

# Fast Heuristic Search for RTS Game Combat Scenarios

David Churchill, Abdallah Saffidine, Michael Buro

## Abstract

### *Úvod do problematiky + co je těžké:*

Heuristic search has been very successful in abstract game domains such as Chess and Go. In video games, however, adoption has been slow due to the fact that state and move spaces are much larger, real-time constraints are harsher, and constraints on computational resources are tighter.

### *Co autor udělal:*

In this paper we present a fast search method—Alpha-Beta search for durative moves — that can defeat commonly used AI scripts in RTS game combat scenarios of up to 8 vs. 8 units running on a single core in under 5ms per search episode.

### *Jak zlepšení autor dosáhnul:*

This performance is achieved by using standard search enhancements such as transposition tables and iterative deepening, and novel usage of combat AI scripts for sorting moves and state evaluation via playouts.

### *Výsledky + možné rozšíření / aplikace:*

We also present evidence that commonly used combat scripts are highly exploitable — opening the door for a promising line of research on opponent combat modelling.