

Team Assistant 2003

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Abstract. Team Assistant (TA) 2003 is a multi function tool for the soccer simulation league. TA is developed with emphasis on general requirements for design, development and analysis of a simulation team. It is next generation of TA, which received the award for “Best Game Presentation and Analysis Tool” at RoboCup 2002.

As a *logplayer* TA is able to show the players' views/attributes and graphically trace them. It also includes a *graphical debugger* which allows graphical representation of statements stored in a Player log. The generic grammar which is proposed for the construction of this log consists of statements for declaring: a world model, intended player behaviors, performed skills, etc. TA also has an *analysis* component which is able to recognize Ball Possession, Passing, Losing the ball, Dribbles, Shots, etc. and graphically display them on the field. The analyzer is able to generate reports, which can be used to evaluate each player's performance based on the above events.

TA 2003 is able to process the skills stored in the rcl file by the server. This information can be displayed synchronously while the server log is being played. Charts representing these skills are also provided.

The 3D monitor of TA2003 has been fully rewritten using the Quake II engine. The new monitor is able to show instant replays and can also save highlights of the game to be displayed at half time ends. A voice commentary system has been added which reports the game events and gives some statistics when the game is idle.

TA 2003 is also capable to model and analyze the teamwork in behavior level. TA 2003 has the capability to detect and analyze frequent sequence of behaviors of players in a team and compare them to the opponent. TA 2003 provides a platform to map similar frequent sequence of behavior to each other and to detect most similar ones by noise reduction techniques. This module also provides analytical factors to study and analyze the teamwork among the players in a team. In addition TA 2003 is capable to construct a Markov Model and/or Hidden Markov Model of sequence of behaviors. This model could apply either to a single player during a game or to the whole team (in one game or a series of games) to model the teamwork and to detect hidden structure in team strategies. The result of such module is useful to compare different players or teams to each other and to detect major changes in team behavior.