**Blog 8**

After the initial delight over the Rule based expert systems, created in 70’s to manipulate the knowledge used to interpret the information, the several critical problems were identified. Not only were they incapable of dealing with problems not explicitly covered with by the utilized rule base, but also did not have any learning facility, what required programmer’s intervention in case of expanding the program. Thankfully, in the past decade most of those problems has been finally solved by newly introduced alternative computational problem-solving algorithm – Case Based Reasoning. Contrary to RBES, CBR deals with new tasks by adapting previously successful solutions to similar problems and has the ability to learn by acquiring the expert knowledge as cases, which are then used in automated reasoning process.

Incorporating Case Based Reasoning in a game begins with letting an expert to play specified game in the same conditions as AI. The system monitors the moves and annotates each of the actions in term’s of participant’s strategy. Next, each of these cases is being stored in the database, so that it could be used at runtime at a later stage. At the end of the process, the system utilizes a nearest-neighbour algorithm and retrieves the best case for each situation.

Case Based Reasoning has been applied for some of the strategic aspects of Real Time Strategy gameplays, e.g. build orders in Wargus (reimplementation of Warcraft II). Despite many advantages, CBR has also gained a bunch of critics claiming that this approach treats the anecdotal evidence (relying heavily on personal testimony) as its main operating principle, and hence there is no guarantee the generalization, without any statistically relevant data, is correct.