

Trained Query Nodes: Training the Behavior Trees^{*}

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Abstract. Trained Query Node is an extension of Behavior Trees that allow training some parts of Behavior Tree by demonstration using different techniques to make the behavior model. This node works in two modes: training and execution. When the node works in training mode, it records the actions carried out by the trainer (for example the game designer). In the execution mode, the system tries to imitate the behavior trained, using some methods of machine learning. In this video, we show the use of CBR to model the behavior of the robot named Towot. This robot is Jacob's (controlled by the player) faithful companion in the tower defense game of the same name. This example shows how to apply our system to a complex game, allowing the designer to create behavior, even if it does not know how to program at all. The designer can update the case base, correcting the wrong actions in the execution mode and adding new examples. In the video, we used k-NN with k=10 and the weighted Euclidean distance as a similarity measure. To clean the case base, the system use a utility metric in each case that identify the infrequently used cases, which will be candidates to be eliminated.

Keywords: Behavior Trees, Case-based Reasoning, Entertainment, Artificial Intelligence, Video Games

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