In particular, I will present an interactive CAD environment called GAIA for designing, diagnosing, repairing, and evaluating game-playing agents for turn-based strategy games such as Freeciv. GAIA illustrates not only the use of meta-reasoning for enhancing goal-directed autonomy in intelligent agents, but also its potential use for supporting collaborative human-computer creativity.