Tender for Tactical Pathfinding in multi agent based systems

Inge Becht
6093906

April 16, 2013

Project: Tactical Pathfinding in multi-agent based systems
Supervisors: Sander Bakkes

I would like to write my thesis on this project as I am quite interested in developing game AI, and would like to find out more about how to make them more adaptive. Next year I will be enrolling in a master that is all about game technology, and it would be nice to now gain some expertise in the field of Game AI.

To make tactical path planning, I would like to do so by taking the possible location of enemies into account, so that paths are planned with this information in mind. This will result in not running into an early death and possibly avoiding conflict all together when the situation of fighting is not desirable. In case the precise position of opponent players is only partially known at all times, a particle cloud could be used for tracking the highest probability of a position given an opponent at all times. The shape of the particle cloud could be determined by previous played games, trying to find patterns in previously collected data and the way this played out. The most likely positions are also determined by the games objective and current state.

To test if the tactical path planning algorithm is a success, it should be tested by integrating it into a well balanced AI and make multiple test rounds against other AIs. In case the amount of rounds won will increase, the tactical path planning could be seen as a good addition to simple game AI, as long as it is not too computational heavy.

I think I would e a good candidate for this project, as I already have read quite a bit about adaptive game AI systems, and have some good sources and ideas on how to tackle this particular problem. Although multi-agent systems is not something that has shown up in the bachelor, I did following a course in localisation that could come in handy, and most important it is something I would like to spend my time on doing for the bachelor thesis.