

Title: Using yaPOSH for CTF team behaviour

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Abstract: We evaluated the suitability of yaPOSH (an action-selection system for virtual agents) for complex team behaviour development, specifically for the Capture the Flag (CTF) mode in Unreal Tournament 2004. We created a CTF team using yaPOSH and Java and compared them with a CTF team written by V. Tuma in plain Java as well as with the native UT2004 bots.

We found out that although yaPOSH does have some advantages over plain Java (mainly in code readability), one cannot create a competitive bot using yaPOSH only. That is a direct consequence of the limitations the yaPOSH planner has, with the most significant one being lack of parallelism support. Thus, some aspects of the behaviour (such as combat) were programmed in Java. Nevertheless, the resulting team is better than the native bots by a margin and slightly better than Tuma's CTF team.

As a result, we have made several suggestions for improvements of the yaPOSH engine as well as its editor, such as to add the possibility to execute multiple yaPOSH plans at once, or to enable their parallel evaluation. These suggestions and our other findings are not limited to the chosen domain of UT2004's CTF mode and instead are relevant to specification of any other complex team behaviour.

Keywords: Artificial Intelligence, yaPOSH, Pogamut, Unreal Tournament 2004, Capture the Flag