

demands found during research and concluded that indeed, planning meets them. The demands of modern video games are: 1) it... must work... with the limited resources provided 2) it must be extensible (for future projects), 3) it must be flexible (to provide additional functionality) and, finally 4) it must provide both autonomy and the means to control this autonomy whenever necessary. The planning system was built separately and StarPlanner extends it into a working StarCraft bot. Flexibility is possible by the very nature of planning. Adding more functionality is as simple as adding more actions. Controlling the bot's behavior is done from a graphical user interface by enabling or disabling goals or actions. Finally, the user can also run the planner without StarCraft to generate a plan (for testing purposes). Thus, all functionalities of StarPlanner demonstrate that indeed, planning meets the demands of modern video games.

For my final year project I created a bot that plays StarCraft: Brood War named StarPlanner. The aim was to demonstrate that planning meets the demands of modern video games. To do so, I researched the area of Automated Planning and Game Artificial Intelligence to learn how to build a planning system and find out what are the demands of modern video games. Using this information I developed a planning system and integrated it to StarCraft as a player. For those of you who don't know, planning is an artificial intelligence technique that, given a set of actions and a goal, a plan is generated. A plan is a sequence of actions that, when followed, reaches the goal from the current state. The bot uses planning in two levels: the strategic and the construction level. For example, a strategic goal could be to build a second base. The plan generated could include a step that requires the construction of some units. This is fed to the construction planner as a goal in order to generate another plan that will construct the units needed. All steps generated by the planners are then executed by lower-level managers.

Next, I evaluated the bot according to the