

Behavior Trees with Stateful Tasks

The behavior tree formalism as introduced recently to the application of mission management of unmanned aerial vehicles does provide for internal memory of mission plans. This is an important drawback for even simple plans such as waypoint sequences, because the information about visited waypoints must be stored outside of the plan execution engine. In this paper, two approaches are presented in order to provide tasks with states inside behavior trees: The first allows to embed regular state machines in a specialized behavior tree task. The second provides new memory and reset tasks in order to store information directly in the tree. Both approaches are shown to solve the waypoint following plan and promise to be applicable to a much broader range of mission management problems.